



Seat No.	
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
APPLIED MATHEMATICS – I**

Day and Date : Tuesday, 13-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- N.B.** : 1) Attempt **any three** questions from **each** Section.
 2) Figures to the **right** indicate **full** marks.
 3) **Use** of calculator is **allowed**.
 4) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 5) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct option :

(14×1=14)

1) The general solution of the diff. equation $\frac{d^2y}{dx^2} + \frac{dy}{dx} + y = 0$ is

a) $c_1 e^{-x} + c_2 e^x$

b) $(c_1 + c_2 x)e^x$

c) $e^{-\frac{x}{2}} \left[c_1 \cos \frac{\sqrt{3}}{2} x + c_2 \sin \frac{\sqrt{3}}{2} x \right]$

d) $e^{x/2} \left[c_1 \cos \frac{\sqrt{3}}{2} x + c_2 \sin \frac{\sqrt{3}}{2} x \right]$

2) The particular integral of $(D^2 - 2D + 1)y = -4e^x$ is

a) $-2x^2 e^x$

b) $-4x^2 e^x$

c) $(c_1 + c_2 x)e^x$

d) e^x

3) $L^{-1} \left\{ \frac{1}{s^2 + 4s + 13} \right\} =$

a) $e^{-2t} \cos 3t$

b) $\frac{1}{3} e^{2t} \sin 3t$

c) $\frac{1}{3} e^{-2t} \sin 3t$

d) $e^{-2t} \sin 3t$

4) $L \left\{ \int_0^t \sin 2u du \right\} =$

a) $\frac{2}{s^2 + 4}$

b) $\frac{2}{s(s^2 + 4)}$

c) $\frac{1}{s(s^2 + 4)}$

d) $\frac{2s}{(s^2 + 4)^2}$



5) The Fourier expansion in $[-\pi, \pi]$ of the function

$$f(x) = -x^2, \quad -\pi < x \leq 0 \\ x^2, \quad 0 \leq x \leq \pi \quad \text{has}$$

- a) No sine term
b) No cosine term
c) Both sine and cosine term
d) None of these

6) The half-range sine series for $F(x)$ defined in the interval $(0, 2)$ is

- a) $F(x) = \sum_{n=1}^{\infty} b_n \sin nx$
b) $F(x) = \sum_{n=1}^{\infty} b_n \sin(2n\pi x)$
c) $F(x) = \sum_{n=1}^{\infty} b_n \sin\left(\frac{n\pi x}{2}\right)$
d) $F(x) = \sum_{n=1}^{\infty} a_n \cos\left(\frac{n\pi x}{2}\right)$

7) If $Z\{f(k)\} = F(z)$, then $Z\{kf(k)\} =$

- a) $\frac{dF(z)}{dz}$
b) $-\frac{dF(z)}{dz}$
c) $z \frac{dF(z)}{dz}$
d) $-z \frac{dF(z)}{dz}$

8) The velocity of a particle moving along the curve $x = 2\sin 3t$, $y = 2\cos 3t$, $z = 8t$ at any time 't' is

- a) 2
b) 4
c) 8
d) 10

9) If $\phi(x, y, z) = c$ represents a surface, then the unit normal vector to this surface is

- a) $\frac{\text{grad.}\phi}{|\text{grad.}\phi|}$
b) $\text{grad.}\phi$
c) $\text{div}(\text{grad.}\phi)$
d) $\text{curl}(\text{grad.}\phi)$

10) The equations of the lines of regression are $x + 2y = 5$, and $2x + 3y = 8$ then \bar{x} and \bar{y} are

- a) 1 and 3
b) 2 and 3
c) 2 and 5
d) 1 and 2

11) If the mean of $x = 90$, the mean of $y = 50$, the coefficient of regression of x on y is 0.9, then the equation of the lines of regression of x on y is

- a) $y = 0.9x + 0.45$
b) $x = 0.9y + 0.45$
c) $y = 0.8x + 0.65$
d) $x = 0.8y + 0.65$

12) The mean and standard deviation of a standard normal variate is

- a) 1 and 0
b) 0 and 1
c) 1 and 1
d) -1 and 1

13) The number of car accidents in a city in a year is Poisson distribution with mean 2. The probability that there will be no accident in a year is

- a) 0.03
b) 0.04
c) 0.05
d) 0.06

14) The fraction of time the system is busy is

- a) $\frac{\lambda}{\mu}$
b) $\frac{\mu}{\lambda}$
c) $\frac{\lambda}{\mu^2}$
d) $\frac{\mu}{\lambda^2}$



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SECTION – I

2. a) Solve : $(D^2 - 13D + 12) y = e^{-2x} + 5e^x$. **3**
 b) Solve : $(D^2 + 2D + 10) y = -37\sin 3x$. **3**
 c) Solve : $(D^3 - 3D - 2)y = 540x^3e^{-x}$. **4**

OR

- c) Solve : $(D^2 + 4)y = x^2\cos 2x$.
 3. Solve the following **any three** : **9**

- a) Find $L \{te^{-2t} \cos 3t\}$.
 b) Find $L^{-1} \left\{ \frac{s^2 + s - 2}{s(s + 3)(s - 2)} \right\}$.
 c) Find $L^{-1} \left\{ \frac{1}{s^2(s^2 + 1)} \right\}$, by convolution theorem.
 d) Evaluate $\int_0^{\infty} \frac{e^{-t} - e^{-3t}}{t} dt$ by using Laplace transform.

4. a) Find $Z \left\{ \frac{k}{3} \right\}$ for all k. **3**
 b) Find $Z^{-1} \left\{ \frac{1}{(z - 3)(z - 2)} \right\}$, $|z| > 3$. **3**
 c) Find $Z \{ \cos \alpha k \}$, $k \geq 0$. **3**



5. a) Find the Fourier series of

$$F(x) = 2, \quad -2 < x < 0$$

$$= x, \quad 0 < x < 2 \quad .$$

5

- b) Find the half-range cosine series of $f(x) = x(\pi - x)$ in the interval $(0, \pi)$.

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SECTION – II

6. Attempt the following :

- a) Find the directional derivative of $\phi = x^2 + y^2 + z^2$ in the direction of the line

$$\frac{x}{3} = \frac{y}{4} = \frac{z}{5} \text{ at } (1, 2, 3).$$

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- b) A vector field is given by $\bar{f} = (x^2 + xy^2) i + (y^2 + x^2y) j + (0) k$. Show that \bar{f} is irrotational and find its scalar potential ϕ .

3

- c) Prove that $\nabla^2 \left(\frac{1}{r} \right) = 0$.

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7. Attempt the following :

- a) In a sample of 1000 students the mean and standard deviation of marks obtained by the students in a certain test are 14 and 2.5. Assuming the distribution to be normal. Find the number of students getting marks i) Between 12 and 15 ii) Above 18 iii) Below 8 (Given : For S.N.V.Z. area between $z = 0$ to $z = 0.4$ is 0.1554, that between $z = 0$ and $z = 0.8$ is 0.2881 that from $z = 0$ and $z = 1.6$ is 0.4452).

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- b) From a box containing 100 transistors 20 of which are defective. 10 are selected at random. Find the probability that i) all will be defective ii) all are non-defective iii) atleast one is defective.

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- c) Calculate the coefficient of correlation between export of raw material and import of finished goods from the following data :

Export of raw material

in crores of Rs. : 42 44 58 55 89 98 66

Import of finished

goods in crores of Rs. : 56 59 53 58 65 78 58

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8. Attempt the following :

a) Fit a second degree curve to the following data :

x : 1 2 3 4 5 6 7 8 9

y : 2 6 7 8 10 11 11 10 9

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b) From the following data find the coefficient of regression of x on y and estimate x when y = 105.

x : 44 58 49 46 58 56 48 46 48 47

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c) During war one ship out of nine sunk on an average in making a certain voyage. What is the probability that exactly 3 out of 6 ships would arrive safely.

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9. Attempt the following :

a) In an infinite capacity queuing system with Poisson process, three servers

$\frac{\lambda}{\mu} = 2.5$ and $P_0 = \frac{1}{22.5}$. Find the average number of customers in the queue and in the system.

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b) There are three computers in a shop and three operators. Each operator on an average can send 10 messages per hour by E-mail. If messages arrive for being E-mailed at the rate of 25 per hour

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i) What is the probability that all the computers are busy ?

ii) What is the average number of messages waiting to be sent ?

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a) 2 b) 4 c) 8 d) 10
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3

7. Attempt the following :

a) In a sample of 1000 students the mean and standard deviation of marks obtained by the students in a certain test are 14 and 2.5. Assuming the distribution to be normal. Find the number of students getting marks i) Between 12 and 15 ii) Above 18 iii) Below 8 (Given : For S.N.V.Z. area between $z = 0$ to $z = 0.4$ is 0.1554, that between $z = 0$ and $z = 0.8$ is 0.2881 that from $z = 0$ and $z = 1.6$ is 0.4452).

4

b) From a box containing 100 transistors 20 of which are defective. 10 are selected at random. Find the probability that i) all will be defective ii) all are non-defective iii) atleast one is defective.

3

c) Calculate the coefficient of correlation between export of raw material and import of finished goods from the following data :

Export of raw material

in crores of Rs. : 42 44 58 55 89 98 66

Import of finished

goods in crores of Rs. : 56 59 53 58 65 78 58

3

Set R



8. Attempt the following :

a) Fit a second degree curve to the following data :

x : 1 2 3 4 5 6 7 8 9

y : 2 6 7 8 10 11 11 10 9

3

b) From the following data find the coefficient of regression of x on y and estimate x when y = 105.

x : 44 58 49 46 58 56 48 46 48 47

y : 88 114 102 113 91 89 102 93 114 94

3

c) During war one ship out of nine sunk on an average in making a certain voyage. What is the probability that exactly 3 out of 6 ships would arrive safely.

3

9. Attempt the following :

a) In an infinite capacity queuing system with Poisson process, three servers

$\frac{\lambda}{\mu} = 2.5$ and $P_0 = \frac{1}{22.5}$. Find the average number of customers in the queue and in the system.

4

b) There are three computers in a shop and three operators. Each operator on an average can send 10 messages per hour by E-mail. If messages arrive for being E-mailed at the rate of 25 per hour

5

i) What is the probability that all the computers are busy ?

ii) What is the average number of messages waiting to be sent ?

iii) What is the average time a customer has to wait for waiting and for E-mailing his message ?



Seat No.	
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
APPLIED MATHEMATICS – I**

Day and Date : Tuesday, 13-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- N.B.** : 1) Attempt **any three** questions from **each** Section.
 2) Figures to the **right** indicate **full** marks.
 3) **Use of calculator is allowed.**
 4) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 5) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct option :

(14×1=14)

- 1) The equations of the lines of regression are $x + 2y = 5$, and $2x + 3y = 8$ then \bar{x} and \bar{y} are

a) 1 and 3	b) 2 and 3	c) 2 and 5	d) 1 and 2
------------	------------	------------	------------
- 2) If the mean of $x = 90$, the mean of $y = 50$, the coefficient of regression of x on y is 0.9, then the equation of the lines of regression of x on y is

a) $y = 0.9x + 0.45$	b) $x = 0.9y + 0.45$
c) $y = 0.8x + 0.65$	d) $x = 0.8y + 0.65$
- 3) The mean and standard deviation of a standard normal variate is

a) 1 and 0	b) 0 and 1	c) 1 and 1	d) -1 and 1
------------	------------	------------	-------------
- 4) The number of car accidents in a city in a year is Poisson distribution with mean 2. The probability that there will be no accident in a year is

a) 0.03	b) 0.04	c) 0.05	d) 0.06
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- 5) The fraction of time the system is busy is

a) $\frac{\lambda}{\mu}$	b) $\frac{\mu}{\lambda}$	c) $\frac{\lambda}{\mu^2}$	d) $\frac{\mu}{\lambda^2}$
--------------------------	--------------------------	----------------------------	----------------------------
- 6) The general solution of the diff. equation $\frac{d^2y}{dx^2} + \frac{dy}{dx} + y = 0$ is

a) $c_1 e^{-x} + c_2 e^x$	b) $(c_1 + c_2 x)e^x$
c) $e^{-\frac{x}{2}} \left[c_1 \cos \frac{\sqrt{3}}{2} x + c_2 \sin \frac{\sqrt{3}}{2} x \right]$	d) $e^{\frac{x}{2}} \left[c_1 \cos \frac{\sqrt{3}}{2} x + c_2 \sin \frac{\sqrt{3}}{2} x \right]$



7) The particular integral of $(D^2 - 2D + 1)y = -4e^x$ is

- a) $-2x^2e^x$ b) $-4x^2e^x$ c) $(c_1 + c_2x)e^x$ d) e^x

8) $L^{-1} \left\{ \frac{1}{s^2 + 4s + 13} \right\} =$

- a) $e^{-2t} \cos 3t$ b) $\frac{1}{3} e^{2t} \sin 3t$ c) $\frac{1}{3} e^{-2t} \sin 3t$ d) $e^{-2t} \sin 3t$

9) $L \left\{ \int_0^t \sin 2u du \right\} =$

- a) $\frac{2}{s^2 + 4}$ b) $\frac{2}{s(s^2 + 4)}$ c) $\frac{1}{s(s^2 + 4)}$ d) $\frac{2s}{(s^2 + 4)^2}$

10) The Fourier expansion in $[-\pi, \pi]$ of the function

$$f(x) = -x^2, -\pi < x \leq 0$$

$$x^2, 0 \leq x \leq \pi \quad \text{has}$$

- a) No sine term b) No cosine term
c) Both sine and cosine term d) None of these

11) The half-range sine series for $F(x)$ defined in the interval $(0, 2)$ is

- a) $F(x) = \sum_{n=1}^{\infty} b_n \sin nx$ b) $F(x) = \sum_{n=1}^{\infty} b_n \sin(2n\pi x)$
c) $F(x) = \sum_{n=1}^{\infty} b_n \sin\left(\frac{n\pi x}{2}\right)$ d) $F(x) = \sum_{n=1}^{\infty} a_n \cos\left(\frac{n\pi x}{2}\right)$

12) If $Z\{f(k)\} = F(z)$, then $Z\{Kf(k)\} =$

- a) $\frac{dF(z)}{dz}$ b) $-\frac{dF(z)}{dz}$ c) $Z \frac{dF(z)}{dz}$ d) $-Z \frac{dF(z)}{dz}$

13) The velocity of a particle moving along the curve $x = 2\sin 3t$, $y = 2\cos 3t$, $z = 8t$ at any time 't' is

- a) 2 b) 4 c) 8 d) 10

14) If $\phi(x, y, z) = c$ represents a surface, then the unit normal vector to this surface is

- a) $\frac{\text{grad.}\phi}{|\text{grad.}\phi|}$ b) $\text{grad.}\phi$ c) $\text{div}(\text{grad.}\phi)$ d) $\text{curl}(\text{grad.}\phi)$



Seat No.	
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
APPLIED MATHEMATICS – I**

Day and Date : Tuesday, 13-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

- N.B.** : 1) Attempt **any three** questions from **each** Section.
2) Figures to the **right** indicate **full** marks.
3) **Use of calculator is allowed.**

SECTION – I

2. a) Solve : $(D^2 - 13D + 12) y = e^{-2x} + 5e^x$. **3**
 b) Solve : $(D^2 + 2D + 10) y = -37\sin 3x$. **3**
 c) Solve : $(D^3 - 3D - 2)y = 540x^3e^{-x}$. **4**

OR

- c) Solve : $(D^2 + 4)y = x^2\cos 2x$.
 3. Solve the following **any three** : **9**

- a) Find $L \{te^{-2t} \cos 3t\}$.
 b) Find $L^{-1} \left\{ \frac{s^2 + s - 2}{s(s + 3)(s - 2)} \right\}$.
 c) Find $L^{-1} \left\{ \frac{1}{s^2(s^2 + 1)} \right\}$, by convolution theorem.
 d) Evaluate $\int_0^{\infty} \frac{e^{-t} - e^{-3t}}{t} dt$ by using Laplace transform.

4. a) Find $Z \left\{ \frac{k}{3} \right\}$ for all k. **3**

- b) Find $Z^{-1} \left\{ \frac{1}{(z - 3)(z - 2)} \right\}$, $|z| > 3$. **3**

- c) Find $Z \{ \cos \alpha k \}$, $k \geq 0$. **3**

Set S



5. a) Find the Fourier series of

$$F(x) = 2, \quad -2 < x < 0$$

$$= x, \quad 0 < x < 2 \quad .$$

5

b) Find the half-range cosine series of $f(x) = x(\pi - x)$ in the interval $(0, \pi)$.

4

SECTION – II

6. Attempt the following :

a) Find the directional derivative of $\phi = x^2 + y^2 + z^2$ in the direction of the line

$$\frac{x}{3} = \frac{y}{4} = \frac{z}{5} \text{ at } (1, 2, 3).$$

3

b) A vector field is given by $\bar{f} = (x^2 + xy^2) \mathbf{i} + (y^2 + x^2y) \mathbf{j} + (0) \mathbf{k}$. Show that \bar{f} is irrotational and find its scalar potential ϕ .

3

c) Prove that $\nabla^2 \left(\frac{1}{r} \right) = 0$.

3

7. Attempt the following :

a) In a sample of 1000 students the mean and standard deviation of marks obtained by the students in a certain test are 14 and 2.5. Assuming the distribution to be normal. Find the number of students getting marks i) Between 12 and 15 ii) Above 18 iii) Below 8 (Given : For S.N.V.Z. area between $z = 0$ to $z = 0.4$ is 0.1554, that between $z = 0$ and $z = 0.8$ is 0.2881 that from $z = 0$ and $z = 1.6$ is 0.4452).

4

b) From a box containing 100 transistors 20 of which are defective. 10 are selected at random. Find the probability that i) all will be defective ii) all are non-defective iii) atleast one is defective.

3

c) Calculate the coefficient of correlation between export of raw material and import of finished goods from the following data :

Export of raw material

in crores of Rs. : 42 44 58 55 89 98 66

Import of finished

goods in crores of Rs. : 56 59 53 58 65 78 58

3



8. Attempt the following :

a) Fit a second degree curve to the following data :

x : 1 2 3 4 5 6 7 8 9

y : 2 6 7 8 10 11 11 10 9

3

b) From the following data find the coefficient of regression of x on y and estimate x when y = 105.

x : 44 58 49 46 58 56 48 46 48 47

y : 88 114 102 113 91 89 102 93 114 94

3

c) During war one ship out of nine sunk on an average in making a certain voyage. What is the probability that exactly 3 out of 6 ships would arrive safely.

3

9. Attempt the following :

a) In an infinite capacity queuing system with Poisson process, three servers

$\frac{\lambda}{\mu} = 2.5$ and $P_0 = \frac{1}{22.5}$. Find the average number of customers in the queue and in the system.

4

b) There are three computers in a shop and three operators. Each operator on an average can send 10 messages per hour by E-mail. If messages arrive for being E-mailed at the rate of 25 per hour

5

i) What is the probability that all the computers are busy ?

ii) What is the average number of messages waiting to be sent ?

iii) What is the average time a customer has to wait for waiting and for E-mailing his message ?



Seat No.	
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Set	P
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**S.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 70

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) Figures to the **right** indicate **full** marks.
 - 3) **Assume** suitable data if **necessary**.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **14**
- 1) Set A contains 4 elements. How many elements will be there in power set of A ?
a) 4 b) 16 c) 15 d) 24
 - 2) The proposition $P \wedge (\neg P \vee Q)$ is
a) Tautology b) Contradiction
c) Equivalent to $(P \wedge Q)$ d) None of these
 - 3) Hasse diagrams are drawn for
a) POSET b) Lattices
c) Boolean algebra d) None of these
 - 4) Which of the following sets are null sets ?
a) $\{0\}$ b) $\{\Phi\}$ c) $\{\}$ d) Φ
 - 5) If A and B are sets, and $A \cup B = A \cap B$, then
a) $A = \Phi$ b) $B = \Phi$ c) $A = B$ d) None of these
 - 6) Which one of the following is partition of the set $S = \{1, 2, 3, 4, 5, 6\}$?
a) $\{\{1, 3, 5\}, \{2, 4\}, \{3, 6\}\}$ b) $\{\{1, 5\}, \{2\}, \{4\}, \{1, 5\}, \{3, 6\}\}$
c) $\{\{1, 5\}, \{2\}, \{3, 6\}\}$ d) $\{1, 2, 3, 4, 5, 6\}$



- 7) The relation R defined on a set N by
 $R = \{ \langle a, b \rangle \mid |a-b| \text{ is divisible by } 5 \}$ is
- a) Reflexive
 - b) Symmetric
 - c) Transitive
 - d) Equivalence
- 8) The function $f : N \rightarrow N$ defined by $f(n) = 2n + 3$ is (N is set of natural numbers)
- a) Surjective
 - b) Not Surjective
 - c) Injective
 - d) None of these
- 9) In the group $G = \{2, 4, 6, 8\}$ under multiplication mod 10 the identity element is
- a) 6
 - b) 8
 - c) 4
 - d) 2
- 10) Absorption law is defined as
- a) $a^*(a*b) = b$
 - b) $a^*(a \oplus b) = b$
 - c) $a^*(a*b) = a$
 - d) $a^*(a \oplus b) = a$
- 11) The group has 07 elements. The number of proper sub-groups it can have is
- a) 7
 - b) 6
 - c) 0
 - d) 5
- 12) Which of the following statement is false ?
- a) Set of rational numbers is abelian group under addition.
 - b) Set of integers is abelian group under addition.
 - c) Set of rational numbers is abelian group under multiplication.
 - d) None of these
- 13) Complemented, distributive lattice is called
- a) Boolean algebra
 - b) Completed lattice
 - c) Algebraic system
 - d) Modular lattice
- 14) Let $D_{30} = \{1, 2, 3, 4, 5, 6, 10, 15, 30\}$ and let the relation be partial ordering on D_{30} . The all lower bounds of 10 and 15 are
- a) 1, 3
 - b) 1, 5
 - c) 1, 3, 5
 - d) None of these
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

- Instructions :** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Solve **any three** : **(3×4=12)**
- a) What are connectives ? Define all connectives with their truth table.
 - b) What is POSET ? Give the procedure to draw Hasse diagram. Give example.
 - c) Write a note on covering and partition of a set.
 - d) Give the relation R on the set of positive integers as
 $R = \{ \langle x, y \rangle \mid (x - y) \text{ is divisible by } m \}$. Show that R is equivalent relation.
 - e) Write a note on Tautological implication with example.
3. Attempt **any one** : **8**
- a) How to convert the infix notation into prefix form ? Convert the following into infix and prefix form :
 $((P \rightarrow (Q \rightarrow R)) \rightarrow ((P \rightarrow Q) \rightarrow (P \rightarrow R)))$
 - b) Obtain PCNF and PDNF of the following statement formula without constructing truth table :
 - i) $P \vee (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
 - ii) $(Q \rightarrow P) \wedge (\neg P \wedge Q)$.
4. Let $X = \{1, 2, 3, 4\}$ and $R = \{ \langle x, y \rangle \mid x > y \}$. Draw the graph of R and also give its matrix. **8**



SECTION – II

5. Solve **any three** : **12**
- a) What is monoid ? Define the following with respect to monoids.
 - i) Homomorphism
 - ii) Isomorphism
 - iii) Monomorphism.
 - b) Write a note on Inverse function.
 - c) Prove the Kernel of group homomorphism g from a group $\langle G, * \rangle$ to $\langle H, \Delta \rangle$ is a subgroup of $\langle G, * \rangle$.
 - d) Define Semigroup with example and explain semigroup homomorphism.
 - e) Define Lattice as POSET and explain properties with example.
6. Solve **any one** : **8**
- a) Obtain sum of products canonical form of the following Boolean expressions in three variables :
 - i) $X_1 * X_2$
 - ii) $X_1 \oplus (X_2 * X_3')$.
 - b) Define functions. Consider $X = \{a, b, c\}$ $Y = \{0, 1\}$ are sets for the mapping set X to set Y . List all the possible function. Indicate in each whether the function is one-to-one, is onto, or is one-to-one onto.
7. Define Algebraic system. Explain the properties of algebraic system with example. **8**
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Seat No.	
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Set	Q
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**S.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 70

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Assume suitable data if necessary.**
 - 4) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **14**
- 1) The function $f : \mathbb{N} \rightarrow \mathbb{N}$ defined by $f(n) = 2n + 3$ is (\mathbb{N} is set of natural numbers)
 - a) Surjective
 - b) Not Surjective
 - c) Injective
 - d) None of these
 - 2) In the group $G = \{2, 4, 6, 8\}$ under multiplication mod 10 the identity element is
 - a) 6
 - b) 8
 - c) 4
 - d) 2
 - 3) Absorption law is defined as
 - a) $a^*(a*b) = b$
 - b) $a^*(a \oplus b) = b$
 - c) $a^*(a*b) = a$
 - d) $a^*(a \oplus b) = a$
 - 4) The group has 07 elements. The number of proper sub-groups it can have is
 - a) 7
 - b) 6
 - c) 0
 - d) 5
 - 5) Which of the following statement is false ?
 - a) Set of rational numbers is abelian group under addition.
 - b) Set of integers is abelian group under addition.
 - c) Set of rational numbers is abelian group under multiplication.
 - d) None of these
 - 6) Complemented, distributive lattice is called
 - a) Boolean algebra
 - b) Completed lattice
 - c) Algebraic system
 - d) Modular lattice



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

- Instructions :** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Solve **any three** : **(3×4=12)**
- a) What are connectives ? Define all connectives with their truth table.
 - b) What is POSET ? Give the procedure to draw Hasse diagram. Give example.
 - c) Write a note on covering and partition of a set.
 - d) Give the relation R on the set of positive integers as
 $R = \{ \langle x, y \rangle \mid (x - y) \text{ is divisible by } m \}$. Show that R is equivalent relation.
 - e) Write a note on Tautological implication with example.
3. Attempt **any one** : **8**
- a) How to convert the infix notation into prefix form ? Convert the following into infix and prefix form :
 $((P \rightarrow (Q \rightarrow R)) \rightarrow ((P \rightarrow Q) \rightarrow (P \rightarrow R)))$
 - b) Obtain PCNF and PDNF of the following statement formula without constructing truth table :
 - i) $P \vee (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
 - ii) $(Q \rightarrow P) \wedge (\neg P \wedge Q)$.
4. Let $X = \{1, 2, 3, 4\}$ and $R = \{ \langle x, y \rangle \mid x > y \}$. Draw the graph of R and also give its matrix. **8**



SECTION – II

5. Solve **any three** : **12**
- a) What is monoid ? Define the following with respect to monoids.
 - i) Homomorphism
 - ii) Isomorphism
 - iii) Monomorphism.
 - b) Write a note on Inverse function.
 - c) Prove the Kernel of group homomorphism g from a group $\langle G, * \rangle$ to $\langle H, \Delta \rangle$ is a subgroup of $\langle G, * \rangle$.
 - d) Define Semigroup with example and explain semigroup homomorphism.
 - e) Define Lattice as POSET and explain properties with example.
6. Solve **any one** : **8**
- a) Obtain sum of products canonical form of the following Boolean expressions in three variables :
 - i) $X_1 * X_2$
 - ii) $X_1 \oplus (X_2 * X_3')$.
 - b) Define functions. Consider $X = \{a, b, c\}$ $Y = \{0, 1\}$ are sets for the mapping set X to set Y . List all the possible function. Indicate in each whether the function is one-to-one, is onto, or is one-to-one onto.
7. Define Algebraic system. Explain the properties of algebraic system with example. **8**
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Seat No.	
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Set	R
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**S.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 70

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Assume suitable data if necessary.**
 - 4) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

14

- 1) If A and B are sets, and $A \cup B = A \cap B$, then
 - a) $A = \Phi$
 - b) $B = \Phi$
 - c) $A = B$
 - d) None of these
- 2) Which one of the following is partition of the set $S = \{1, 2, 3, 4, 5, 6\}$?
 - a) $\{\{1, 3, 5\}, \{2, 4\}, \{3, 6\}\}$
 - b) $\{\{1, 5\}, \{2\}, \{4\}, \{1, 5\}, \{3, 6\}\}$
 - c) $\{\{1, 5\}, \{2\}, \{3, 6\}\}$
 - d) $\{1, 2, 3, 4, 5, 6\}$
- 3) The relation R defined on a set N by $R = \{ \langle a, b \rangle \mid |a-b| \text{ is divisible by } 5 \}$ is
 - a) Reflexive
 - b) Symmetric
 - c) Transitive
 - d) Equivalence
- 4) The function $f : N \rightarrow N$ defined by $f(n) = 2n + 3$ is (N is set of natural numbers)
 - a) Surjective
 - b) Not Surjective
 - c) Injective
 - d) None of these
- 5) In the group $G = \{2, 4, 6, 8\}$ under multiplication mod 10 the identity element is
 - a) 6
 - b) 8
 - c) 4
 - d) 2
- 6) Absorption law is defined as
 - a) $a^*(a*b) = b$
 - b) $a^*(a \oplus b) = b$
 - c) $a^*(a*b) = a$
 - d) $a^*(a \oplus b) = a$

P.T.O.



- 7) The group has 07 elements. The number of proper sub-groups it can have is
a) 7 b) 6 c) 0 d) 5
- 8) Which of the following statement is false ?
a) Set of rational numbers is abelian group under addition.
b) Set of integers is abelian group under addition.
c) Set of rational numbers is abelian group under multiplication.
d) None of these
- 9) Complemented, distributive lattice is called
a) Boolean algebra b) Completed lattice
c) Algebraic system d) Modular lattice
- 10) Let $D_{30} = \{1, 2, 3, 4, 5, 6, 10, 15, 30\}$ and let the relation be partial ordering on D_{30} . The all lower bounds of 10 and 15 are
a) 1, 3 b) 1, 5
c) 1, 3, 5 d) None of these
- 11) Set A contains 4 elements. How many elements will be there in power set of A ?
a) 4 b) 16 c) 15 d) 24
- 12) The proposition $P \wedge (\neg P \vee Q)$ is
a) Tautology b) Contradiction
c) Equivalent to $(P \wedge Q)$ d) None of these
- 13) Hasse diagrams are drawn for
a) POSET b) Lattices
c) Boolean algebra d) None of these
- 14) Which of the following sets are null sets ?
a) $\{0\}$ b) $\{\Phi\}$ c) $\{\}$ d) Φ
-



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

- Instructions :** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Solve **any three** : **(3×4=12)**
- a) What are connectives ? Define all connectives with their truth table.
 - b) What is POSET ? Give the procedure to draw Hasse diagram. Give example.
 - c) Write a note on covering and partition of a set.
 - d) Give the relation R on the set of positive integers as
 $R = \{ \langle x, y \rangle \mid (x - y) \text{ is divisible by } m \}$. Show that R is equivalent relation.
 - e) Write a note on Tautological implication with example.
3. Attempt **any one** : **8**
- a) How to convert the infix notation into prefix form ? Convert the following into infix and prefix form :
 $((P \rightarrow (Q \rightarrow R)) \rightarrow ((P \rightarrow Q) \rightarrow (P \rightarrow R)))$
 - b) Obtain PCNF and PDNF of the following statement formula without constructing truth table :
 - i) $P \vee (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
 - ii) $(Q \rightarrow P) \wedge (\neg P \wedge Q)$.
4. Let $X = \{1, 2, 3, 4\}$ and $R = \{ \langle x, y \rangle \mid x > y \}$. Draw the graph of R and also give its matrix. **8**



SECTION – II

5. Solve **any three** : **12**
- a) What is monoid ? Define the following with respect to monoids.
 - i) Homomorphism
 - ii) Isomorphism
 - iii) Monomorphism.
 - b) Write a note on Inverse function.
 - c) Prove the Kernel of group homomorphism g from a group $\langle G, * \rangle$ to $\langle H, \Delta \rangle$ is a subgroup of $\langle G, * \rangle$.
 - d) Define Semigroup with example and explain semigroup homomorphism.
 - e) Define Lattice as POSET and explain properties with example.
6. Solve **any one** : **8**
- a) Obtain sum of products canonical form of the following Boolean expressions in three variables :
 - i) $X_1 * X_2$
 - ii) $X_1 \oplus (X_2 * X_3)$.
 - b) Define functions. Consider $X = \{a, b, c\}$ $Y = \{0, 1\}$ are sets for the mapping set X to set Y . List all the possible function. Indicate in each whether the function is one-to-one, is onto, or is one-to-one onto.
7. Define Algebraic system. Explain the properties of algebraic system with example. **8**
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SLR-EP – 162

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**S.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 70

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Assume suitable data if necessary.**
 - 4) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **14**
- 1) Absorption law is defined as
a) $a*(a*b) = b$ b) $a*(a \oplus b) = b$ c) $a*(a*b) = a$ d) $a*(a \oplus b) = a$
 - 2) The group has 07 elements. The number of proper sub-groups it can have is
a) 7 b) 6 c) 0 d) 5
 - 3) Which of the following statement is false ?
a) Set of rational numbers is abelian group under addition.
b) Set of integers is abelian group under addition.
c) Set of rational numbers is abelian group under multiplication.
d) None of these
 - 4) Complemented, distributive lattice is called
a) Boolean algebra b) Completed lattice
c) Algebraic system d) Modular lattice
 - 5) Let $D_{30} = \{1, 2, 3, 4, 5, 6, 10, 15, 30\}$ and let the relation be partial ordering on D_{30} . The all lower bounds of 10 and 15 are
a) 1, 3 b) 1, 5
c) 1, 3, 5 d) None of these

P.T.O.



- 6) Set A contains 4 elements. How many elements will be there in power set of A ?
a) 4 b) 16 c) 15 d) 24
- 7) The proposition $P \wedge (\neg P \vee Q)$ is
a) Tautology b) Contradiction
c) Equivalent to $(P \wedge Q)$ d) None of these
- 8) Hasse diagrams are drawn for
a) POSET b) Lattices
c) Boolean algebra d) None of these
- 9) Which of the following sets are null sets ?
a) $\{0\}$ b) $\{\Phi\}$ c) $\{ \}$ d) Φ
- 10) If A and B are sets, and $A \cup B = A \cap B$, then
a) $A = \Phi$ b) $B = \Phi$ c) $A = B$ d) None of these
- 11) Which one of the following is partition of the set $S = \{1, 2, 3, 4, 5, 6\}$?
a) $\{\{1, 3, 5\}, \{2, 4\}, \{3, 6\}\}$ b) $\{\{1, 5\}, \{2\}, \{4\}, \{1, 5\}, \{3, 6\}\}$
c) $\{\{1, 5\}, \{2\}, \{3, 6\}\}$ d) $\{1, 2, 3, 4, 5, 6\}$
- 12) The relation R defined on a set N by
 $R = \{ \langle a, b \rangle \mid |a-b| \text{ is divisible by } 5 \}$ is
a) Reflexive b) Symmetric
c) Transitive d) Equivalence
- 13) The function $f : N \rightarrow N$ defined by $f(n) = 2n + 3$ (N is set of natural numbers)
a) Surjective b) Not Surjective
c) Injective d) None of these
- 14) In the group $G = \{2, 4, 6, 8\}$ under multiplication mod 10 the identity element is
a) 6 b) 8 c) 4 d) 2
-



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**B.E. (Computer Science and Engineering) (Part – I) (CGPA)
Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES**

Day and Date : Thursday, 15-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

- Instructions :** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Solve **any three** : **(3×4=12)**
- a) What are connectives ? Define all connectives with their truth table.
 - b) What is POSET ? Give the procedure to draw Hasse diagram. Give example.
 - c) Write a note on covering and partition of a set.
 - d) Give the relation R on the set of positive integers as
 $R = \{ \langle x, y \rangle \mid (x - y) \text{ is divisible by } m \}$. Show that R is equivalent relation.
 - e) Write a note on Tautological implication with example.
3. Attempt **any one** : **8**
- a) How to convert the infix notation into prefix form ? Convert the following into infix and prefix form :
 $((P \rightarrow (Q \rightarrow R)) \rightarrow ((P \rightarrow Q) \rightarrow (P \rightarrow R)))$
 - b) Obtain PCNF and PDNF of the following statement formula without constructing truth table :
 - i) $P \vee (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
 - ii) $(Q \rightarrow P) \wedge (\neg P \wedge Q)$.
4. Let $X = \{1, 2, 3, 4\}$ and $R = \{ \langle x, y \rangle \mid x > y \}$. Draw the graph of R and also give its matrix. **8**



SECTION – II

5. Solve **any three** : **12**
- a) What is monoid ? Define the following with respect to monoids.
 - i) Homomorphism
 - ii) Isomorphism
 - iii) Monomorphism.
 - b) Write a note on Inverse function.
 - c) Prove the Kernel of group homomorphism g from a group $\langle G, * \rangle$ to $\langle H, \Delta \rangle$ is a subgroup of $\langle G, * \rangle$.
 - d) Define Semigroup with example and explain semigroup homomorphism.
 - e) Define Lattice as POSET and explain properties with example.
6. Solve **any one** : **8**
- a) Obtain sum of products canonical form of the following Boolean expressions in three variables :
 - i) $X_1 * X_2$
 - ii) $X_1 \oplus (X_2 * X_3')$.
 - b) Define functions. Consider $X = \{a, b, c\}$ $Y = \{0, 1\}$ are sets for the mapping set X to set Y . List all the possible function. Indicate in each whether the function is one-to-one, is onto, or is one-to-one onto.
7. Define Algebraic system. Explain the properties of algebraic system with example. **8**
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Seat No.	
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Set	P
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All questions are compulsory.**
2) **Assume suitable data if necessary.**
3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- 1) While passing an array as an actual argument, the function call must have the array name
 - a) with empty brackets
 - b) with its size
 - c) alone
 - d) none of these
 - 2) If n has the value 3, then the statement $a[++n] = n++;$
 - a) assigns 3 to $a[5]$
 - b) assigns 4 to $a[5]$
 - c) assigns 4 to $a[4]$
 - d) assigns 3 to $a[4]$
 - 3) If arr is a two dimensional array of 10 rows and 12 columns, then $arr[5]$ logically points to the
 - a) sixth row
 - b) fifth row
 - c) fifth column
 - d) sixth column
 - 4) Which data structure is used to store the return addresses of functions which are repeatedly called in recursion ?
 - a) stack
 - b) array
 - c) structure
 - d) queue
 - 5) To access a structure element using a pointer, _____ operator is used.
 - a) dot(.)
 - b) pointer (&)
 - c) pointer (*)
 - d) arrow (→)
 - 6) Automatic variables are stored in
 - a) stack
 - b) data segment
 - c) register
 - d) heap

P.T.O.



7) What does the following code outputs ?

```
void main()
{
    char *ptr;
    char str[ ]="C_PROGRAM" ;
    ptr=str * 1;
    ptr ++;
    puts(ptr);
}
```

a) PROGRAM b) _PROGRAM c) C d) ERROR

8) The output of the following statements is

```
Char ch[6]={'e', 'n', 'd', '\0', 'p'};
printf("%s", ch);
```

a) endp b) endOp c) end d) error

9) In _____ searching the records must be sorted.

a) Linear search b) Hashing c) Binary search d) None

10) The _____ is fastest searching techniques.

a) Linear search b) Hashing c) Binary search d) None of the above

11) Divide and Conquer is used in

a) Merge sort b) Quick sort c) Both a) and b) d) Neither a) nor b)

12) Which of the following sorting procedure is slowest ?

a) Quick sort b) Heap sort c) Shell sort d) Bubble sort

13) The space factor when determining the efficiency of algorithm is measured by

a) Counting the maximum memory needed by the algorithm
 b) Counting the minimum memory needed by the algorithm
 c) Counting the average memory needed by the algorithm
 d) Counting the maximum disk space needed by the algorithm

14) Consider the statement in C as

```
int x = 10, y = 10; int *P1 = &x; int *P2 = &y
```

What is the value of following expression. ++(*P2) – (*P1)

a) 11 b) -1 c) 0 d) 1



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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

- a) What do you mean by recursive calls to a function ? Write a C code to calculate factorial of a number using recursive calls ?
- b) Write a C program to compare two strings without using library function.
- c) Can function return a pointer ? Explain the concept with simple code.
- d) Explain automatic and static storage classes with simple code.
- e) Explain pointer to structure with an example.

3. Attempt **any two** : **(2×8=16)**

- a) To do a security check, at the entrance of office a security guard asks the first name of person who wish to enter the office and inputs the same to a program running on a system. That program checks the inputted name in the existing list. If name is part of existing list it allows that person to enter to office otherwise it does not allow that person. Write and explain the steps in a C program to accomplish this task.
- b) Write a short note on :
 - Pointer to pointer
 - malloc() and calloc().
- c) Write a recursive C code to display Fibonacci sequence. State the advantages and disadvantages of recursive techniques.



SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
- a) How algorithm is analyzed and explain time and space complexity.
 - b) Write a C program to copy the contents of one file into another file.
 - c) Compare sequential search with binary search.
 - d) Sort the following list using insertion sort
34, 25, 15, 59, 36, 20, 7, 12
 - e) Explain hashing. What are the criteria to choose a good hash function.
5. Attempt **any two** questions : **(2×8=16)**
- 1) Explain collision resolution by open addressing.
 - 2) Write a C program to perform following operation of file.
Insert, Delete, Display, Exit.
 - 3) Sort the following list of element in ascending order using quick sort.
50, 22, 11, 78, 16, 95, 7, 75, 51, 41.
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*
3) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
4) *Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.*

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- 1) The output of the following statements is
Char ch[6]={'e', 'n', 'd', '\0', 'p'};
printf("%s", ch);
a) endp b) endOp c) end d) error
 - 2) In _____ searching the records must be sorted.
a) Linear search b) Hashing c) Binary search d) None
 - 3) The _____ is fastest searching techniques.
a) Linear search b) Hashing c) Binary search d) None of the above
 - 4) Divide and Conquer is used in
a) Merge sort b) Quick sort c) Both a) and b) d) Neither a) nor b)
 - 5) Which of the following sorting procedure is slowest ?
a) Quick sort b) Heap sort c) Shell sort d) Bubble sort
 - 6) The space factor when determining the efficiency of algorithm is measured by
a) Counting the maximum memory needed by the algorithm
b) Counting the minimum memory needed by the algorithm
c) Counting the average memory needed by the algorithm
d) Counting the maximum disk space needed by the algorithm



7) Consider the statement in C as

```
int x = 10, y = 10; int *P1 = &x; int *P2 = &y
```

What is the value of following expression. $++(*P2) - (*P1)$

- a) 11 b) -1 c) 0 d) 1

8) While passing an array as an actual argument, the function call must have the array name

- a) with empty brackets b) with its size
c) alone d) none of these

9) If n has the value 3, then the statement $a[++n] = n++;$

- a) assigns 3 to a[5] b) assigns 4 to a[5]
c) assigns 4 to a[4] d) assigns 3 to a[4]

10) If arr is a two dimensional array of 10 rows and 12 columns, then arr [5] logically points to the

- a) sixth row b) fifth row c) fifth column d) sixth column

11) Which data structure is used to store the return addresses of functions which are repeatedly called in recursion ?

- a) stack b) array c) structure d) queue

12) To access a structure element using a pointer, _____ operator is used.

- a) dot(.) b) pointer (&) c) pointer (*) d) arrow (→)

13) Automatic variables are stored in

- a) stack b) data segment c) register d) heap

14) What does the following code outputs ?

```
void main()
```

```
{
```

```
    char *ptr;
```

```
    char str[ ]="C_PROGRAM" ;
```

```
    ptr=str * 1;
```

```
    ptr ++;
```

```
    puts(ptr);
```

```
}
```

- a) PROGRAM b) _PROGRAM c) C d) ERROR



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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
- a) What do you mean by recursive calls to a function ? Write a C code to calculate factorial of a number using recursive calls ?
 - b) Write a C program to compare two strings without using library function.
 - c) Can function return a pointer ? Explain the concept with simple code.
 - d) Explain automatic and static storage classes with simple code.
 - e) Explain pointer to structure with an example.
3. Attempt **any two** : **(2×8=16)**
- a) To do a security check, at the entrance of office a security guard asks the first name of person who wish to enter the office and inputs the same to a program running on a system. That program checks the inputted name in the existing list. If name is part of existing list it allows that person to enter to office otherwise it does not allow that person. Write and explain the steps in a C program to accomplish this task.
 - b) Write a short note on :
 - Pointer to pointer
 - malloc() and calloc().
 - c) Write a recursive C code to display Fibonacci sequence. State the advantages and disadvantages of recursive techniques.



SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
- a) How algorithm is analyzed and explain time and space complexity.
 - b) Write a C program to copy the contents of one file into another file.
 - c) Compare sequential search with binary search.
 - d) Sort the following list using insertion sort
34, 25, 15, 59, 36, 20, 7, 12
 - e) Explain hashing. What are the criteria to choose a good hash function.
5. Attempt **any two** questions : **(2×8=16)**
- 1) Explain collision resolution by open addressing.
 - 2) Write a C program to perform following operation of file.
Insert, Delete, Display, Exit.
 - 3) Sort the following list of element in ascending order using quick sort.
50, 22, 11, 78, 16, 95, 7, 75, 51, 41.
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All questions are compulsory.**
2) **Assume suitable data if necessary.**
3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) To access a structure element using a pointer, _____ operator is used.
a) dot(.) b) pointer (&) c) pointer (*) d) arrow (→)

2) Automatic variables are stored in
a) stack b) data segment c) register d) heap

3) What does the following code outputs ?

```
void main()
{
    char *ptr;
    char str[]="C_PROGRAM";
    ptr=str * 1;
    ptr ++;
    puts(ptr);
}
```

a) PROGRAM b) _PROGRAM c) C d) ERROR

4) The output of the following statements is

```
Char ch[6]={'e', 'n', 'd', '\0', 'p'};
```

```
printf("%s", ch);
```

a) endp b) endOp c) end d) error

P.T.O.



- 5) In _____ searching the records must be sorted.
a) Linear search b) Hashing c) Binary search d) None
- 6) The _____ is fastest searching techniques.
a) Linear search b) Hashing c) Binary search d) None of the above
- 7) Divide and Conquer is used in
a) Merge sort b) Quick sort c) Both a) and b) d) Neither a) nor b)
- 8) Which of the following sorting procedure is slowest ?
a) Quick sort b) Heap sort c) Shell sort d) Bubble sort
- 9) The space factor when determining the efficiency of algorithm is measured by
a) Counting the maximum memory needed by the algorithm
b) Counting the minimum memory needed by the algorithm
c) Counting the average memory needed by the algorithm
d) Counting the maximum disk space needed by the algorithm
- 10) Consider the statement in C as
`int x = 10, y = 10; int *P1 = &x; int *P2 = &y`
What is the value of following expression. `++(*P2) - (*P1)`
a) 11 b) -1 c) 0 d) 1
- 11) While passing an array as an actual argument, the function call must have the array name
a) with empty brackets b) with its size
c) alone d) none of these
- 12) If n has the value 3, then the statement `a [++n] = n++;`
a) assigns 3 to a[5] b) assigns 4 to a[5]
c) assigns 4 to a[4] d) assigns 3 to a[4]
- 13) If arr is a two dimensional array of 10 rows and 12 columns, then arr [5] logically points to the
a) sixth row b) fifth row c) fifth column d) sixth column
- 14) Which data structure is used to store the return addresses of functions which are repeatedly called in recursion ?
a) stack b) array c) structure d) queue



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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
- a) What do you mean by recursive calls to a function ? Write a C code to calculate factorial of a number using recursive calls ?
 - b) Write a C program to compare two strings without using library function.
 - c) Can function return a pointer ? Explain the concept with simple code.
 - d) Explain automatic and static storage classes with simple code.
 - e) Explain pointer to structure with an example.
3. Attempt **any two** : **(2×8=16)**
- a) To do a security check, at the entrance of office a security guard asks the first name of person who wish to enter the office and inputs the same to a program running on a system. That program checks the inputted name in the existing list. If name is part of existing list it allows that person to enter to office otherwise it does not allow that person. Write and explain the steps in a C program to accomplish this task.
 - b) Write a short note on :
 - Pointer to pointer
 - malloc() and calloc().
 - c) Write a recursive C code to display Fibonacci sequence. State the advantages and disadvantages of recursive techniques.



SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
- a) How algorithm is analyzed and explain time and space complexity.
 - b) Write a C program to copy the contents of one file into another file.
 - c) Compare sequential search with binary search.
 - d) Sort the following list using insertion sort
34, 25, 15, 59, 36, 20, 7, 12
 - e) Explain hashing. What are the criteria to choose a good hash function.
5. Attempt **any two** questions : **(2×8=16)**
- 1) Explain collision resolution by open addressing.
 - 2) Write a C program to perform following operation of file.
Insert, Delete, Display, Exit.
 - 3) Sort the following list of element in ascending order using quick sort.
50, 22, 11, 78, 16, 95, 7, 75, 51, 41.
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All questions are compulsory.**
2) **Assume suitable data if necessary.**
3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

- 1) The _____ is fastest searching techniques.
a) Linear search b) Hashing c) Binary search d) None of the above
- 2) Divide and Conquer is used in
a) Merge sort b) Quick sort c) Both a) and b) d) Neither a) nor b)
- 3) Which of the following sorting procedure is slowest ?
a) Quick sort b) Heap sort c) Shell sort d) Bubble sort
- 4) The space factor when determining the efficiency of algorithm is measured by
a) Counting the maximum memory needed by the algorithm
b) Counting the minimum memory needed by the algorithm
c) Counting the average memory needed by the algorithm
d) Counting the maximum disk space needed by the algorithm

5) Consider the statement in C as

```
int x = 10, y = 10; int *P1 = &x; int *P2 = &y
```

What is the value of following expression. $++(*P2) - (*P1)$

- a) 11 b) -1 c) 0 d) 1



- 6) While passing an array as an actual argument, the function call must have the array name
- a) with empty brackets b) with its size
c) alone d) none of these
- 7) If n has the value 3, then the statement $a[++n] = n++$;
- a) assigns 3 to $a[5]$ b) assigns 4 to $a[5]$
c) assigns 4 to $a[4]$ d) assigns 3 to $a[4]$
- 8) If arr is a two dimensional array of 10 rows and 12 columns, then arr [5] logically points to the
- a) sixth row b) fifth row c) fifth column d) sixth column
- 9) Which data structure is used to store the return addresses of functions which are repeatedly called in recursion ?
- a) stack b) array c) structure d) queue
- 10) To access a structure element using a pointer, _____ operator is used.
- a) dot(.) b) pointer (&) c) pointer (*) d) arrow (→)
- 11) Automatic variables are stored in
- a) stack b) data segment c) register d) heap
- 12) What does the following code outputs ?
- ```
void main()
{
 char *ptr;
 char str[]="C_PROGRAM" ;
 ptr=str * 1;
 ptr ++;
 puts(ptr);
}
```
- a) PROGRAM              b) \_PROGRAM              c) C                      d) ERROR
- 13) The output of the following statements is
- ```
Char ch[6]={'e', 'n', 'd', '\0', 'p'};
printf("%s", ch);
```
- a) endp b) endOp c) end d) error
- 14) In _____ searching the records must be sorted.
- a) Linear search b) Hashing c) Binary search d) None



Seat No.	
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**S.E. (CSE) (Part – I) (CGPA) Examination, 2016
ADVANCED C CONCEPTS**

Day and Date : Saturday, 17-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
- a) What do you mean by recursive calls to a function ? Write a C code to calculate factorial of a number using recursive calls ?
 - b) Write a C program to compare two strings without using library function.
 - c) Can function return a pointer ? Explain the concept with simple code.
 - d) Explain automatic and static storage classes with simple code.
 - e) Explain pointer to structure with an example.
3. Attempt **any two** : **(2×8=16)**
- a) To do a security check, at the entrance of office a security guard asks the first name of person who wish to enter the office and inputs the same to a program running on a system. That program checks the inputted name in the existing list. If name is part of existing list it allows that person to enter to office otherwise it does not allow that person. Write and explain the steps in a C program to accomplish this task.
 - b) Write a short note on :
 - Pointer to pointer
 - malloc() and calloc().
 - c) Write a recursive C code to display Fibonacci sequence. State the advantages and disadvantages of recursive techniques.



SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
- a) How algorithm is analyzed and explain time and space complexity.
 - b) Write a C program to copy the contents of one file into another file.
 - c) Compare sequential search with binary search.
 - d) Sort the following list using insertion sort
34, 25, 15, 59, 36, 20, 7, 12
 - e) Explain hashing. What are the criteria to choose a good hash function.
5. Attempt **any two** questions : **(2×8=16)**
- 1) Explain collision resolution by open addressing.
 - 2) Write a C program to perform following operation of file.
Insert, Delete, Display, Exit.
 - 3) Sort the following list of element in ascending order using quick sort.
50, 22, 11, 78, 16, 95, 7, 75, 51, 41.
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Seat No.	
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Set	P
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S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
- 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
- 3) **All questions are compulsory.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

(14×1=14)

- 1) Number of select lines required for 32 to 1 multiplexer is
a) 2 b) 3 c) 4 d) 5
- 2) How many flip-flops are required for mod-16 counter.
a) 6 b) 5 c) 4 d) 3
- 3) The Boolean expression $AB + AB + AB$ is equivalent to
a) $A + B$ b) AB c) A and B d) None of these
- 4) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either
a) NAND or EX-OR b) OR or EX-NOR
c) AND or EX-OR d) NOR or EX-NOR
- 5) A ring counter consisting of five flip-flops will have
a) 5 states b) 10 states c) 32 states d) Infinite
- 6) Which of the following memory is volatile memory ?
a) ROM b) RAM c) PROM d) EEPROM
- 7) In a JK Flip-Flop, toggle means
a) $Q = 1, Q = 0$
b) $Q = 0, Q = 1$
c) Change the output to opposite state
d) No change in output



- 8) 8 to 1 multiplexer integrated circuit is
a) 74153 b) 74193 c) 74154 d) 74151
- 9) Assigning a value to signals is done by
a) $> =$ b) $: =$ c) $< =$ d) None of these
- 10) Which of the following requires periodic refreshing ?
a) DRAM b) SRAM c) ROM d) All of these
- 11) In VHDL, V stands for
a) Very High Speed IC b) Very High Scale IC
c) Verilog High Speed IC d) None of these
- 12) Octal to BCD encoding/priority interrupt handling is done by IC
a) 7447 b) 74148 c) 7490 d) 75151
- 13) Which of the following has more propagation delay ?
a) Serial n-bit adder b) Parallel n-bit adder
c) Carry look-ahead adder d) None
- 14) Maxterms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are
a) $\sum m(2, 3, 6, 7)$ b) $\pi M(0, 1, 4, 5)$
c) $\pi M(2, 3, 6, 7)$ d) None of these
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**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instruction: All questions are compulsory.

SECTION – I

2. Attempt **any three** : **(5×3=15)**
- a) Minimize $f(A, B, C, D) = \pi M(0, 1, 2, 4, 5, 6, 10, 15)$.
 - b) Explain JK counter and conversion of JK into D & T flip flops.
 - c) Implement $Y = XY + XZ + YZ$ using NAND and NOR gates.
 - d) Design and explain 1-bit comparator. Draw diagram of 2-bit comparator.
 - e) Explain parity generator/checker.

3. Design and explain 4-bit carry look-ahead adder. **6**

OR

Explain 3-bit synchronous counter.

4. Explain any two modes of shift register with waveforms. **7**

SECTION – II

5. Attempt **any three** : **(5×3=15)**
- a) Design and explain full adder using 4 : 1 multiplexer.
 - b) Design 1 to 32 de-multiplexer tree using 1 to 8 de-multiplexer.
 - c) Explain dynamic RAM cell with refreshing circuit.
 - d) Design 2048 × 8 memory chip using 512 × 8 memory chip.
 - e) Write a VHDL code for full adder and full subtracter.

6. Explain the use of IC 74148 with a diagram. **6**

OR

Explain TTL RAM and MOS RAM cell circuit.

7. Explain seven segment decoder driver using IC-7447. **7**

OR

Write VHDL code for 2-line to 4-line decoder/de-multiplexer.

Set P



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Q

**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

3) **All questions are compulsory.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

(14×1=14)

- 1) 8 to 1 multiplexer integrated circuit is
a) 74153 b) 74193 c) 74154 d) 74151
- 2) Assigning a value to signals is done by
a) > = b) : = c) < = d) None of these
- 3) Which of the following requires periodic refreshing ?
a) DRAM b) SRAM c) ROM d) All of these
- 4) In VHDL, V stands for
a) Very High Speed IC b) Very High Scale IC
c) Verilog High Speed IC d) None of these
- 5) Octal to BCD encoding/priority interrupt handling is done by IC
a) 7447 b) 74148 c) 7490 d) 75151
- 6) Which of the following has more propagation delay ?
a) Serial n-bit adder b) Parallel n-bit adder
c) Carry look-ahead adder d) None
- 7) Maxterms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are
a) $\sum m(2, 3, 6, 7)$ b) $\pi M(0, 1, 4, 5)$
c) $\pi M(2, 3, 6, 7)$ d) None of these
- 8) Number of select lines required for 32 to 1 multiplexer is
a) 2 b) 3 c) 4 d) 5



- 9) How many flip-flops are required for mod-16 counter.
a) 6 b) 5 c) 4 d) 3
- 10) The Boolean expression $AB + AB + AB$ is equivalent to
a) $A + B$ b) AB c) A and B d) None of these
- 11) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either
a) NAND or EX-OR b) OR or EX-NOR
c) AND or EX-OR d) NOR or EX-NOR
- 12) A ring counter consisting of five flip-flops will have
a) 5 states b) 10 states c) 32 states d) Infinite
- 13) Which of the following memory is volatile memory ?
a) ROM b) RAM c) PROM d) EEPROM
- 14) In a JK Flip-Flop, toggle means
a) $Q = 1, Q = 0$
b) $Q = 0, Q = 1$
c) Change the output to opposite state
d) No change in output
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Seat No.	
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**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instruction: All questions are compulsory.

SECTION – I

2. Attempt **any three** : **(5×3=15)**
- a) Minimize $f(A, B, C, D) = \pi M(0, 1, 2, 4, 5, 6, 10, 15)$.
 - b) Explain JK counter and conversion of JK into D & T flip flops.
 - c) Implement $Y = XY + XZ + YZ$ using NAND and NOR gates.
 - d) Design and explain 1-bit comparator. Draw diagram of 2-bit comparator.
 - e) Explain parity generator/checker.

3. Design and explain 4-bit carry look-ahead adder. **6**

OR

Explain 3-bit synchronous counter.

4. Explain any two modes of shift register with waveforms. **7**

SECTION – II

5. Attempt **any three** : **(5×3=15)**
- a) Design and explain full adder using 4 : 1 multiplexer.
 - b) Design 1 to 32 de-multiplexer tree using 1 to 8 de-multiplexer.
 - c) Explain dynamic RAM cell with refreshing circuit.
 - d) Design 2048×8 memory chip using 512×8 memory chip.
 - e) Write a VHDL code for full adder and full subtracter.

6. Explain the use of IC 74148 with a diagram. **6**

OR

Explain TTL RAM and MOS RAM cell circuit.

7. Explain seven segment decoder driver using IC-7447. **7**

OR

Write VHDL code for 2-line to 4-line decoder/de-multiplexer.

Set Q



Seat No.	
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Set

R

**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

3) **All questions are compulsory.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

(14×1=14)

- 1) A ring counter consisting of five flip-flops will have
a) 5 states b) 10 states c) 32 states d) Infinite
- 2) Which of the following memory is volatile memory ?
a) ROM b) RAM c) PROM d) EEPROM
- 3) In a JK Flip-Flop, toggle means
a) Q = 1, Q = 0
b) Q = 0, Q = 1
c) Change the output to opposite state
d) No change in output
- 4) 8 to 1 multiplexer integrated circuit is
a) 74153 b) 74193 c) 74154 d) 74151
- 5) Assigning a value to signals is done by
a) > = b) : = c) < = d) None of these
- 6) Which of the following requires periodic refreshing ?
a) DRAM b) SRAM c) ROM d) All of these
- 7) In VHDL, V stands for
a) Very High Speed IC b) Very High Scale IC
c) Verilog High Speed IC d) None of these
- 8) Octal to BCD encoding/priority interrupt handling is done by IC
a) 7447 b) 74148 c) 7490 d) 75151



- 9) Which of the following has more propagation delay ?
- a) Serial n-bit adder
 - b) Parallel n-bit adder
 - c) Carry look-ahead adder
 - d) None
- 10) Maxterms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are
- a) $\sum m(2, 3, 6, 7)$
 - b) $\pi M(0, 1, 4, 5)$
 - c) $\pi M(2, 3, 6, 7)$
 - d) None of these
- 11) Number of select lines required for 32 to 1 multiplexer is
- a) 2
 - b) 3
 - c) 4
 - d) 5
- 12) How many flip-flops are required for mod-16 counter.
- a) 6
 - b) 5
 - c) 4
 - d) 3
- 13) The Boolean expression $AB + AB + AB$ is equivalent to
- a) $A + B$
 - b) AB
 - c) A and B
 - d) None of these
- 14) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either
- a) NAND or EX-OR
 - b) OR or EX-NOR
 - c) AND or EX-OR
 - d) NOR or EX-NOR
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Seat No.	
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**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instruction: All questions are compulsory.

SECTION – I

2. Attempt **any three** : **(5×3=15)**
- a) Minimize $f(A, B, C, D) = \pi M(0, 1, 2, 4, 5, 6, 10, 15)$.
 - b) Explain JK counter and conversion of JK into D & T flip flops.
 - c) Implement $Y = XY + XZ + YZ$ using NAND and NOR gates.
 - d) Design and explain 1-bit comparator. Draw diagram of 2-bit comparator.
 - e) Explain parity generator/checker.

3. Design and explain 4-bit carry look-ahead adder. **6**

OR

Explain 3-bit synchronous counter.

4. Explain any two modes of shift register with waveforms. **7**

SECTION – II

5. Attempt **any three** : **(5×3=15)**
- a) Design and explain full adder using 4 : 1 multiplexer.
 - b) Design 1 to 32 de-multiplexer tree using 1 to 8 de-multiplexer.
 - c) Explain dynamic RAM cell with refreshing circuit.
 - d) Design 2048×8 memory chip using 512×8 memory chip.
 - e) Write a VHDL code for full adder and full subtracter.

6. Explain the use of IC 74148 with a diagram. **6**

OR

Explain TTL RAM and MOS RAM cell circuit.

7. Explain seven segment decoder driver using IC-7447. **7**

OR

Write VHDL code for 2-line to 4-line decoder/de-multiplexer.

Set R



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Seat No.	
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Set

S

**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

3) **All questions are compulsory.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

(14×1=14)

- 1) Which of the following requires periodic refreshing ?
a) DRAM b) SRAM c) ROM d) All of these
- 2) In VHDL, V stands for
a) Very High Speed IC b) Very High Scale IC
c) Verilog High Speed IC d) None of these
- 3) Octal to BCD encoding/priority interrupt handling is done by IC
a) 7447 b) 74148 c) 7490 d) 75151
- 4) Which of the following has more propagation delay ?
a) Serial n-bit adder b) Parallel n-bit adder
c) Carry look-ahead adder d) None
- 5) Maxterms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are
a) $\sum m(2, 3, 6, 7)$ b) $\pi M(0, 1, 4, 5)$
c) $\pi M(2, 3, 6, 7)$ d) None of these
- 6) Number of select lines required for 32 to 1 multiplexer is
a) 2 b) 3 c) 4 d) 5
- 7) How many flip-flops are required for mod-16 counter.
a) 6 b) 5 c) 4 d) 3
- 8) The Boolean expression $AB + AB + AB$ is equivalent to
a) $A + B$ b) AB c) A and B d) None of these

P.T.O.



- 9) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either
- a) NAND or EX-OR
 - b) OR or EX-NOR
 - c) AND or EX-OR
 - d) NOR or EX-NOR
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- a) 5 states
 - b) 10 states
 - c) 32 states
 - d) Infinite
- 11) Which of the following memory is volatile memory ?
- a) ROM
 - b) RAM
 - c) PROM
 - d) EEPROM
- 12) In a JK Flip-Flop, toggle means
- a) $Q = 1, Q = 0$
 - b) $Q = 0, Q = 1$
 - c) Change the output to opposite state
 - d) No change in output
- 13) 8 to 1 multiplexer integrated circuit is
- a) 74153
 - b) 74193
 - c) 74154
 - d) 74151
- 14) Assigning a value to signals is done by
- a) $> =$
 - b) $:=$
 - c) $< =$
 - d) None of these
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Seat No.	
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**S.E. (Computer Science Engg.) (Part – I) (CGPA) Examination, 2016
DIGITAL TECHNIQUES**

Day and Date : Tuesday, 20-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instruction: All questions are compulsory.

SECTION – I

2. Attempt **any three** : **(5×3=15)**
- a) Minimize $f(A, B, C, D) = \pi M(0, 1, 2, 4, 5, 6, 10, 15)$.
 - b) Explain JK counter and conversion of JK into D & T flip flops.
 - c) Implement $Y = XY + XZ + YZ$ using NAND and NOR gates.
 - d) Design and explain 1-bit comparator. Draw diagram of 2-bit comparator.
 - e) Explain parity generator/checker.

3. Design and explain 4-bit carry look-ahead adder. **6**

OR

Explain 3-bit synchronous counter.

4. Explain any two modes of shift register with waveforms. **7**

SECTION – II

5. Attempt **any three** : **(5×3=15)**
- a) Design and explain full adder using 4 : 1 multiplexer.
 - b) Design 1 to 32 de-multiplexer tree using 1 to 8 de-multiplexer.
 - c) Explain dynamic RAM cell with refreshing circuit.
 - d) Design 2048×8 memory chip using 512×8 memory chip.
 - e) Write a VHDL code for full adder and full subtracter.

6. Explain the use of IC 74148 with a diagram. **6**

OR

Explain TTL RAM and MOS RAM cell circuit.

7. Explain seven segment decoder driver using IC-7447. **7**

OR

Write VHDL code for 2-line to 4-line decoder/de-multiplexer.

Set S



SLR-EP – 165

Seat No.	
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Set	P
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- N.B. :**
- 1) **All questions are compulsory.**
 - 2) Figure to **right** indicates marks.
 - 3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

- 1) The resolution of an image is
 - a) No. of pixels per unit area
 - b) No. of pixels in horizontal
 - c) No. of pixels in verticals
 - d) None of the above
- 2) CRT stands for
 - a) Cathode Ray tube
 - b) Cathode Right tube
 - c) Carbon Ray tube
 - d) Cathode Refresh tube
- 3) In seed fill algorithm filling of polygon starts from _____ in polygon.
 - a) Seed pixel
 - b) Root pixels
 - c) Both a) and b)
 - d) None
- 4) RLE takes advantage of
 - a) Image coherence
 - b) Resolution
 - c) Intensity
 - d) None of above
- 5) The homogenous representation of (6, 12) is
 - a) (6, 12, 1)
 - b) (12, 24, 2)
 - c) (18, 36, 3)
 - d) All of the above
- 6) _____ transformation leads to distortion of an object.
 - a) Translation
 - b) Shearing
 - c) Scaling
 - d) Reflection
- 7) The right bottom 1×1 matrix in 3d transformation is responsible for
 - a) Shearing
 - b) overall scaling
 - c) Translation
 - d) None

P.T.O.



- 8) The action of including a segment in display refresh cycle is
a) Unposting b) Append to c) Posting d) All of the above
- 9) _____ is logical unit of display file.
a) Buffer b) Segment c) Memory d) All
- 10) Quadtree representation is used _____ algorithm.
a) Z-buffer algorithm b) Warnock's algorithm
c) Both a) and b) d) None
- 11) If region code of two end points of line is 1010 and 0101 than line is
a) Partially visible b) Completely invisible
c) Completely visible d) May be a) and b)
- 12) Bezier curve contains _____ control points.
a) 9 b) 13 c) 16 d) None of the above
- 13) Z-buffer is also known as
a) Depth buffer b) Frame buffer c) First buffer d) None
- 14) Multimedia is an integration of
a) Audio b) Video c) Graphics d) All of the above
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Seat No.	
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

N.B. : 1) **All questions are compulsory.**
2) **Figure to right indicates marks.**

SECTION – I

2. Answer **any three** : **(4×3=12)**
- a) Explain the operation of refreshing CRT with diagram.
 - b) Write a short note on RLE.
 - c) Derive Rotation Matrix of 2D transformation.
 - d) What is homogenous co-ordinate and why it is required ?

3. What is computer graphics ? Explain applications of computer graphics. **(8×1=8)**

OR

Consider an object A(2, 3), B(5, 5), C(4, 4) perform anticlockwise 45° rotation about a point (1, 1).

4. What is Error term ? Explain Bresenham's circle generation algorithm. **(8×1=8)**

SECTION – II

5. Answer **any three** : **(4×3=12)**
- a) What are basic operations of segments in display file ?
 - b) Write a short note on supersampling.
 - c) Explain Z-Buffer algorithm.
 - d) What is Multimedia ? What are different types of images ?

6. Explain Cohen Sutherland line clipping algorithm in detail. **(8×1=8)**

OR

What are the properties of Bezier curve ? Explain in detail.

7. Describe Warnock's algorithm in detail with its flowchart. **(8×1=8)**

Set P



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Seat No.	
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Set	Q
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- N.B. :**
- 1) **All questions are compulsory.**
 - 2) Figure to **right** indicates marks.
 - 3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

- 1) The action of including a segment in display refresh cycle is
a) Unposting b) Append to c) Posting d) All of the above
- 2) _____ is logical unit of display file.
a) Buffer b) Segment c) Memory d) All
- 3) Quadtree representation is used _____ algorithm.
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a) Partially visible b) Completely invisible
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a) Depth buffer b) Frame buffer c) First buffer d) None
- 7) Multimedia is an integration of
a) Audio b) Video c) Graphics d) All of the above

P.T.O.



- 8) The resolution of an image is
- a) No. of pixels per unit area
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- a) Cathode Ray tube
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- 11) RLE takes advantage of
- a) Image coherence
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- a) (6, 12, 1)
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- 14) The right bottom 1×1 matrix in 3d transformation is responsible for
- a) Shearing
 - b) overall scaling
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Seat No.	
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

N.B. : 1) **All questions are compulsory.**
2) **Figure to right indicates marks.**

SECTION – I

2. Answer **any three** : **(4×3=12)**
- a) Explain the operation of refreshing CRT with diagram.
 - b) Write a short note on RLE.
 - c) Derive Rotation Matrix of 2D transformation.
 - d) What is homogenous co-ordinate and why it is required ?

3. What is computer graphics ? Explain applications of computer graphics. **(8×1=8)**
- OR

Consider an object A(2, 3), B(5, 5), C(4, 4) perform anticlockwise 45° rotation about a point (1, 1).

4. What is Error term ? Explain Bresenham's circle generation algorithm. **(8×1=8)**

SECTION – II

5. Answer **any three** : **(4×3=12)**
- a) What are basic operations of segments in display file ?
 - b) Write a short note on supersampling.
 - c) Explain Z-Buffer algorithm.
 - d) What is Multimedia ? What are different types of images ?

6. Explain Cohen Sutherland line clipping algorithm in detail. **(8×1=8)**
- OR

What are the properties of Bezier curve ? Explain in detail.

7. Describe Warnock's algorithm in detail with its flowchart. **(8×1=8)**

Set Q



SLR-EP – 165

Seat No.	
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Set	R
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- N.B. :**
- 1) **All questions are compulsory.**
 - 2) Figure to **right** indicates marks.
 - 3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) The homogenous representation of (6, 12) is
a) (6, 12, 1) b) (12, 24, 2) c) (18, 36, 3) d) All of the above
- 2) _____ transformation leads to distortion of an object.
a) Translation b) Shearing c) Scaling d) Reflection
- 3) The right bottom 1×1 matrix in 3d transformation is responsible for
a) Shearing b) overall scaling c) Translation d) None
- 4) The action of including a segment in display refresh cycle is
a) Unposting b) Append to c) Posting d) All of the above
- 5) _____ is logical unit of display file.
a) Buffer b) Segment c) Memory d) All
- 6) Quadtree representation is used _____ algorithm.
a) Z-buffer algorithm b) Warnock's algorithm
c) Both a) and b) d) None
- 7) If region code of two end points of line is 1010 and 0101 than line is
a) Partially visible b) Completely invisible
c) Completely visible d) May be a) and b)

P.T.O.



- 8) Bezier curve contains _____ control points.
a) 9 b) 13 c) 16 d) None of the above
- 9) Z-buffer is also known as
a) Depth buffer b) Frame buffer c) First buffer d) None
- 10) Multimedia is an integration of
a) Audio b) Video c) Graphics d) All of the above
- 11) The resolution of an image is
a) No. of pixels per unit area b) No. of pixels in horizontal
c) No. of pixels in verticals d) None of the above
- 12) CRT stands for
a) Cathode Ray tube b) Cathode Right tube
c) Carbon Ray tube d) Cathode Refresh tube
- 13) In seed fill algorithm filling of polygon starts from _____ in polygon.
a) Seed pixel b) Root pixels c) Both a) and b) d) None
- 14) RLE takes advantage of
a) Image coherence b) Resolution
c) Intensity d) None of above
-



Seat No.	
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

N.B. : 1) **All questions are compulsory.**
2) **Figure to right indicates marks.**

SECTION – I

2. Answer **any three** : **(4×3=12)**
- a) Explain the operation of refreshing CRT with diagram.
 - b) Write a short note on RLE.
 - c) Derive Rotation Matrix of 2D transformation.
 - d) What is homogenous co-ordinate and why it is required ?

3. What is computer graphics ? Explain applications of computer graphics. **(8×1=8)**

OR

Consider an object A(2, 3), B(5, 5), C(4, 4) perform anticlockwise 45° rotation about a point (1, 1).

4. What is Error term ? Explain Bresenham's circle generation algorithm. **(8×1=8)**

SECTION – II

5. Answer **any three** : **(4×3=12)**
- a) What are basic operations of segments in display file ?
 - b) Write a short note on supersampling.
 - c) Explain Z-Buffer algorithm.
 - d) What is Multimedia ? What are different types of images ?

6. Explain Cohen Sutherland line clipping algorithm in detail. **(8×1=8)**

OR

What are the properties of Bezier curve ? Explain in detail.

7. Describe Warnock's algorithm in detail with its flowchart. **(8×1=8)**

Set R



SLR-EP – 165

Seat No.	
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Set	S
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- N.B. :**
- 1) **All questions are compulsory.**
 - 2) Figure to **right** indicates marks.
 - 3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) Quadtree representation is used _____ algorithm.
a) Z-buffer algorithm b) Warnock's algorithm
c) Both a) and b) d) None
- 2) If region code of two end points of line is 1010 and 0101 than line is
a) Partially visible b) Completely invisible
c) Completely visible d) May be a) and b)
- 3) Bezier curve contains _____ control points.
a) 9 b) 13 c) 16 d) None of the above
- 4) Z-buffer is also known as
a) Depth buffer b) Frame buffer c) First buffer d) None
- 5) Multimedia is an integration of
a) Audio b) Video c) Graphics d) All of the above
- 6) The resolution of an image is
a) No. of pixels per unit area b) No. of pixels in horizontal
c) No. of pixels in verticals d) None of the above
- 7) CRT stands for
a) Cathode Ray tube b) Cathode Right tube
c) Carbon Ray tube d) Cathode Refresh tube

P.T.O.



- 8) In seed fill algorithm filling of polygon starts from _____ in polygon.
a) Seed pixel b) Root pixels c) Both a) and b) d) None
- 9) RLE takes advantage of
a) Image coherence b) Resolution
c) Intensity d) None of above
- 10) The homogenous representation of (6, 12) is
a) (6, 12, 1) b) (12, 24, 2) c) (18, 36, 3) d) All of the above
- 11) _____ transformation leads to distortion of an object.
a) Translation b) Shearing c) Scaling d) Reflection
- 12) The right bottom 1×1 matrix in 3d transformation is responsible for
a) Shearing b) overall scaling c) Translation d) None
- 13) The action of including a segment in display refresh cycle is
a) Unposting b) Append to c) Posting d) All of the above
- 14) _____ is logical unit of display file.
a) Buffer b) Segment c) Memory d) All
-



Seat No.	
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**S.E. (Part – I) (CSE) (CGPA) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Thursday, 22-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

N.B. : 1) **All questions are compulsory.**
2) **Figure to right indicates marks.**

SECTION – I

2. Answer **any three** : **(4×3=12)**
- a) Explain the operation of refreshing CRT with diagram.
 - b) Write a short note on RLE.
 - c) Derive Rotation Matrix of 2D transformation.
 - d) What is homogenous co-ordinate and why it is required ?

3. What is computer graphics ? Explain applications of computer graphics. **(8×1=8)**
- OR

Consider an object A(2, 3), B(5, 5), C(4, 4) perform anticlockwise 45° rotation about a point (1, 1).

4. What is Error term ? Explain Bresenham's circle generation algorithm. **(8×1=8)**

SECTION – II

5. Answer **any three** : **(4×3=12)**
- a) What are basic operations of segments in display file ?
 - b) Write a short note on supersampling.
 - c) Explain Z-Buffer algorithm.
 - d) What is Multimedia ? What are different types of images ?

6. Explain Cohen Sutherland line clipping algorithm in detail. **(8×1=8)**

OR

What are the properties of Bezier curve ? Explain in detail.

7. Describe Warnock's algorithm in detail with its flowchart. **(8×1=8)**

Set S



SLR-EP –166

Seat No.	
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Set	P
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S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : (20×1=20)

- 1) Number of parameters in calloc () function is/are
a) 1 b) 2 c) 3 d) 0
- 2) The function free () is used to
a) To unlink first and last node b) To separate the node from link list
c) To attach a node to other link list d) To release the memory of node
- 3) Which of the following is “value at address” operator ?
a) ^ b) & c) * d) @
- 4) If n is number of disks, the number of disk movements in Towers of Hanoi are
a) $2^n - 1$ b) $2^n - 1$ c) $n^2 - 1$ d) none of above
- 5) The recursion function would result in infinite recursion if following is left out
a) Recursive call b) Base condition
c) Parameter in function d) Subtraction
- 6) The fseek () function is used to
a) Set the position to desired point in the file
b) Give current position in the file
c) Set the position to the beginning of the file
d) None of these
- 7) Mode of the fopen () function specifies
a) Which file is to open b) Purpose of opening the file
c) The number of times file opened d) Where the file is saved
- 8) Function strcmp () returns
a) an ascii value b) a character value
c) only zero d) an integer value
- 9) FILE is a
a) structure b) function c) array d) pointer
- 10) In the declaration : char *xyz []; xyz is
a) array of strings b) array of pointers to strings
c) pointer to an array of strings d) pointer to a string

P.T.O.



- 11) Stack in Data Structure is
a) LIFO b) FIFO c) LILO d) None of this
- 12) Linked list is generally considered as an example of _____ type of memory allocation.
a) Static b) Dynamic c) Compile time d) None of this
- 13) Each node in singly linked list has _____ fields.
a) 2 b) 3 c) 1 d) 4
- 14) In linked lists there are no NULL links in
a) single linked list b) linear doubly linked list
c) circular linked list d) linked list
- 15) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
a) Pointer to character b) Pointer to integer
c) Pointer to node d) Node
- 16) The situation when in a linked list START = NULL is
a) Underflow b) Overflow c) Houseful d) Saturated
- 17) In which data structure element is inserted at one end called Rear and deleted at other end called front.
a) Stack b) Queue c) Both a and b d) Binary Tree
- 18) Which data structure is used for implementing recursion ?
a) Queue b) Stack c) Array d) List
- 19) Deletion operation is done using _____ in a queue.
a) front b) rear c) top d) list
- 20) Which of the following is not an inherent application of stack ?
a) Reversing a string b) Evaluation of postfix expression
c) Implementation of recursion d) Job scheduling
-



Seat No.	
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**S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- a) Explain the functions used to open the file, read and write the text file character by character using examples.
 - b) Explain with example the concept of pointer to pointer.
 - c) Write a recursive function for finding 6th Fibonacci number in a Fibonacci series. State how many times the function is called.
 - d) Write a program to concatenate one string at the end of other string without using library function.
 - e) Explain the concept of dynamic memory allocation.
3. Explain in detail any 4 library functions for string processing with examples. **10**

OR

Write short notes with examples on :

- a) Array of pointers
 - b) Pointer to function.
4. Write a program to count number of characters, tabs, spaces and lines in a file on the disk. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Explain different applications of stack.
 - 2) Write a short note on Priority queue.
 - 3) Write a C program to implement stack using array.
 - 4) Explain different applications of queue.
 - 5) Give the difference between stack and queue.
6. Answer **any two** : **(2×10=20)**
- 1) Explain different types of linked list in detail with suitable diagrams.
 - 2) What is queue ? Explain different operations on queue with the help of diagrams.
 - 3) Write a C program to implement stack using linked list.

Set P



Seat No.	
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Set	Q
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S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : (20×1=20)

- 1) The situation when in a linked list START = NULL is
a) Underflow b) Overflow c) Houseful d) Saturated
- 2) In which data structure element is inserted at one end called Rear and deleted at other end called front.
a) Stack b) Queue c) Both a and b d) Binary Tree
- 3) Which data structure is used for implementing recursion ?
a) Queue b) Stack c) Array d) List
- 4) Deletion operation is done using _____ in a queue.
a) front b) rear c) top d) list
- 5) Which of the following is not an inherent application of stack ?
a) Reversing a string b) Evaluation of postfix expression
c) Implementation of recursion d) Job scheduling
- 6) Number of parameters in calloc() function is/are
a) 1 b) 2 c) 3 d) 0
- 7) The function free () is used to
a) To unlink first and last node b) To separate the node from link list
c) To attach a node to other link list d) To release the memory of node
- 8) Which of the following is “value at address” operator ?
a) ^ b) & c) * d) @
- 9) If n is number of disks, the number of disk movements in Towers of Hanoi are
a) $2^n - 1$ b) $2^n - 1$ c) $n^2 - 1$ d) none of above
- 10) The recursion function would result in infinite recursion if following is left out
a) Recursive call b) Base condition
c) Parameter in function d) Subtraction
- 11) The fseek () function is used to
a) Set the position to desired point in the file
b) Give current position in the file
c) Set the position to the beginning of the file
d) None of these



- 12) Mode of the fopen () function specifies
- a) Which file is to open
 - b) Purpose of opening the file
 - c) The number of times file opened
 - d) Where the file is saved
- 13) Function strcmp () returns
- a) an ascii value
 - b) a character value
 - c) only zero
 - d) an integer value
- 14) FILE is a
- a) structure
 - b) function
 - c) array
 - d) pointer
- 15) In the declaration : char *xyz []; xyz is
- a) array of strings
 - b) array of pointers to strings
 - c) pointer to an array of strings
 - d) pointer to a string
- 16) Stack in Data Structure is
- a) LIFO
 - b) FIFO
 - c) LILO
 - d) None of this
- 17) Linked list is generally considered as an example of _____ type of memory allocation.
- a) Static
 - b) Dynamic
 - c) Compile time
 - d) None of this
- 18) Each node in singly linked list has _____ fields.
- a) 2
 - b) 3
 - c) 1
 - d) 4
- 19) In linked lists there are no NULL links in
- a) single linked list
 - b) linear doubly linked list
 - c) circular linked list
 - d) linked list
- 20) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
- a) Pointer to character
 - b) Pointer to integer
 - c) Pointer to node
 - d) Node
-



Seat No.	
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**S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- a) Explain the functions used to open the file, read and write the text file character by character using examples.
 - b) Explain with example the concept of pointer to pointer.
 - c) Write a recursive function for finding 6th Fibonacci number in a Fibonacci series. State how many times the function is called.
 - d) Write a program to concatenate one string at the end of other string without using library function.
 - e) Explain the concept of dynamic memory allocation.
3. Explain in detail any 4 library functions for string processing with examples. **10**

OR

Write short notes with examples on :

- a) Array of pointers
 - b) Pointer to function.
4. Write a program to count number of characters, tabs, spaces and lines in a file on the disk. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Explain different applications of stack.
 - 2) Write a short note on Priority queue.
 - 3) Write a C program to implement stack using array.
 - 4) Explain different applications of queue.
 - 5) Give the difference between stack and queue.
6. Answer **any two** : **(2×10=20)**
- 1) Explain different types of linked list in detail with suitable diagrams.
 - 2) What is queue ? Explain different operations on queue with the help of diagrams.
 - 3) Write a C program to implement stack using linked list.

Set Q



Seat No.	
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Set	R
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S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : (20×1=20)

- 1) Stack in Data Structure is
a) LIFO b) FIFO c) LILO d) None of this
- 2) Linked list is generally considered as an example of _____ type of memory allocation.
a) Static b) Dynamic c) Compile time d) None of this
- 3) Each node in singly linked list has _____ fields.
a) 2 b) 3 c) 1 d) 4
- 4) In linked lists there are no NULL links in
a) single linked list b) linear doubly linked list
c) circular linked list d) linked list
- 5) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
a) Pointer to character b) Pointer to integer
c) Pointer to node d) Node
- 6) The situation when in a linked list START = NULL is
a) Underflow b) Overflow c) Houseful d) Saturated
- 7) In which data structure element is inserted at one end called Rear and deleted at other end called front.
a) Stack b) Queue c) Both a and b d) Binary Tree
- 8) Which data structure is used for implementing recursion ?
a) Queue b) Stack c) Array d) List
- 9) Deletion operation is done using _____ in a queue.
a) front b) rear c) top d) list
- 10) Which of the following is not an inherent application of stack ?
a) Reversing a string b) Evaluation of postfix expression
c) Implementation of recursion d) Job scheduling
- 11) Number of parameters in calloc() function is/are
a) 1 b) 2 c) 3 d) 0



- 12) The function free () is used to
- a) To unlink first and last node
 - b) To separate the node from link list
 - c) To attach a node to other link list
 - d) To release the memory of node
- 13) Which of the following is “value at address” operator ?
- a) ^
 - b) &
 - c) *
 - d) @
- 14) If n is number of disks, the number of disk movements in Towers of Hanoi are
- a) $2^n - 1$
 - b) $2^n - 1$
 - c) $n^2 - 1$
 - d) none of above
- 15) The recursion function would result in infinite recursion if following is left out
- a) Recursive call
 - b) Base condition
 - c) Parameter in function
 - d) Subtraction
- 16) The fseek () function is used to
- a) Set the position to desired point in the file
 - b) Give current position in the file
 - c) Set the position to the beginning of the file
 - d) None of these
- 17) Mode of the fopen () function specifies
- a) Which file is to open
 - b) Purpose of opening the file
 - c) The number of times file opened
 - d) Where the file is saved
- 18) Function strcmp () returns
- a) an ascii value
 - b) a character value
 - c) only zero
 - d) an integer value
- 19) FILE is a
- a) structure
 - b) function
 - c) array
 - d) pointer
- 20) In the declaration : char *xyz []; xyz is
- a) array of strings
 - b) array of pointers to strings
 - c) pointer to an array of strings
 - d) pointer to a string
-



Seat No.	
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**S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- a) Explain the functions used to open the file, read and write the text file character by character using examples.
 - b) Explain with example the concept of pointer to pointer.
 - c) Write a recursive function for finding 6th Fibonacci number in a Fibonacci series. State how many times the function is called.
 - d) Write a program to concatenate one string at the end of other string without using library function.
 - e) Explain the concept of dynamic memory allocation.
3. Explain in detail any 4 library functions for string processing with examples. **10**

OR

Write short notes with examples on :

- a) Array of pointers
 - b) Pointer to function.
4. Write a program to count number of characters, tabs, spaces and lines in a file on the disk. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Explain different applications of stack.
 - 2) Write a short note on Priority queue.
 - 3) Write a C program to implement stack using array.
 - 4) Explain different applications of queue.
 - 5) Give the difference between stack and queue.
6. Answer **any two** : **(2×10=20)**
- 1) Explain different types of linked list in detail with suitable diagrams.
 - 2) What is queue ? Explain different operations on queue with the help of diagrams.
 - 3) Write a C program to implement stack using linked list.

Set R



SLR-EP –166

Seat No.	
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Set	S
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S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) The fseek () function is used to
 - a) Set the position to desired point in the file
 - b) Give current position in the file
 - c) Set the position to the beginning of the file
 - d) None of these
- 2) Mode of the fopen () function specifies
 - a) Which file is to open
 - b) Purpose of opening the file
 - c) The number of times file opened
 - d) Where the file is saved
- 3) Function strcmp () returns
 - a) an ascii value
 - b) a character value
 - c) only zero
 - d) an integer value
- 4) FILE is a
 - a) structure
 - b) function
 - c) array
 - d) pointer
- 5) In the declaration : char *xyz []; xyz is
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 - c) pointer to an array of strings
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- 6) Stack in Data Structure is
 - a) LIFO
 - b) FIFO
 - c) LILO
 - d) None of this
- 7) Linked list is generally considered as an example of _____ type of memory allocation.
 - a) Static
 - b) Dynamic
 - c) Compile time
 - d) None of this
- 8) Each node in singly linked list has _____ fields.
 - a) 2
 - b) 3
 - c) 1
 - d) 4
- 9) In linked lists there are no NULL links in
 - a) single linked list
 - b) linear doubly linked list
 - c) circular linked list
 - d) linked list

P.T.O.



- 10) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
- Pointer to character
 - Pointer to integer
 - Pointer to node
 - Node
- 11) The situation when in a linked list $START = NULL$ is
- Underflow
 - Overflow
 - Houseful
 - Saturated
- 12) In which data structure element is inserted at one end called Rear and deleted at other end called front.
- Stack
 - Queue
 - Both a and b
 - Binary Tree
- 13) Which data structure is used for implementing recursion ?
- Queue
 - Stack
 - Array
 - List
- 14) Deletion operation is done using _____ in a queue.
- front
 - rear
 - top
 - list
- 15) Which of the following is not an inherent application of stack ?
- Reversing a string
 - Evaluation of postfix expression
 - Implementation of recursion
 - Job scheduling
- 16) Number of parameters in `calloc ()` function is/are
- 1
 - 2
 - 3
 - 0
- 17) The function `free ()` is used to
- To unlink first and last node
 - To separate the node from link list
 - To attach a node to other link list
 - To release the memory of node
- 18) Which of the following is "value at address" operator ?
- \wedge
 - $\&$
 - *
 - @
- 19) If n is number of disks, the number of disk movements in Towers of Hanoi are
- 2^{n-1}
 - $2^n - 1$
 - $n^2 - 1$
 - none of above
- 20) The recursion function would result in infinite recursion if following is left out
- Recursive call
 - Base condition
 - Parameter in function
 - Subtraction
-



Seat No.	
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**S.E. (CSE) (Part – I) (Old) Examination, 2016
DATA STRUCTURE – I**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- a) Explain the functions used to open the file, read and write the text file character by character using examples.
 - b) Explain with example the concept of pointer to pointer.
 - c) Write a recursive function for finding 6th Fibonacci number in a Fibonacci series. State how many times the function is called.
 - d) Write a program to concatenate one string at the end of other string without using library function.
 - e) Explain the concept of dynamic memory allocation.
3. Explain in detail any 4 library functions for string processing with examples. **10**

OR

Write short notes with examples on :

- a) Array of pointers
 - b) Pointer to function.
4. Write a program to count number of characters, tabs, spaces and lines in a file on the disk. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Explain different applications of stack.
 - 2) Write a short note on Priority queue.
 - 3) Write a C program to implement stack using array.
 - 4) Explain different applications of queue.
 - 5) Give the difference between stack and queue.
6. Answer **any two** : **(2×10=20)**
- 1) Explain different types of linked list in detail with suitable diagrams.
 - 2) What is queue ? Explain different operations on queue with the help of diagrams.
 - 3) Write a C program to implement stack using linked list.

Set S



Seat No.	
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Set	P
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) $(23.6)_{10} = (?)_2$
a) 11111.10011 b) 10111.10011 c) 11111.10111 d) 10111.10111
- 2) In JK flip flop if initial output is 1 and next output is also 1 then inputs J and K will have values
a) J=K=0 b) J=0, K=1
c) J=1, K=0 d) Both a) and c)
e) Both a) and b)
- 3) NAND gate is equivalent to _____ gate.
a) NOR b) AND followed by NOT
c) Bubbled OR d) Both b) and c)
- 4) To plot 3 variables K-map we require array of size
a) 2×4 b) 4×2
c) 1×8 d) Both a) and b)
e) Both a) and c)
- 5) $A' + AB = ?$
a) A + B b) A' + B c) A' + B' d) A + B'
- 6) Full adder can be implemented using half adder and external _____ gate.
a) AND b) OR c) Ex-OR d) NAND



- 7) Parity checker is used for
a) Error check b) Error correction
c) Data transmission d) All of these
- 8) When input R and S complement of each other then it is called as _____ flip flop.
a) Clocked RS b) Clocked SR c) D d) T
- 9) J-K flip flop is in toggle condition when J and K values are _____ simultaneously.
a) 0, 0 b) 0, 1 c) 1, 0 d) 1, 1
- 10) How many flip flops are required to construct mod 30 counter ?
a) 4 b) 5 c) 6 d) 30
- 11) A _____ is a logic circuit that accepts one data input and distributes over several outputs.
a) Demultiplexer b) Multiplexer c) Comparator d) Encoder
- 12) A memory required to be refreshed periodically is
a) SRAM b) DRAM c) ROM d) PROM
- 13) A device which converts 8 inputs into 3 outputs is called as
a) MUX b) DEMUX c) Encoder d) Decoder
- 14) The memory has 8 bit address line so the number of location it has are
a) 1024 b) 512 c) 256 d) 128
- 15) The maximum number of bytes stored in a memory of size 1024×8 is
a) 512 b) 1024 c) 2048 d) 4096
- 16) A PLA can be used as
a) A microprocessor b) A dynamic memory
c) A sequential logic realisation d) A combinational logic realisation
- 17) A PAL is comprised of programmable _____ gates.
a) NAND b) AND c) NOR d) NOT
- 18) For conserving power in multiplexed display in IC 7447 following pin is used
a) RBO b) RBI c) BI d) LT
- 19) What are number of inputs that has 64 output in decoder circuit ?
a) 5 b) 6 c) 8 d) 64
- 20) The data bus width of a memory of size 2048×8 bits is
a) 8 b) 10 c) 11 d) 16
-



Seat No.	
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any 4** questions : **(4×5=20)**

- a) Design circuit using NAND gates only for the expression $Y = A' B + AB' C$.
- b) Design half adder.
- c) Simplify the following expression using K-map.
 $F = \sum m (2, 4, 6, 8, 10, 12, 13) + d (3, 11)$.
- d) Explain the different techniques of minimization.
- e) Explain ALU in detail.

3. Attempt **any 2** questions : **(2×10=20)**

- a) Design 3 bit up down counter.
- b) Explain synchronous and asynchronous counter. Design 2 bit synchronous counter.
- c) Minimize the expression using K-map

$$f = ABC'D + A'BCD + A'B'C' + A'B'D' + AC' + AB'C + B'C' + C'$$



SECTION – II

4. Attempt **any 4** questions :

(4×5=20)

- a) Write a short note on IC 7447.
- b) Explain timing characteristics if write cycle.
- c) Implement following function using 4 : 1 MUX
$$f(A, B, C) = A'B'C + A'BC' + AB'C' + ABC .$$
- d) Explain ROM and its types in detail.
- e) Implement full subtractor using Demultiplexer.

5. Attempt **any 2** questions :

(2×10=20)

- a) Explain PLA and PAL with diagram.
 - b) Design 2048×8 memory using 256×8 memory chips.
 - c) Design full adder using 8 : 1 MUX.
-



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Seat No.	
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Set	Q
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016

Max. Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A PLA can be used as
 - a) A microprocessor
 - b) A dynamic memory
 - c) A sequential logic realisation
 - d) A combinational logic realisation
- 2) A PAL is comprised of programmable _____ gates.
 - a) NAND
 - b) AND
 - c) NOR
 - d) NOT
- 3) For conserving power in multiplexed display in IC 7447 following pin is used
 - a) RBO
 - b) RBI
 - c) BI
 - d) LT
- 4) What are number of inputs that has 64 output in decoder circuit ?
 - a) 5
 - b) 6
 - c) 8
 - d) 64
- 5) The data bus width of a memory of size 2048×8 bits is
 - a) 8
 - b) 10
 - c) 11
 - d) 16
- 6) $(23.6)_{10} = (?)_2$
 - a) 11111.10011
 - b) 10111.10011
 - c) 11111.10111
 - d) 10111.10111
- 7) In JK flip flop if initial output is 1 and next output is also 1 then inputs J and K will have values
 - a) J=K=0
 - b) J=0, K=1
 - c) J=1, K=0
 - d) Both a) and c)
 - e) Both a) and b)

P.T.O.



- 8) NAND gate is equivalent to _____ gate.
a) NOR
b) AND followed by NOT
c) Bubbled OR
d) Both b) and c)
- 9) To plot 3 variables K-map we require array of size
a) 2^4
b) 4^2
c) 1^8
d) Both a) and b)
e) Both a) and c)
- 10) $A' + AB = ?$
a) $A + B$
b) $A' + B$
c) $A' + B'$
d) $A + B'$
- 11) Full adder can be implemented using half adder and external _____ gate.
a) AND
b) OR
c) Ex-OR
d) NAND
- 12) Parity checker is used for
a) Error check
b) Error correction
c) Data transmission
d) All of these
- 13) When input R and S complement of each other then it is called as _____ flip flop.
a) Clocked RS
b) Clocked SR
c) D
d) T
- 14) J-K flip flop is in toggle condition when J and K values are _____ simultaneously.
a) 0, 0
b) 0, 1
c) 1, 0
d) 1, 1
- 15) How many flip flops are required to construct mod 30 counter ?
a) 4
b) 5
c) 6
d) 30
- 16) A _____ is a logic circuit that accepts one data input and distributes over several outputs.
a) Demultiplexer
b) Multiplexer
c) Comparator
d) Encoder
- 17) A memory required to be refreshed periodically is
a) SRAM
b) DRAM
c) ROM
d) PROM
- 18) A device which converts 8 inputs into 3 outputs is called as
a) MUX
b) DEMUX
c) Encoder
d) Decoder
- 19) The memory has 8 bit address line so the number of location it has are
a) 1024
b) 512
c) 256
d) 128
- 20) The maximum number of bytes stored in a memory of size 1024×8 is
a) 512
b) 1024
c) 2048
d) 4096



Seat No.	
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any 4** questions : **(4×5=20)**

- a) Design circuit using NAND gates only for the expression $Y = A' B + AB' C$.
- b) Design half adder.
- c) Simplify the following expression using K-map.
 $F = \sum m (2, 4, 6, 8, 10, 12, 13) + d (3, 11)$.
- d) Explain the different techniques of minimization.
- e) Explain ALU in detail.

3. Attempt **any 2** questions : **(2×10=20)**

- a) Design 3 bit up down counter.
- b) Explain synchronous and asynchronous counter. Design 2 bit synchronous counter.
- c) Minimize the expression using K-map

$$f = ABC'D + A'BCD + A'B'C' + A'B'D' + AC' + AB'C + B'C' + C'$$



SECTION – II

4. Attempt **any 4** questions :

(4×5=20)

- a) Write a short note on IC 7447.
- b) Explain timing characteristics if write cycle.
- c) Implement following function using 4 : 1 MUX
$$f(A, B, C) = A'B'C + A'BC' + AB'C' + ABC .$$
- d) Explain ROM and its types in detail.
- e) Implement full subtractor using Demultiplexer.

5. Attempt **any 2** questions :

(2×10=20)

- a) Explain PLA and PAL with diagram.
 - b) Design 2048×8 memory using 256×8 memory chips.
 - c) Design full adder using 8 : 1 MUX.
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Seat No.	
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Set	R
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer book Page No. 3. Each question carries one mark.*

2) *Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.*

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A _____ is a logic circuit that accepts one data input and distributes over several outputs.
a) Demultiplexer b) Multiplexer c) Comparator d) Encoder
- 2) A memory required to be refreshed periodically is
a) SRAM b) DRAM c) ROM d) PROM
- 3) A device which converts 8 inputs into 3 outputs is called as
a) MUX b) DEMUX c) Encoder d) Decoder
- 4) The memory has 8 bit address line so the number of location it has are
a) 1024 b) 512 c) 256 d) 128
- 5) The maximum number of bytes stored in a memory of size 1024×8 is
a) 512 b) 1024 c) 2048 d) 4096
- 6) A PLA can be used as
a) A microprocessor b) A dynamic memory
c) A sequential logic realisation d) A combinational logic realisation
- 7) A PAL is comprised of programmable _____ gates.
a) NAND b) AND c) NOR d) NOT
- 8) For conserving power in multiplexed display in IC 7447 following pin is used
a) RBO b) RBI c) BI d) LT



- 9) What are number of inputs that has 64 output in decoder circuit ?
a) 5 b) 6 c) 8 d) 64
- 10) The data bus width of a memory of size 2048×8 bits is
a) 8 b) 10 c) 11 d) 16
- 11) $(23.6)_{10} = (?)_2$
a) 11111.10011 b) 10111.10011 c) 11111.10111 d) 10111.10111
- 12) In JK flip flop if initial output is 1 and next output is also 1 then inputs J and K will have values
a) J=K=0 b) J=0, K=1
c) J=1, K=0 d) Both a) and c)
e) Both a) and b)
- 13) NAND gate is equivalent to _____ gate.
a) NOR b) AND followed by NOT
c) Bubbled OR d) Both b) and c)
- 14) To plot 3 variables K-map we require array of size
a) 2*4 b) 4*2
c) 1*8 d) Both a) and b)
e) Both a) and c)
- 15) $A' + AB = ?$
a) A + B b) A' + B c) A' + B' d) A + B'
- 16) Full adder can be implemented using half adder and external _____ gate.
a) AND b) OR c) Ex-OR d) NAND
- 17) Parity checker is used for
a) Error check b) Error correction
c) Data transmission d) All of these
- 18) When input R and S complement of each other then it is called as _____ flip flop.
a) Clocked RS b) Clocked SR c) D d) T
- 19) J-K flip flop is in toggle condition when J and K values are _____ simultaneously.
a) 0, 0 b) 0, 1 c) 1, 0 d) 1, 1
- 20) How many flip flops are required to construct mod 30 counter ?
a) 4 b) 5 c) 6 d) 30



Seat No.	
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any 4** questions : **(4×5=20)**

- a) Design circuit using NAND gates only for the expression $Y = A' B + AB' C$.
- b) Design half adder.
- c) Simplify the following expression using K-map.
 $F = \sum m (2, 4, 6, 8, 10, 12, 13) + d (3, 11)$.
- d) Explain the different techniques of minimization.
- e) Explain ALU in detail.

3. Attempt **any 2** questions : **(2×10=20)**

- a) Design 3 bit up down counter.
- b) Explain synchronous and asynchronous counter. Design 2 bit synchronous counter.
- c) Minimize the expression using K-map

$$f = ABC'D + A'BCD + A'B'C' + A'B'D' + AC' + AB'C + B'C' + C'$$



SECTION – II

4. Attempt **any 4** questions :

(4×5=20)

- a) Write a short note on IC 7447.
- b) Explain timing characteristics if write cycle.
- c) Implement following function using 4 : 1 MUX
$$f(A, B, C) = A'B'C + A'BC' + AB'C' + ABC .$$
- d) Explain ROM and its types in detail.
- e) Implement full subtractor using Demultiplexer.

5. Attempt **any 2** questions :

(2×10=20)

- a) Explain PLA and PAL with diagram.
 - b) Design 2048×8 memory using 256×8 memory chips.
 - c) Design full adder using 8 : 1 MUX.
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Seat No.	
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Set	S
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Full adder can be implemented using half adder and external _____ gate.
a) AND b) OR c) Ex-OR d) NAND
- 2) Parity checker is used for
a) Error check b) Error correction
c) Data transmission d) All of these
- 3) When input R and S complement of each other then it is called as _____ flip flop.
a) Clocked RS b) Clocked SR c) D d) T
- 4) J-K flip flop is in toggle condition when J and K values are _____ simultaneously.
a) 0, 0 b) 0, 1 c) 1, 0 d) 1, 1
- 5) How many flip flops are required to construct mod 30 counter ?
a) 4 b) 5 c) 6 d) 30
- 6) A _____ is a logic circuit that accepts one data input and distributes over several outputs.
a) Demultiplexer b) Multiplexer c) Comparator d) Encoder
- 7) A memory required to be refreshed periodically is
a) SRAM b) DRAM c) ROM d) PROM

P.T.O.



- 8) A device which converts 8 inputs into 3 outputs is called as
a) MUX b) DEMUX c) Encoder d) Decoder
- 9) The memory has 8 bit address line so the number of location it has are
a) 1024 b) 512 c) 256 d) 128
- 10) The maximum number of bytes stored in a memory of size 1024×8 is
a) 512 b) 1024 c) 2048 d) 4096
- 11) A PLA can be used as
a) A microprocessor b) A dynamic memory
c) A sequential logic realisation d) A combinational logic realisation
- 12) A PAL is comprised of programmable _____ gates.
a) NAND b) AND c) NOR d) NOT
- 13) For conserving power in multiplexed display in IC 7447 following pin is used
a) RBO b) RBI c) BI d) LT
- 14) What are number of inputs that has 64 output in decoder circuit ?
a) 5 b) 6 c) 8 d) 64
- 15) The data bus width of a memory of size 2048×8 bits is
a) 8 b) 10 c) 11 d) 16
- 16) $(23.6)_{10} = (?)_2$
a) 11111.10011 b) 10111.10011 c) 11111.10111 d) 10111.10111
- 17) In JK flip flop if initial output is 1 and next output is also 1 then inputs J and K will have values
a) J=K=0 b) J=0, K=1
c) J=1, K=0 d) Both a) and c)
e) Both a) and b)
- 18) NAND gate is equivalent to _____ gate.
a) NOR b) AND followed by NOT
c) Bubbled OR d) Both b) and c)
- 19) To plot 3 variables K-map we require array of size
a) 2*4 b) 4*2
c) 1*8 d) Both a) and b)
e) Both a) and c)
- 20) $A' + AB = ?$
a) A + B b) A' + B c) A' + B' d) A + B'



Seat No.	
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**S.E. (Computer Science and Engineering) (Part – I) (Old) Examination, 2016
SWITCHING THEORY AND LOGIC DESIGN**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any 4** questions : **(4×5=20)**

- a) Design circuit using NAND gates only for the expression $Y = A' B + AB' C$.
- b) Design half adder.
- c) Simplify the following expression using K-map.
 $F = \sum m (2, 4, 6, 8, 10, 12, 13) + d (3, 11)$.
- d) Explain the different techniques of minimization.
- e) Explain ALU in detail.

3. Attempt **any 2** questions : **(2×10=20)**

- a) Design 3 bit up down counter.
- b) Explain synchronous and asynchronous counter. Design 2 bit synchronous counter.
- c) Minimize the expression using K-map

$$f = ABC'D + A'BCD + A'B'C' + A'B'D' + AC' + AB'C + B'C' + C'$$



SECTION – II

4. Attempt **any 4** questions : **(4×5=20)**
- a) Write a short note on IC 7447.
 - b) Explain timing characteristics if write cycle.
 - c) Implement following function using 4 : 1 MUX
$$f(A, B, C) = A'B'C + A'BC' + AB'C' + ABC .$$
 - d) Explain ROM and its types in detail.
 - e) Implement full subtractor using Demultiplexer.
5. Attempt **any 2** questions : **(2×10=20)**
- a) Explain PLA and PAL with diagram.
 - b) Design 2048×8 memory using 256×8 memory chips.
 - c) Design full adder using 8 : 1 MUX.
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Seat
No.Set **P****S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **Use of scientific calculator is allowed.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

- 1) The method which involves repeated use of intermediate value property is
 - a) Bisection method
 - b) Regula Falsi method
 - c) Both a) and b)
 - d) Neither a) nor b)
- 2) This method has quadratic convergence
 - a) Newton-Raphson
 - b) Regula-Falsi
 - c) Bisection
 - d) All the above
- 3) The coefficient matrix is transformed to _____ form in Gauss-elimination method.
 - a) diagonal
 - b) upper triangular
 - c) lower triangular
 - d) none of a, b, c
- 4) For Gauss-Seidal iterative method to converge the coefficient matrix must be
 - a) lower triangular
 - b) upper triangular
 - c) symmetric
 - d) diagonally dominant
- 5) By substituting $n = 2$ in Newton-Cote's quadrature formula, we obtain
 - a) Trapezoidal rule
 - b) Weddles rule
 - c) Simpson's $\frac{1}{3}$ rule
 - d) Simpson's $\frac{3}{8}$ rule
- 6) While applying Weddles rule, the number of sub-intervals in which range of integration must be divided into should be
 - a) Multiple of 2
 - b) Multiple of 3
 - c) Multiple of 4
 - d) Multiple of 6
- 7) Truncation error in Simpson's rule is of the order
 - a) h^4
 - b) h^3
 - c) h^2
 - d) h
- 8) The fuzzy cardinality of fuzzy set is
 - a) fuzzy set
 - b) a real number
 - c) fuzzy number
 - d) none

P.T.O.



9) For the fuzzy sets defined below

Elements :	x_1	x_2	x_3	x_4	x_5	x_6
A(x)	: 0.1	0.6	0.8	0.9	0.7	0.1
B(x)	: 0.9	0.7	0.5	0.2	0.1	0

The set $0.2_{A \cap B}$ is

a) $\frac{0.9}{x_1} + \frac{0.4}{x_2} + \frac{0.2}{x_3}$

b) $\frac{1}{x_1} + \frac{1}{x_2}$

c) $\frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3}$

d) $\frac{1}{x_1} + \frac{1}{x_2} + \frac{1}{x_3}$

10) For the fuzzy set defined by the membership function $A(x) = \frac{2x}{x+5}$

$x \in \{0, 1, 2, 3, 4, 5\}$ then $|A|$ is

a) 0.5436

b) 3.5436

c) 2.5436

d) None

11) Consider the fuzzy set $A(x) = \frac{x}{x+1} - \infty < x < \infty$ then the level set of the fuzzy set is

a) $[0, 1)$

b) $[1, 1]$

c) $(0, 1)$

d) $(0, 1]$

12) Consider the fuzzy proposition

P : temperature (v) is high (f) is called

a) Conditional and qualified proposition

b) Conditional and unqualified proposition

c) Unconditional and qualified proposition

d) Unconditional and unqualified proposition

13) If A is fuzzy set defined on X

$A = \frac{0.2}{x_1} + \frac{0.4}{x_2} + \frac{0.6}{x_3} + \frac{0.8}{x_4} + \frac{1}{x_5}$ then 0.8^A is

a) $\frac{0.8}{x_4} + \frac{0.8}{x_5}$

b) $\frac{1}{x_4} + \frac{1}{x_5}$

c) $\frac{0.6}{x_3} + \frac{0.8}{x_2} + \frac{1}{x_5}$

d) none

14) Consider

i) $A(x) = x \quad 0 \leq x \leq 1$
 $0 \quad \text{otherwise}$

ii) $B(x) = \min \{1, x\} \quad x \geq 0$
 $0 \quad x < 0$

then the fuzzy numbers are

a) Both i) and ii)

b) Only ii)

c) Only i)

d) Neither i) nor ii)



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 56

- Instructions :** 1) Attempt **any three** questions from **each** Section.
2) Figures to the **right** indicate **full** marks.
3) **Use** of scientific calculator is **allowed**.

SECTION – I

2. a) Perform 7 iterations of Bisection method to find a negative root of the equation $x^3 - 4x + 9 = 0$. 5
b) Find a real root of the equation $2^x - x - 3 = 0$ which lies between $(-3, -2)$. Perform three iterations of method of false position. 4

OR

- b) Find the smallest positive root of the equation $2x - \tan x = 0$, correct to three decimal places using Newton-Raphson method. Do not forget to put calculator on radian mode. 4
3. a) Solve by Gauss-Seidal iterative method, take initial solution vector as $(0, 0, 0)^T$
 $8x - 3y + 2z = 20, 4x + 11y - z = 33, 6x + 3y + 12z = 35$. 3

- b) Find the largest eigen value and the corresponding eigen vector for the matrix

$A = \begin{pmatrix} 25 & 1 & 2 \\ 1 & 3 & 0 \\ 2 & 0 & -4 \end{pmatrix}$. Perform three iterations of power method, take initial vector

$X^{(0)} = [1, 0, 0]^T$. 3

- c) Apply Gauss-elimination method to find solution of the system of equations
 $6x - y + z = 13, x + y + z = 9, 10x + y - z = 19$. 3

Set P



4 a) Evaluate using Trapezoidal rule and Simpson's $\frac{1}{3}$ rule $\int_0^{\pi/2} \int_0^{\pi/2} \sin(x+y) dx dy$.

Take $h = k = \frac{\pi}{4}$. Also evaluate directly and compare the error.

4

b) Evaluate $\int_0^{\pi/2} e^{\sin x} dx$ by Trapezoidal rule, take $h = \frac{\pi}{6}$.

2

c) Evaluate $\int_0^1 \frac{dx}{1+x}$ using Romberg's method. Take h as 0.5, 0.25 and 0.125

respectively. Hence obtain approximate value of \log_e^2 .

4

5. a) Evaluate $\int_2^3 \frac{\cos 2x}{1+\sin x} dx$ using three point Gaussian quadrature rule.

4

b) Perform two iterations of Muller's method to find an approximate root of the equation $x^3 - 2x - 5$. It is known that a root lies in the interval (2, 3).

5

SECTION – II

6. a) If A, B are two fuzzy sets defined on $X = \{0, 1, 2, 3, 4, 5\}$ and given by membership function $A(x) = \frac{x}{x+3}$ and $B(x) = \frac{x}{x+5}$ then verify Demorgan's laws.

6

b) Find fuzzy cardinality of fuzzy set $A = \frac{0.7}{0} + \frac{0.2}{1} + \frac{0.9}{2} + \frac{0.6}{3} + \frac{0.8}{4} + \frac{1}{5}$
 $X = \{0, 1, 2, 3, 4, 5\}$.

3

7. a) Find α -cut and strong α -cut for the following fuzzy set $A = \frac{1}{1+10x}$
 $x \in X = \{0, 1, 2, 3, 4, 5\}$ when $\alpha = 0.04, 0.02$.

3

b) Solve the fuzzy equation $A + X = B$ where

6

$$A(x) = \begin{cases} 0 & x \leq 3, x \geq 5 \\ x-3 & 3 < x \leq 4 \\ 5-x & 4 < x \leq 5 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \leq 12, x > 32 \\ \frac{x-12}{8} & 12 < x \leq 20 \\ \frac{32-x}{12} & 20 < x \leq 32 \end{cases}$$



8. a) If A and B are fuzzy sets defined on universal set X given by

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{2}$$

and let f such that $f : X \times X \rightarrow X$ be a crisp function given by $f(x_1, x_2) = x_1 + x_2 \forall x_1, x_2 \in X$. Then by using extension principle find $f(A, B)$.

5

b) Let A and B are two fuzzy numbers with membership function given by

5

$$A(x) = \begin{cases} x - 4 & \text{for } 4 < x \leq 5 \\ 6 - x & \text{for } 5 < x \leq 6 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x - 10}{10} & \text{for } 10 < x \leq 20 \\ \frac{35 - x}{15} & \text{for } 20 < x \leq 35 \\ 0 & \text{otherwise} \end{cases}$$

calculate fuzzy number $A - B$.

OR

b) Explain the concept of fuzzy quantifiers and their types.

5

9. a) Calculate the following fuzzy operations on the intervals

3

i) $[-1, 2] - [1, 3]$

ii) $\frac{[-4, 6]}{[2, 4]}$

iii) $[-3, 4] \cdot [-3, 5]$

OR



a) For the given fuzzy binary relation

x	:	1	1	2	2	3	3	4	4
y	:	1	3	2	3	1	4	3	4
R(x, y) :		0.7	0.3	0.7	1	0.9	1	0.8	0.5

represent the information using

- i) Membership matrix
- ii) Sagittal diagram
- iii) Simple diagram.

b) Let A and B be two fuzzy numbers whose membership functions are given by

$$A(x) = \begin{cases} \frac{x+2}{3} & -2 < x \leq 1 \\ \frac{4-x}{3} & 1 < x \leq 4 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x-1 & 1 < x \leq 2 \\ 3-x & 2 < x \leq 3 \\ 0 & \text{otherwise} \end{cases}$$

Find the fuzzy number MAX (A, B).

6

Seat
No.Set **Q**

**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) Use of scientific calculator is **allowed**.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

- 1) The fuzzy cardinality of fuzzy set is
a) fuzzy set b) a real number c) fuzzy number d) none
- 2) For the fuzzy sets defined below

Elements :	x_1	x_2	x_3	x_4	x_5	x_6
A(x)	: 0.1	0.6	0.8	0.9	0.7	0.1
B(x)	: 0.9	0.7	0.5	0.2	0.1	0

The set $0.2_{A \cap B}$ is

- a) $\frac{0.9}{x_1} + \frac{0.4}{x_2} + \frac{0.2}{x_3}$ b) $\frac{1}{x_1} + \frac{1}{x_2}$
- c) $\frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3}$ d) $\frac{1}{x_1} + \frac{1}{x_2} + \frac{1}{x_3}$
- 3) For the fuzzy set defined by the membership function $A(x) = \frac{2x}{x+5}$
 $x \in \{0, 1, 2, 3, 4, 5\}$ then $|A|$ is
a) 0.5436 b) 3.5436 c) 2.5436 d) None
- 4) Consider the fuzzy set $A(x) = \frac{x}{x+1} - \infty < x < \infty$ then the level set of the fuzzy set is
a) [0, 1) b) [1, 1] c) (0, 1) d) (0, 1]

P.T.O.



- 5) Consider the fuzzy proposition
 P : temperature (v) is high (f) is called
- Conditional and qualified proposition
 - Conditional and unqualified proposition
 - Unconditional and qualified proposition
 - Unconditional and unqualified proposition

- 6) If A is fuzzy set defined on X

$$A = \frac{0.2}{x_1} + \frac{0.4}{x_2} + \frac{0.6}{x_3} + \frac{0.8}{x_4} + \frac{1}{x_5} \text{ then } 0.8^A \text{ is}$$

- a) $\frac{0.8}{x_4} + \frac{0.8}{x_5}$ b) $\frac{1}{x_4} + \frac{1}{x_5}$ c) $\frac{0.6}{x_3} + \frac{0.8}{x_2} + \frac{1}{x_5}$ d) none

- 7) Consider

i) $A(x) = x \quad 0 \leq x \leq 1$
 $0 \quad \text{otherwise}$

ii) $B(x) = \min \{1, x\} \quad x \geq 0$
 $0 \quad x < 0$

then the fuzzy numbers are

- a) Both i) and ii) b) Only ii) c) Only i) d) Neither i) nor ii)
- 8) The method which involves repeated use of intermediate value property is
- Bisection method
 - Regula Falsi method
 - Both a) and b)
 - Neither a) nor b)
- 9) This method has quadratic convergence
- Newton-Raphson
 - Regula-Falsi
 - Bisection
 - All the above
- 10) The coefficient matrix is transformed to _____ form in Gauss-elimination method.
- diagonal
 - upper triangular
 - lower triangular
 - none of a, b, c
- 11) For Gauss-Seidal iterative method to converge the coefficient matrix must be
- lower triangular
 - upper triangular
 - symmetric
 - diagonally dominant
- 12) By substituting $n = 2$ in Newton-Cote's quadrature formula, we obtain
- Trapezoidal rule
 - Weddles rule
 - Simpson's $\frac{1}{3}$ rd rule
 - Simpson's $\frac{3}{8}$ th rule
- 13) While applying Weddles rule, the number of sub-intervals in which range of integration must be divided into should be
- Multiple of 2
 - Multiple of 3
 - Multiple of 4
 - Multiple of 6
- 14) Truncation error in Simpson's rule is of the order
- h^4
 - h^3
 - h^2
 - h



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 56

- Instructions :** 1) Attempt **any three** questions from **each** Section.
2) Figures to the **right** indicate **full** marks.
3) **Use** of scientific calculator is **allowed**.

SECTION – I

2. a) Perform 7 iterations of Bisection method to find a negative root of the equation $x^3 - 4x + 9 = 0$. 5
- b) Find a real root of the equation $2^x - x - 3 = 0$ which lies between $(-3, -2)$. Perform three iterations of method of false position. 4

OR

- b) Find the smallest positive root of the equation $2x - \tan x = 0$, correct to three decimal places using Newton-Raphson method. Do not forget to put calculator on radian mode. 4
3. a) Solve by Gauss-Seidal iterative method, take initial solution vector as $(0, 0, 0)^T$
 $8x - 3y + 2z = 20, 4x + 11y - z = 33, 6x + 3y + 12z = 35$. 3

- b) Find the largest eigen value and the corresponding eigen vector for the matrix

$A = \begin{pmatrix} 25 & 1 & 2 \\ 1 & 3 & 0 \\ 2 & 0 & -4 \end{pmatrix}$. Perform three iterations of power method, take initial vector

$X^{(0)} = [1, 0, 0]^T$. 3

- c) Apply Gauss-elimination method to find solution of the system of equations
 $6x - y + z = 13, x + y + z = 9, 10x + y - z = 19$. 3

Set Q



4 a) Evaluate using Trapezoidal rule and Simpson's $\frac{1}{3}$ rule $\int_0^{\pi/2} \int_0^{\pi/2} \sin(x+y) dx dy$.

Take $h = k = \frac{\pi}{4}$. Also evaluate directly and compare the error.

4

b) Evaluate $\int_0^{\pi/2} e^{\sin x} dx$ by Trapezoidal rule, take $h = \frac{\pi}{6}$.

2

c) Evaluate $\int_0^1 \frac{dx}{1+x}$ using Romberg's method. Take h as 0.5, 0.25 and 0.125

respectively. Hence obtain approximate value of \log_e^2 .

4

5. a) Evaluate $\int_2^3 \frac{\cos 2x}{1+\sin x} dx$ using three point Gaussian quadrature rule.

4

b) Perform two iterations of Muller's method to find an approximate root of the equation $x^3 - 2x - 5$. It is known that a root lies in the interval (2, 3).

5

SECTION – II

6. a) If A, B are two fuzzy sets defined on $X = \{0, 1, 2, 3, 4, 5\}$ and given by membership function $A(x) = \frac{x}{x+3}$ and $B(x) = \frac{x}{x+5}$ then verify Demorgan's laws.

6

b) Find fuzzy cardinality of fuzzy set $A = \frac{0.7}{0} + \frac{0.2}{1} + \frac{0.9}{2} + \frac{0.6}{3} + \frac{0.8}{4} + \frac{1}{5}$
 $X = \{0, 1, 2, 3, 4, 5\}$.

3

7. a) Find α -cut and strong α -cut for the following fuzzy set $A = \frac{1}{1+10x}$
 $x \in X = \{0, 1, 2, 3, 4, 5\}$ when $\alpha = 0.04, 0.02$.

3

b) Solve the fuzzy equation $A + X = B$ where

6

$$A(x) = \begin{cases} 0 & x \leq 3, x \geq 5 \\ x-3 & 3 < x \leq 4 \\ 5-x & 4 < x \leq 5 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \leq 12, x > 32 \\ \frac{x-12}{8} & 12 < x \leq 20 \\ \frac{32-x}{12} & 20 < x \leq 32 \end{cases}$$



8. a) If A and B are fuzzy sets defined on universal set X given by

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{2}$$

and let f such that $f : X \times X \rightarrow X$ be a crisp function given by $f(x_1, x_2) = x_1 + x_2 \forall x_1, x_2 \in X$. Then by using extension principle find $f(A, B)$.

5

b) Let A and B are two fuzzy numbers with membership function given by

5

$$A(x) = \begin{cases} x - 4 & \text{for } 4 < x \leq 5 \\ 6 - x & \text{for } 5 < x \leq 6 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x - 10}{10} & \text{for } 10 < x \leq 20 \\ \frac{35 - x}{15} & \text{for } 20 < x \leq 35 \\ 0 & \text{otherwise} \end{cases}$$

calculate fuzzy number $A - B$.

OR

b) Explain the concept of fuzzy quantifiers and their types.

5

9. a) Calculate the following fuzzy operations on the intervals

3

i) $[-1, 2] - [1, 3]$

ii) $\frac{[-4, 6]}{[2, 4]}$

iii) $[-3, 4] \cdot [-3, 5]$

OR



a) For the given fuzzy binary relation

x	:	1	1	2	2	3	3	4	4
y	:	1	3	2	3	1	4	3	4
R(x, y) :		0.7	0.3	0.7	1	0.9	1	0.8	0.5

represent the information using

- i) Membership matrix
- ii) Sagittal diagram
- iii) Simple diagram.

b) Let A and B be two fuzzy numbers whose membership functions are given by

$$A(x) = \begin{cases} \frac{x+2}{3} & -2 < x \leq 1 \\ \frac{4-x}{3} & 1 < x \leq 4 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x-1 & 1 < x \leq 2 \\ 3-x & 2 < x \leq 3 \\ 0 & \text{otherwise} \end{cases}$$

Find the fuzzy number MAX (A, B).

6

Seat
No.Set **R**

**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **Use of scientific calculator is allowed.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

- 1) By substituting $n = 2$ in Newton-Cote's quadrature formula, we obtain
 - a) Trapezoidal rule
 - b) Weddles rule
 - c) Simpson's $\frac{1}{3}$ rule
 - d) Simpson's $\frac{3}{8}$ rule
- 2) While applying Weddles rule, the number of sub-intervals in which range of integration must be divided into should be
 - a) Multiple of 2
 - b) Multiple of 3
 - c) Multiple of 4
 - d) Multiple of 6
- 3) Truncation error in Simpson's rule is of the order
 - a) h^4
 - b) h^3
 - c) h^2
 - d) h
- 4) The fuzzy cardinality of fuzzy set is
 - a) fuzzy set
 - b) a real number
 - c) fuzzy number
 - d) none
- 5) For the fuzzy sets defined below

Elements :	x_1	x_2	x_3	x_4	x_5	x_6
A(x)	: 0.1	0.6	0.8	0.9	0.7	0.1
B(x)	: 0.9	0.7	0.5	0.2	0.1	0

The set $0.2_{A \cap B}$ is

- a) $\frac{0.9}{x_1} + \frac{0.4}{x_2} + \frac{0.2}{x_3}$
- b) $\frac{1}{x_1} + \frac{1}{x_2}$
- c) $\frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3}$
- d) $\frac{1}{x_1} + \frac{1}{x_2} + \frac{1}{x_3}$

P.T.O.



- 6) For the fuzzy set defined by the membership function $A(x) = \frac{2x}{x+5}$
 $x \in \{0, 1, 2, 3, 4, 5\}$ then $|A|$ is
 a) 0.5436 b) 3.5436 c) 2.5436 d) None
- 7) Consider the fuzzy set $A(x) = \frac{x}{x+1} - \infty < x < \infty$ then the level set of the fuzzy set is
 a) $[0, 1)$ b) $[1, 1]$ c) $(0, 1)$ d) $(0, 1]$
- 8) Consider the fuzzy proposition
 P : temperature (v) is high (f) is called
 a) Conditional and qualified proposition
 b) Conditional and unqualified proposition
 c) Unconditional and qualified proposition
 d) Unconditional and unqualified proposition
- 9) If A is fuzzy set defined on X
 $A = \frac{0.2}{x_1} + \frac{0.4}{x_2} + \frac{0.6}{x_3} + \frac{0.8}{x_4} + \frac{1}{x_5}$ then 0.8^A is
 a) $\frac{0.8}{x_4} + \frac{0.8}{x_5}$ b) $\frac{1}{x_4} + \frac{1}{x_5}$ c) $\frac{0.6}{x_3} + \frac{0.8}{x_2} + \frac{1}{x_5}$ d) none
- 10) Consider
 i) $A(x) = x \quad 0 \leq x \leq 1$
 0 otherwise
 ii) $B(x) = \min \{1, x\} \quad x \geq 0$
 0 $x < 0$
 then the fuzzy numbers are
 a) Both i) and ii) b) Only ii) c) Only i) d) Neither i) nor ii)
- 11) The method which involves repeated use of intermediate value property is
 a) Bisection method b) Regula Falsi method
 c) Both a) and b) d) Neither a) nor b)
- 12) This method has quadratic convergence
 a) Newton-Raphson b) Regula-Falsi
 c) Bisection d) All the above
- 13) The coefficient matrix is transformed to _____ form in Gauss-elimination method.
 a) diagonal b) upper triangular
 c) lower triangular d) none of a, b, c
- 14) For Gauss-Seidal iterative method to converge the coefficient matrix must be
 a) lower triangular b) upper triangular
 c) symmetric d) diagonally dominant



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 56

- Instructions :** 1) Attempt **any three** questions from **each** Section.
2) Figures to the **right** indicate **full** marks.
3) **Use** of scientific calculator is **allowed**.

SECTION – I

2. a) Perform 7 iterations of Bisection method to find a negative root of the equation $x^3 - 4x + 9 = 0$. 5
- b) Find a real root of the equation $2^x - x - 3 = 0$ which lies between $(-3, -2)$. Perform three iterations of method of false position. 4

OR

- b) Find the smallest positive root of the equation $2x - \tan x = 0$, correct to three decimal places using Newton-Raphson method. Do not forget to put calculator on radian mode. 4
3. a) Solve by Gauss-Seidal iterative method, take initial solution vector as $(0, 0, 0)^T$
 $8x - 3y + 2z = 20, 4x + 11y - z = 33, 6x + 3y + 12z = 35$. 3

- b) Find the largest eigen value and the corresponding eigen vector for the matrix

$A = \begin{pmatrix} 25 & 1 & 2 \\ 1 & 3 & 0 \\ 2 & 0 & -4 \end{pmatrix}$. Perform three iterations of power method, take initial vector

$X^{(0)} = [1, 0, 0]^T$. 3

- c) Apply Gauss-elimination method to find solution of the system of equations
 $6x - y + z = 13, x + y + z = 9, 10x + y - z = 19$. 3

Set R



4 a) Evaluate using Trapezoidal rule and Simpson's $\frac{1}{3}$ rule $\int_0^{\pi/2} \int_0^{\pi/2} \sin(x+y) dx dy$.

Take $h = k = \frac{\pi}{4}$. Also evaluate directly and compare the error.

4

b) Evaluate $\int_0^{\pi/2} e^{\sin x} dx$ by Trapezoidal rule, take $h = \frac{\pi}{6}$.

2

c) Evaluate $\int_0^1 \frac{dx}{1+x}$ using Romberg's method. Take h as 0.5, 0.25 and 0.125

respectively. Hence obtain approximate value of \log_e^2 .

4

5. a) Evaluate $\int_2^3 \frac{\cos 2x}{1+\sin x} dx$ using three point Gaussian quadrature rule.

4

b) Perform two iterations of Muller's method to find an approximate root of the equation $x^3 - 2x - 5$. It is known that a root lies in the interval (2, 3).

5

SECTION – II

6. a) If A, B are two fuzzy sets defined on $X = \{0, 1, 2, 3, 4, 5\}$ and given by membership function $A(x) = \frac{x}{x+3}$ and $B(x) = \frac{x}{x+5}$ then verify Demorgan's laws.

6

b) Find fuzzy cardinality of fuzzy set $A = \frac{0.7}{0} + \frac{0.2}{1} + \frac{0.9}{2} + \frac{0.6}{3} + \frac{0.8}{4} + \frac{1}{5}$
 $X = \{0, 1, 2, 3, 4, 5\}$.

3

7. a) Find α -cut and strong α -cut for the following fuzzy set $A = \frac{1}{1+10x}$
 $x \in X = \{0, 1, 2, 3, 4, 5\}$ when $\alpha = 0.04, 0.02$.

3

b) Solve the fuzzy equation $A + X = B$ where

6

$$A(x) = \begin{cases} 0 & x \leq 3, x \geq 5 \\ x-3 & 3 < x \leq 4 \\ 5-x & 4 < x \leq 5 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \leq 12, x > 32 \\ \frac{x-12}{8} & 12 < x \leq 20 \\ \frac{32-x}{12} & 20 < x \leq 32 \end{cases}$$



8. a) If A and B are fuzzy sets defined on universal set X given by

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{2}$$

and let f such that $f : X \times X \rightarrow X$ be a crisp function given by $f(x_1, x_2) = x_1 + x_2 \forall x_1, x_2 \in X$. Then by using extension principle find $f(A, B)$.

5

b) Let A and B are two fuzzy numbers with membership function given by

5

$$A(x) = \begin{cases} x - 4 & \text{for } 4 < x \leq 5 \\ 6 - x & \text{for } 5 < x \leq 6 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x - 10}{10} & \text{for } 10 < x \leq 20 \\ \frac{35 - x}{15} & \text{for } 20 < x \leq 35 \\ 0 & \text{otherwise} \end{cases}$$

calculate fuzzy number $A - B$.

OR

b) Explain the concept of fuzzy quantifiers and their types.

5

9. a) Calculate the following fuzzy operations on the intervals

3

i) $[-1, 2] - [1, 3]$

ii) $\frac{[-4, 6]}{[2, 4]}$

iii) $[-3, 4] \cdot [-3, 5]$

OR

Set R



a) For the given fuzzy binary relation

x	:	1	1	2	2	3	3	4	4
y	:	1	3	2	3	1	4	3	4
R(x, y) :		0.7	0.3	0.7	1	0.9	1	0.8	0.5

represent the information using

- i) Membership matrix
- ii) Sagittal diagram
- iii) Simple diagram.

b) Let A and B be two fuzzy numbers whose membership functions are given by

$$A(x) = \begin{cases} \frac{x+2}{3} & -2 < x \leq 1 \\ \frac{4-x}{3} & 1 < x \leq 4 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x-1 & 1 < x \leq 2 \\ 3-x & 2 < x \leq 3 \\ 0 & \text{otherwise} \end{cases}$$

Find the fuzzy number MAX (A, B).

6

Seat
No.Set **S****S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.
3) Use of scientific calculator is **allowed**.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

- 1) For the fuzzy set defined by the membership function $A(x) = \frac{2x}{x+5}$ $x \in \{0, 1, 2, 3, 4, 5\}$ then $|A|$ is
a) 0.5436 b) 3.5436 c) 2.5436 d) None
- 2) Consider the fuzzy set $A(x) = \frac{x}{x+1} - \infty < x < \infty$ then the level set of the fuzzy set is
a) $[0, 1)$ b) $[1, 1]$ c) $(0, 1)$ d) $(0, 1]$
- 3) Consider the fuzzy proposition
P : temperature (v) is high (f) is called
a) Conditional and qualified proposition
b) Conditional and unqualified proposition
c) Unconditional and qualified proposition
d) Unconditional and unqualified proposition
- 4) If A is fuzzy set defined on X
 $A = \frac{0.2}{x_1} + \frac{0.4}{x_2} + \frac{0.6}{x_3} + \frac{0.8}{x_4} + \frac{1}{x_5}$ then 0.8^A is
a) $\frac{0.8}{x_4} + \frac{0.8}{x_5}$ b) $\frac{1}{x_4} + \frac{1}{x_5}$ c) $\frac{0.6}{x_3} + \frac{0.8}{x_2} + \frac{1}{x_5}$ d) none

P.T.O.



5) Consider

$$\begin{array}{ll} \text{i) } A(x) = x & 0 \leq x \leq 1 \\ & 0 \text{ otherwise} \end{array} \quad \begin{array}{ll} \text{ii) } B(x) = \min \{1, x\} & x \geq 0 \\ & 0 \quad x < 0 \end{array}$$

then the fuzzy numbers are

- a) Both i) and ii) b) Only ii) c) Only i) d) Neither i) nor ii)
- 6) The method which involves repeated use of intermediate value property is
 a) Bisection method b) Regula Falsi method
 c) Both a) and b) d) Neither a) nor b)
- 7) This method has quadratic convergence
 a) Newton-Raphson b) Regula-Falsi
 c) Bisection d) All the above
- 8) The coefficient matrix is transformed to _____ form in Gauss-elimination method.
 a) diagonal b) upper triangular
 c) lower triangular d) none of a, b, c
- 9) For Gauss-Seidal iterative method to converge the coefficient matrix must be
 a) lower triangular b) upper triangular
 c) symmetric d) diagonally dominant
- 10) By substituting $n = 2$ in Newton-Cote's quadrature formula, we obtain
 a) Trapezoidal rule b) Weddles rule
 c) Simpson's $\frac{1}{3}$ rd rule d) Simpson's $\frac{3}{8}$ th rule
- 11) While applying Weddles rule, the number of sub-intervals in which range of integration must be divided into should be
 a) Multiple of 2 b) Multiple of 3 c) Multiple of 4 d) Multiple of 6
- 12) Truncation error in Simpson's rule is of the order
 a) h^4 b) h^3 c) h^2 d) h
- 13) The fuzzy cardinality of fuzzy set is
 a) fuzzy set b) a real number c) fuzzy number d) none
- 14) For the fuzzy sets defined below

Elements :	x_1	x_2	x_3	x_4	x_5	x_6
A(x)	: 0.1	0.6	0.8	0.9	0.7	0.1
B(x)	: 0.9	0.7	0.5	0.2	0.1	0

The set $0.2_{A \cap B}$ is

- a) $\frac{0.9}{x_1} + \frac{0.4}{x_2} + \frac{0.2}{x_3}$ b) $\frac{1}{x_1} + \frac{1}{x_2}$
- c) $\frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3}$ d) $\frac{1}{x_1} + \frac{1}{x_2} + \frac{1}{x_3}$



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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
APPLIED MATHEMATICS – II**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 56

- Instructions :** 1) Attempt **any three** questions from **each** Section.
2) Figures to the **right** indicate **full** marks.
3) **Use** of scientific calculator is **allowed**.

SECTION – I

2. a) Perform 7 iterations of Bisection method to find a negative root of the equation $x^3 - 4x + 9 = 0$. 5
- b) Find a real root of the equation $2^x - x - 3 = 0$ which lies between $(-3, -2)$. Perform three iterations of method of false position. 4

OR

- b) Find the smallest positive root of the equation $2x - \tan x = 0$, correct to three decimal places using Newton-Raphson method. Do not forget to put calculator on radian mode. 4
3. a) Solve by Gauss-Seidal iterative method, take initial solution vector as $(0, 0, 0)^T$
 $8x - 3y + 2z = 20, 4x + 11y - z = 33, 6x + 3y + 12z = 35$. 3

- b) Find the largest eigen value and the corresponding eigen vector for the matrix

$A = \begin{pmatrix} 25 & 1 & 2 \\ 1 & 3 & 0 \\ 2 & 0 & -4 \end{pmatrix}$. Perform three iterations of power method, take initial vector

$X^{(0)} = [1, 0, 0]^T$. 3

- c) Apply Gauss-elimination method to find solution of the system of equations
 $6x - y + z = 13, x + y + z = 9, 10x + y - z = 19$. 3

Set S



4 a) Evaluate using Trapezoidal rule and Simpson's $\frac{1}{3}$ rule $\int_0^{\pi/2} \int_0^{\pi/2} \sin(x+y) dx dy$.

Take $h = k = \frac{\pi}{4}$. Also evaluate directly and compare the error.

4

b) Evaluate $\int_0^{\pi/2} e^{\sin x} dx$ by Trapezoidal rule, take $h = \frac{\pi}{6}$.

2

c) Evaluate $\int_0^1 \frac{dx}{1+x}$ using Romberg's method. Take h as 0.5, 0.25 and 0.125

respectively. Hence obtain approximate value of \log_e^2 .

4

5. a) Evaluate $\int_2^3 \frac{\cos 2x}{1+\sin x} dx$ using three point Gaussian quadrature rule.

4

b) Perform two iterations of Muller's method to find an approximate root of the equation $x^3 - 2x - 5$. It is known that a root lies in the interval (2, 3).

5

SECTION – II

6. a) If A, B are two fuzzy sets defined on $X = \{0, 1, 2, 3, 4, 5\}$ and given by membership function $A(x) = \frac{x}{x+3}$ and $B(x) = \frac{x}{x+5}$ then verify Demorgan's laws.

6

b) Find fuzzy cardinality of fuzzy set $A = \frac{0.7}{0} + \frac{0.2}{1} + \frac{0.9}{2} + \frac{0.6}{3} + \frac{0.8}{4} + \frac{1}{5}$
 $X = \{0, 1, 2, 3, 4, 5\}$.

3

7. a) Find α -cut and strong α -cut for the following fuzzy set $A = \frac{1}{1+10x}$
 $x \in X = \{0, 1, 2, 3, 4, 5\}$ when $\alpha = 0.04, 0.02$.

3

b) Solve the fuzzy equation $A + X = B$ where

6

$$A(x) = \begin{cases} 0 & x \leq 3, x \geq 5 \\ x-3 & 3 < x \leq 4 \\ 5-x & 4 < x \leq 5 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \leq 12, x > 32 \\ \frac{x-12}{8} & 12 < x \leq 20 \\ \frac{32-x}{12} & 20 < x \leq 32 \end{cases}$$



8. a) If A and B are fuzzy sets defined on universal set X given by

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{2}$$

and let f such that $f : X \times X \rightarrow X$ be a crisp function given by $f(x_1, x_2) = x_1 + x_2 \forall x_1, x_2 \in X$. Then by using extension principle find $f(A, B)$.

5

b) Let A and B are two fuzzy numbers with membership function given by

5

$$A(x) = \begin{cases} x - 4 & \text{for } 4 < x \leq 5 \\ 6 - x & \text{for } 5 < x \leq 6 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x - 10}{10} & \text{for } 10 < x \leq 20 \\ \frac{35 - x}{15} & \text{for } 20 < x \leq 35 \\ 0 & \text{otherwise} \end{cases}$$

calculate fuzzy number $A - B$.

OR

b) Explain the concept of fuzzy quantifiers and their types.

5

9. a) Calculate the following fuzzy operations on the intervals

3

i) $[-1, 2] - [1, 3]$

ii) $\frac{[-4, 6]}{[2, 4]}$

iii) $[-3, 4] \cdot [-3, 5]$

OR



a) For the given fuzzy binary relation

x	:	1	1	2	2	3	3	4	4
y	:	1	3	2	3	1	4	3	4
R(x, y) :		0.7	0.3	0.7	1	0.9	1	0.8	0.5

represent the information using

- i) Membership matrix
- ii) Sagittal diagram
- iii) Simple diagram.

b) Let A and B be two fuzzy numbers whose membership functions are given by

$$A(x) = \begin{cases} \frac{x+2}{3} & -2 < x \leq 1 \\ \frac{4-x}{3} & 1 < x \leq 4 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x-1 & 1 < x \leq 2 \\ 3-x & 2 < x \leq 3 \\ 0 & \text{otherwise} \end{cases}$$

Find the fuzzy number MAX (A, B).

6



Seat No.	
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Set	P
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S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

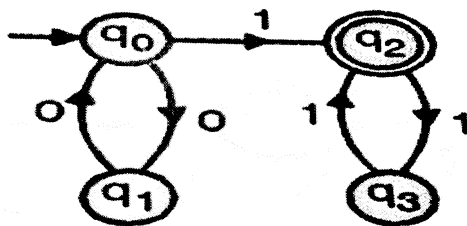
Duration : 30 Minutes

Marks : 14

1. Choose the correct alternatives :

(14×1=14)

1) The language of given finite automata is



- a) $L1 = \{w \in \Sigma^* \mid w \text{ ends with } 001\}$
 - b) $L2 = \{w \in \Sigma^* \mid w \text{ consist of an even number of } 0\text{'s followed by an odd number of } 1\text{'s}\}$
 - c) $L3 = \{w \in \Sigma^* \mid w \text{ consist of an odd number of } 1\text{'s and even number of } 0\text{'s}\}$
 - d) $L1 = \{w \in \Sigma^* \mid w \text{ consist of an even number of } 1\text{'s followed by an odd number of } 0\text{'s}\}$
- 2) The string 1101 does not belong to the set represented by
- a) $110^*(0+1)$
 - b) $1(0+1)^*101$
 - c) $(10)^*(01)^*(00+11)^*$
 - d) $(00+(11)^*01)^*$
- 3) $(a^*ab + ab + ba)^*a^*$ is equivalent to
- a) $(a + ab + ba)^*$
 - b) $a + ab + ba$
 - c) $(a^*ab, ba)^*a^*$
 - d) None of the above
- 4) Following grammar is designed for which language ?
- $S \rightarrow XY, X \rightarrow aXb \mid ab, Y \rightarrow cY \mid c$
- a) $L1 = \{a^ibc^k \mid i = j + k\}$
 - b) $L2 = \{a^ibc^k \mid j = i + k\}$
 - c) $L3 = \{a^ibc^j \mid i, j \geq 1\}$
 - d) $L4 = \{a^ibc^k \mid i = j \text{ or } j = k\}$



- 5) The following grammar
 $E \rightarrow E + E, E \rightarrow E * E, E \rightarrow id$
 Is example of
 a) Ambiguous grammar b) LR grammar
 c) CFG grammar d) None of these
- 6) Pumping lemma is generally used for proving
 a) Given grammar is regular
 b) Given grammar is not regular
 c) Given regular expressions are equivalent
 d) None of these
- 7) Which sentence is generated by the grammar $S \rightarrow aS \mid bA, A \rightarrow d \mid ccA$?
 a) bccddd b) abbbd c) aabccd d) ababccd
- 8) Intersection of CFL and RL is
 a) Always regular language b) Always context sensitive language
 c) Always context free language d) Can't say anything
- 9) Which of the following languages over $\{a, b, c\}$ is accepted by DPDA ?
 a) $\{wcw^R \mid w \in \{a, b\}^*\}$ b) $\{ww^R \mid w \in \{a, b, c\}^*\}$
 c) $\{a^n b^n c^n \mid n \geq 0\}$ d) $\{w \mid w \text{ is a palindrome over } \{a, b, c\}\}$
- 10) Pick the correct answer : Universal TM influenced the concept of
 a) Stored program concept
 b) Interpretive of programming languages
 c) Computability
 d) None of the above
- 11) The transition functions of PDA is
 a) $Q \times \Gamma \rightarrow Q \times \Gamma$ b) $Q \times (\Sigma \cup \wedge) \times \Gamma \rightarrow Q \times \Gamma^*$
 c) $Q \times \Sigma \rightarrow Q \times \Gamma \times \{L, R\}$ d) $Q \times \Sigma \rightarrow Q \times \Gamma$
- 12) Non-deterministic TM makes TM more powerful
 a) True b) False c) Can't say
- 13) Out of following which is not correct ?
 a) TM is more powerful than FA
 b) FA can be used for arithmetic operation
 c) TM can modify its own input
 d) FA has no memory
- 14) Which of the following statements are true ?
 a) The union of two recursive language is recursive
 b) The infinite union of recursive language is recursive
 c) Every turing accepted language is turing decidable
 d) The regular set is closed under infinite union



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION**

Day and Date : Tuesday, 22-11-2016

Marks : 56

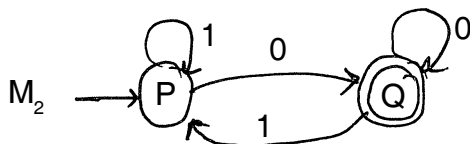
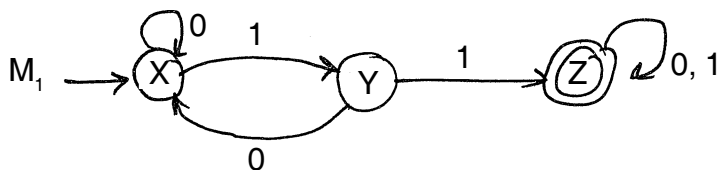
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** :

(4×4=16)

- a) Find the regular expression for
 - i) The language of all string consists of odd number of a's
 - ii) The language of all string in which number of a's are multiple of three
- b) Define the following with respect to CFG
 - i) Nullable variable
 - ii) A-derivable
 - iii) Right most derivation
 - iv) Left most derivation
- c) Following FA recognize the language L1 and L2. Draw FA recognizing language $L1 \cap L2$.



- d) Define $NFA^{-\wedge}$. Give recursive definition of δ^* for $NFA^{-\wedge}$.
- e) With the help of Kleen's theorem, draw $NFA^{-\wedge} (0 + 1)^*(1 + 00) (0 + 1)^*$.

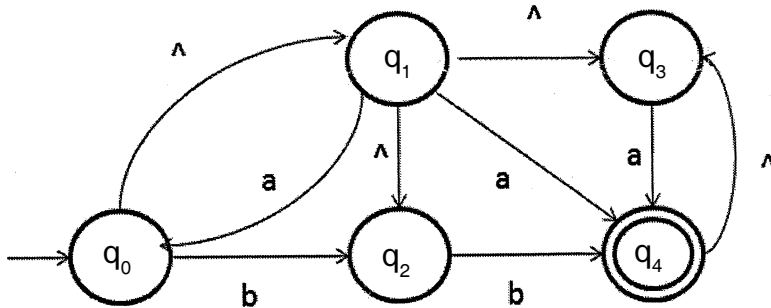
Set P



3. Solve **any two** :

(6×2=12)

- How minimum state FA is obtained from given FA ? Explain with algorithm and example.
- Convert NFA $\hat{\Lambda}$ to FA by applying the steps in algorithm.



- Give the steps to simplify the given CFG. Why we have to go for simplification of CFG ? Convert the following CFG to CNF.
 $S \rightarrow PQP, P \rightarrow 0P \mid \Lambda, Q \rightarrow 1Q \mid \Lambda.$

SECTION – II

4. Solve **any four** :

(4×4=16)

- State and explain pumping lemma for regular language.
- Illustrate definition and working of PDA.
- Write short note on universal TM.
- Show that $\{0^i 1^i \mid i \geq 1\}$ is not regular.
- Define NPDA. Construct a NPDA of even length palindrome over $\{a, b\}$.

5. Solve **any two** :

(6×2=12)

- What is multitape TM ? Show how it can be simulated using single tape TM.
- Obtain TM to accept a palindrome consisting of a's and b's of any length.
- Define the following :
 - TM with stay option
 - TM with multiple track
 - Offline TM
 - TM with semi infinite tape
 - Multi dimensional TM
 - Linear Bounded Automata.



Seat No.	
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S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

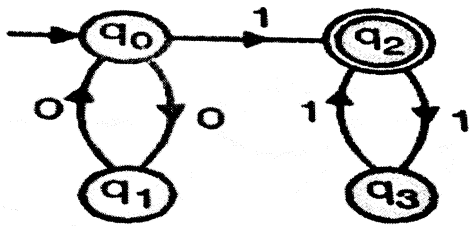
1. Choose the correct alternatives :

(14×1=14)

- 1) Intersection of CFL and RL is
 - a) Always regular language
 - b) Always context sensitive language
 - c) Always context free language
 - d) Can't say anything
- 2) Which of the following languages over {a, b, c} is accepted by DPDA ?
 - a) $\{wcw^R \mid w \in \{a, b\}^*\}$
 - b) $\{ww^R \mid w \in \{a, b, c\}^*\}$
 - c) $\{a^n b^n c^n \mid n \geq 0\}$
 - d) $\{w \mid w \text{ is a palindrome over } \{a, b, c\}\}$
- 3) Pick the correct answer : Universal TM influenced the concept of
 - a) Stored program concept
 - b) Interpretive of programming languages
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- 4) The transition functions of PDA is
 - a) $Q \times \Gamma \rightarrow Q \times \Gamma$
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 - c) $Q \times \Sigma \rightarrow Q \times \Gamma \times \{L, R\}$
 - d) $Q \times \Sigma \rightarrow Q \times \Gamma$
- 5) Non-deterministic TM makes TM more powerful
 - a) True
 - b) False
 - c) Can't say
- 6) Out of following which is not correct ?
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8) The language of given finite automata is



- a) $L1 = \{w \in \Sigma^* \mid w \text{ ends with } 001\}$
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 c) $L3 = \{a^ib^jc^k \mid i, j \geq 1\}$
 d) $L4 = \{a^ib^jc^k \mid i = j \text{ or } j = k\}$
- 12) The following grammar
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- 14) Which sentence is generated by the grammar $S \rightarrow aS \mid bA, A \rightarrow d \mid cA$?
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 b) abbbd
 c) aabccd
 d) ababccd



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION**

Day and Date : Tuesday, 22-11-2016

Marks : 56

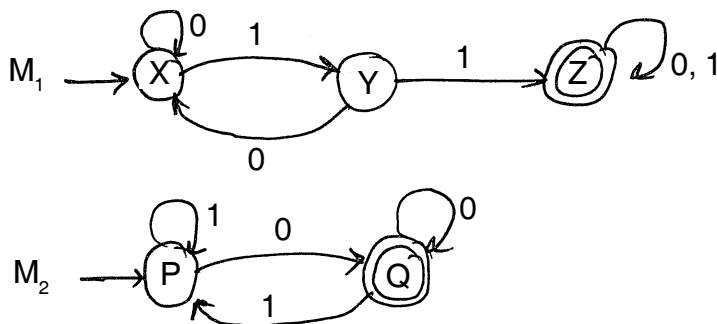
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

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(4×4=16)

- a) Find the regular expression for
 - i) The language of all string consists of odd number of a's
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- c) Following FA recognize the language L1 and L2. Draw FA recognizing language $L1 \cap L2$.



- d) Define $NFA^{-\wedge}$. Give recursive definition of δ^* for $NFA^{-\wedge}$.
- e) With the help of Kleen's theorem, draw $NFA^{-\wedge} (0 + 1)^*(1 + 00) (0 + 1)^*$.

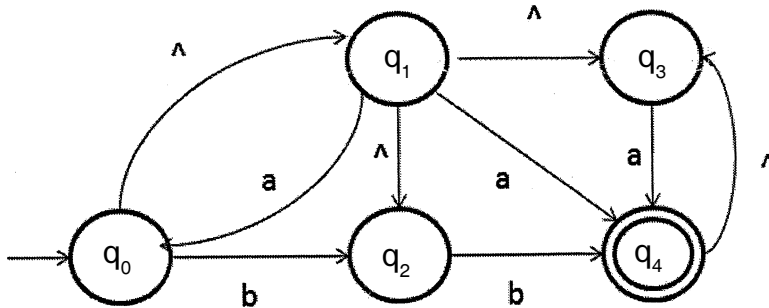
Set Q



3. Solve **any two** :

(6×2=12)

- How minimum state FA is obtained from given FA ? Explain with algorithm and example.
- Convert NFA $\hat{\Lambda}$ to FA by applying the steps in algorithm.



- Give the steps to simplify the given CFG. Why we have to go for simplification of CFG ? Convert the following CFG to CNF.
 $S \rightarrow PQP, P \rightarrow 0P \mid \Lambda, Q \rightarrow 1Q \mid \Lambda.$

SECTION – II

4. Solve **any four** :

(4×4=16)

- State and explain pumping lemma for regular language.
- Illustrate definition and working of PDA.
- Write short note on universal TM.
- Show that $\{0^i 1^i \mid i \geq 1\}$ is not regular.
- Define NPDA. Construct a NPDA of even length palindrome over $\{a, b\}$.

5. Solve **any two** :

(6×2=12)

- What is multitape TM ? Show how it can be simulated using single tape TM.
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 - TM with stay option
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 - TM with semi infinite tape
 - Multi dimensional TM
 - Linear Bounded Automata.



Seat No.	
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Set	R
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S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) *Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.*

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

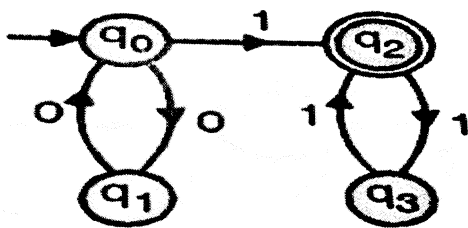
1. Choose the correct alternatives :

(14×1=14)

- 1) The following grammar
 $E \rightarrow E + E, E \rightarrow E * E, E \rightarrow id$
Is example of
 - a) Ambiguous grammar
 - b) LR grammar
 - c) CFG grammar
 - d) None of these
- 2) Pumping lemma is generally used for proving
 - a) Given grammar is regular
 - b) Given grammar is not regular
 - c) Given regular expressions are equivalent
 - d) None of these
- 3) Which sentence is generated by the grammar $S \rightarrow aS \mid bA, A \rightarrow d \mid ccA$?
 - a) bccddd
 - b) abbbd
 - c) aabccd
 - d) ababccd
- 4) Intersection of CFL and RL is
 - a) Always regular language
 - b) Always context sensitive language
 - c) Always context free language
 - d) Can't say anything
- 5) Which of the following languages over {a, b, c} is accepted by DPDA ?
 - a) $\{wcw^R \mid w \in \{a, b\}^*\}$
 - b) $\{ww^R \mid w \in \{a, b, c\}^*\}$
 - c) $\{a^n b^n c^n \mid n \geq 0\}$
 - d) $\{w \mid w \text{ is a palindrome over } \{a, b, c\}\}$
- 6) Pick the correct answer : Universal TM influenced the concept of
 - a) Stored program concept
 - b) Interpretive of programming languages
 - c) Computability
 - d) None of the above



- 7) The transaction functions of PDA is
- a) $Q \times \Gamma \rightarrow Q \times \Gamma$ b) $Q \times (\Sigma \cup \wedge) \times \Gamma \rightarrow Q \times \Gamma^*$
 c) $Q \times \Sigma \rightarrow Q \times \Gamma \times \{L, R\}$ d) $Q \times \Sigma \rightarrow Q \times \Gamma$
- 8) Non-deterministic TM makes TM more powerful
- a) True b) False c) Can't say
- 9) Out of following which is not correct ?
- a) TM is more powerful than FA
 b) FA can be used for arithmetic operation
 c) TM can modify its own input
 d) FA has no memory
- 10) Which of the following statements are true ?
- a) The union of two recursive language is recursive
 b) The infinite union of recursive language is recursive
 c) Every turing accepted language is turing decidable
 d) The regular set is closed under infinite union
- 11) The language of given finite automata is



- a) $L1 = \{w \in \Sigma^* \mid w \text{ ends with } 001\}$
 b) $L2 = \{w \in \Sigma^* \mid w \text{ consist of an even number of } 0\text{'s followed by an odd number of } 1\text{'s}\}$
 c) $L3 = \{w \in \Sigma^* \mid w \text{ consist of an odd number of } 1\text{'s and even number of } 0\text{'s}\}$
 d) $L1 = \{w \in \Sigma^* \mid w \text{ consist of an even number of } 1\text{'s followed by an odd number of } 0\text{'s}\}$
- 12) The string 1101 does not belong to the set represented by
- a) $110^*(0+1)$ b) $1(0+1)^*101$
 c) $(10)^*(01)^*(00+11)^*$ d) $(00+(11)^*01)^*$
- 13) $(a^*ab + ab + ba)^*a^*$ is equivalent to
- a) $(a + ab + ba)^*$ b) $a + ab + ba$
 c) $(a^*ab, ba)^*a^*$ d) None of the above
- 14) Following grammar is designed for which language ?
- $S \rightarrow XY, X \rightarrow aXb \mid ab, Y \rightarrow cY \mid c$
- a) $L1 = \{a^i b^j c^k \mid i = j + k\}$ b) $L2 = \{a^i b^j c^k \mid j = i + k\}$
 c) $L3 = \{a^i b^j c^k \mid i, j \geq 1\}$ d) $L4 = \{a^i b^j c^k \mid i = j \text{ or } j = k\}$



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION**

Day and Date : Tuesday, 22-11-2016

Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** :

(4×4=16)

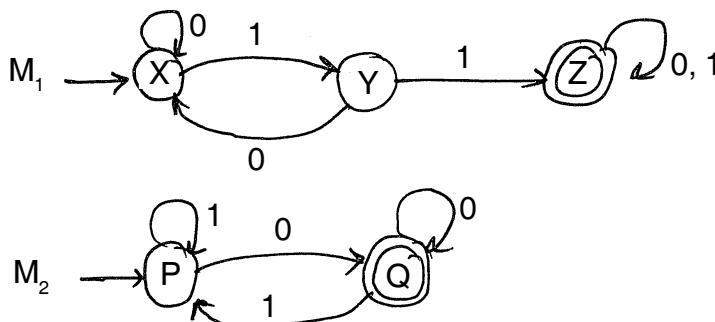
a) Find the regular expression for

- i) The language of all string consists of odd number of a's
- ii) The language of all string in which number of a's are multiple of three

b) Define the following with respect to CFG

- i) Nullable variable
- ii) A-derivable
- iii) Right most derivation
- iv) Left most derivation

c) Following FA recognize the language L1 and L2. Draw FA recognizing language $L1 \cap L2$.



d) Define $NFA^{-\wedge}$. Give recursive definition of δ^* for $NFA^{-\wedge}$.

e) With the help of Kleen's theorem, draw $NFA^{-\wedge} (0 + 1)^*(1 + 00) (0 + 1)^*$.

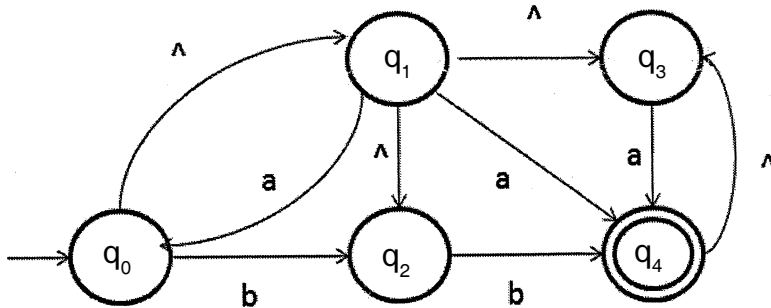
Set R



3. Solve **any two** :

(6×2=12)

- How minimum state FA is obtained from given FA ? Explain with algorithm and example.
- Convert NFA $\hat{\Lambda}$ to FA by applying the steps in algorithm.



- Give the steps to simplify the given CFG. Why we have to go for simplification of CFG ? Convert the following CFG to CNF.
 $S \rightarrow PQP, P \rightarrow 0P \mid \Lambda, Q \rightarrow 1Q \mid \Lambda.$

SECTION – II

4. Solve **any four** :

(4×4=16)

- State and explain pumping lemma for regular language.
- Illustrate definition and working of PDA.
- Write short note on universal TM.
- Show that $\{0^i 1^i \mid i \geq 1\}$ is not regular.
- Define NPDA. Construct a NPDA of even length palindrome over $\{a, b\}$.

5. Solve **any two** :

(6×2=12)

- What is multitape TM ? Show how it can be simulated using single tape TM.
- Obtain TM to accept a palindrome consisting of a's and b's of any length.
- Define the following :
 - TM with stay option
 - TM with multiple track
 - Offline TM
 - TM with semi infinite tape
 - Multi dimensional TM
 - Linear Bounded Automata.



SLR-EP – 169

Seat No.	
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Set	S
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S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternatives :

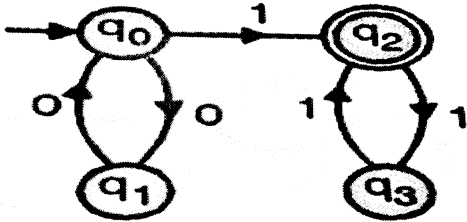
(14×1=14)

- 1) Pick the correct answer : Universal TM influenced the concept of
 - a) Stored program concept
 - b) Interpretive of programming languages
 - c) Computability
 - d) None of the above
- 2) The transition functions of PDA is
 - a) $Q \times \Gamma \rightarrow Q \times \Gamma$
 - b) $Q \times (\Sigma \cup \wedge) \times \Gamma \rightarrow Q \times \Gamma^*$
 - c) $Q \times \Sigma \rightarrow Q \times \Gamma \times \{L, R\}$
 - d) $Q \times \Sigma \rightarrow Q \times \Gamma$
- 3) Non-deterministic TM makes TM more powerful
 - a) True
 - b) False
 - c) Can't say
- 4) Out of following which is not correct ?
 - a) TM is more powerful than FA
 - b) FA can be used for arithmetic operation
 - c) TM can modify its own input
 - d) FA has no memory
- 5) Which of the following statements are true ?
 - a) The union of two recursive language is recursive
 - b) The infinite union of recursive language is recursive
 - c) Every turing accepted language is turing decidable
 - d) The regular set is closed under infinite union

P.T.O.



6) The language of given finite automata is



- a) $L1 = \{w \in \Sigma^* \mid w \text{ ends with } 001\}$
- b) $L2 = \{w \in \Sigma^* \mid w \text{ consist of an even number of } 0\text{'s followed by an odd number of } 1\text{'s}\}$
- c) $L3 = \{w \in \Sigma^* \mid w \text{ consist of an odd number of } 1\text{'s and even number of } 0\text{'s}\}$
- d) $L1 = \{w \in \Sigma^* \mid w \text{ consist of an even number of } 1\text{'s followed by an odd number of } 0\text{'s}\}$

7) The string 1101 does not belong to the set represented by

- a) $110^*(0 + 1)$
- b) $1(0 + 1)^*101$
- c) $(10)^*(01)^*(00 + 11)^*$
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8) $(a^*ab + ab + ba)^*a^*$ is equivalent to

- a) $(a + ab + ba)^*$
- b) $a + ab + ba$
- c) $(a^*ab, ba)^*a^*$
- d) None of the above

9) Following grammar is designed for which language ?

$S \rightarrow XY, X \rightarrow aXb \mid ab, Y \rightarrow cY \mid c$

- a) $L1 = \{a^ibc^k \mid i = j + k\}$
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- c) $L3 = \{a^ibc^j \mid i, j \geq 1\}$
- d) $L4 = \{a^ibc^k \mid i = j \text{ or } j = k\}$

10) The following grammar

$E \rightarrow E + E, E \rightarrow E * E, E \rightarrow id$

Is example of

- a) Ambiguous grammar
- b) LR grammar
- c) CFG grammar
- d) None of these

11) Pumping lemma is generally used for proving

- a) Given grammar is regular
- b) Given grammar is not regular
- c) Given regular expressions are equivalent
- d) None of these

12) Which sentence is generated by the grammar $S \rightarrow aS \mid bA, A \rightarrow d \mid ccA$?

- a) bccddd
- b) abbbd
- c) aabccd
- d) ababccd

13) Intersection of CFL and RL is

- a) Always regular language
- b) Always context sensitive language
- c) Always context free language
- d) Can't say anything

14) Which of the following languages over $\{a, b, c\}$ is accepted by DPDA ?

- a) $\{wcw^R \mid w \in \{a, b\}^*\}$
- b) $\{ww^R \mid w \in \{a, b, c\}^*\}$
- c) $\{a^n b^n c^n \mid n \geq 0\}$
- d) $\{w \mid w \text{ is a palindrome over } \{a, b, c\}\}$



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
THEORY OF COMPUTATION**

Day and Date : Tuesday, 22-11-2016

Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** :

(4×4=16)

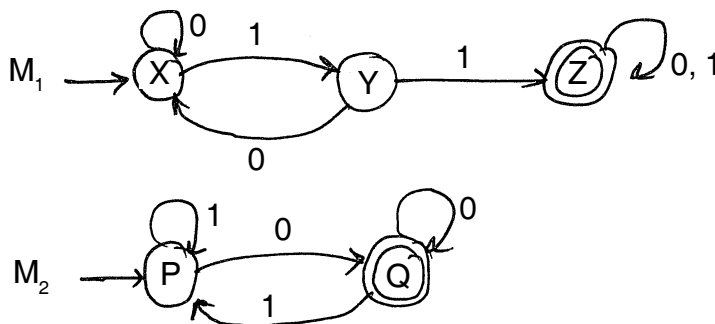
a) Find the regular expression for

- i) The language of all string consists of odd number of a's
- ii) The language of all string in which number of a's are multiple of three

b) Define the following with respect to CFG

- i) Nullable variable
- ii) A-derivable
- iii) Right most derivation
- iv) Left most derivation

c) Following FA recognize the language L1 and L2. Draw FA recognizing language $L1 \cap L2$.



d) Define $NFA^{-\wedge}$. Give recursive definition of δ^* for $NFA^{-\wedge}$.

e) With the help of Kleen's theorem, draw $NFA^{-\wedge} (0 + 1)^*(1 + 00) (0 + 1)^*$.

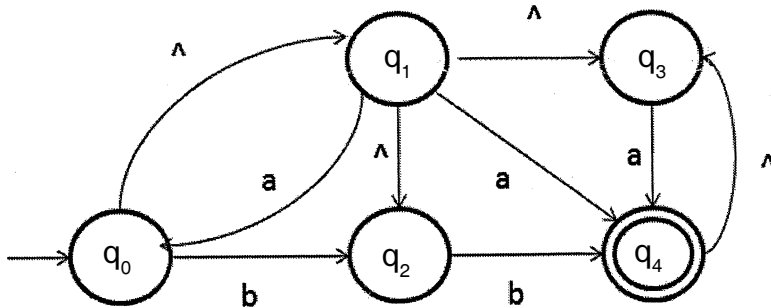
Set S



3. Solve **any two** :

(6×2=12)

- How minimum state FA is obtained from given FA ? Explain with algorithm and example.
- Convert NFA $\hat{\Lambda}$ to FA by applying the steps in algorithm.



- Give the steps to simplify the given CFG. Why we have to go for simplification of CFG ? Convert the following CFG to CNF.
 $S \rightarrow PQP, P \rightarrow 0P \mid \Lambda, Q \rightarrow 1Q \mid \Lambda.$

SECTION – II

4. Solve **any four** :

(4×4=16)

- State and explain pumping lemma for regular language.
- Illustrate definition and working of PDA.
- Write short note on universal TM.
- Show that $\{0^i 1^i \mid i \geq 1\}$ is not regular.
- Define NPDA. Construct a NPDA of even length palindrome over $\{a, b\}$.

5. Solve **any two** :

(6×2=12)

- What is multitape TM ? Show how it can be simulated using single tape TM.
- Obtain TM to accept a palindrome consisting of a's and b's of any length.
- Define the following :
 - TM with stay option
 - TM with multiple track
 - Offline TM
 - TM with semi infinite tape
 - Multi dimensional TM
 - Linear Bounded Automata.



SLR-EP – 170

Seat No.	
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Set	P
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to **right** indicate **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) The maximum clock frequency of 8085 is
a) 3 MHZ b) 3 KHZ c) 3 GHZ d) None
- 2) Which bus is bidirectional bus ?
a) Address bus b) Data bus
c) Address and Data bus d) None
- 3) PSW is the content of
a) PC b) SP c) HL d) AF
- 4) The tuned circuit supported by 8085 is
a) LC b) RC c) Crystal d) All
- 5) Operation of DAD D is
a) $HL \leftarrow HL + D$ b) $HL \leftarrow HL + DE$
c) $HL \leftarrow HL + PC$ d) $HL \leftarrow HL + SP$
- 6) Register B has 65 H and the accumulator has 97H. What is the status of s, z, cy flags after subtracting the content of register B from accumulator ?
a) s = 0, z = 1, cy = 0 b) s = 1, z = 0, cy = 0
c) s = 0, z = 0, cy = 0 d) s = 1, z = 0, cy = 1

P.T.O.



- 7) NOP is of type
- a) Machine control instruction
 - b) Branch instruction
 - c) Logic and bit manipulation instruction
 - d) Data transfer instruction
- 8) Synchronous baud rate for 8251 is
- a) DC to 8 K baud
 - b) DC to 16 K baud
 - c) DC to 64 K baud
 - d) DC to 128 K baud
- 9) Software interrupt is
- a) Synchronous event
 - b) Asynchronous event
 - c) Both a and b
 - d) None of these
- 10) ISR address of interrupt RST 6.5 interrupt is
- a) 0034 H
 - b) 0024 H
 - c) 002C H
 - d) 003C H
- 11) For serial communication which IC is used
- a) 8259
 - b) 8251
 - c) 8085
 - d) 8255
- 12) How many interrupt levels are handled by 8259 ?
- a) 32
 - b) 128
 - c) 16
 - d) 64
- 13) If $\overline{CS} = 0$, $A1 = 0$, $A0 = 0$ of 8255 then _____ is selected.
- a) Port A
 - b) Port B
 - c) Port C
 - d) Control Register
- 14) Time elapsed between occurrence of interrupt and beginning of execution of ISR ($t1-t5$) is
- a) Latency Time
 - b) Interrupt acknowledge time
 - c) Response Time
 - d) Servicing Time
-



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
- 1) Describe instruction register and instruction decoder.
 - 2) Draw timing diagram of memory write cycle.
 - 3) Describe functions of
 - a) HOLD
 - b) ALE
 - c) TRAP
 - d) $\overline{\text{RESETIN}}$
 - 4) Explain branch instructions.
3. Attempt **any 1** : **(1×8=8)**
- 1) Write assembly language program to add two 4 digit BCD numbers.
 - 2) Discuss various addressing modes of 8085 with the help of suitable examples.
4. Draw internal architecture of 8085 and explain the features of 8085. **8**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
- 1) What are the different software interrupts ? Write instructions, opcode and address of ISR of each software interrupts.
 - 2) Explain operating modes of 8257.
 - 3) Explain features of 80286.
 - 4) Define communication. What are types of communication system ? Explain in brief.
6. Attempt **any one** : **(1×8=8)**
- 1) Draw and explain block diagram of programmable interrupt controller.
 - 2) Explain difference between slave and master modes of DMA.
7. Draw internal architecture of 8086 and explain it in brief. **8**

Set P



SLR-EP – 170

Seat No.	
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Set	Q
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to **right** indicate **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) Synchronous baud rate for 8251 is
 - a) DC to 8 K baud
 - b) DC to 16 K baud
 - c) DC to 64 K baud
 - d) DC to 128 K baud
- 2) Software interrupt is
 - a) Synchronous event
 - b) Asynchronous event
 - c) Both a and b
 - d) None of these
- 3) ISR address of interrupt RST 6.5 interrupt is
 - a) 0034 H
 - b) 0024 H
 - c) 002C H
 - d) 003C H
- 4) For serial communication which IC is used
 - a) 8259
 - b) 8251
 - c) 8085
 - d) 8255
- 5) How many interrupt levels are handled by 8259 ?
 - a) 32
 - b) 128
 - c) 16
 - d) 64
- 6) If $\overline{CS} = 0$, $A1 = 0$, $A0 = 0$ of 8255 then _____ is selected.
 - a) Port A
 - b) Port B
 - c) Port C
 - d) Control Register

P.T.O.



- 7) Time elapsed between occurrence of interrupt and beginning of execution of ISR (t_1-t_5) is
- a) Latency Time
 - b) Interrupt acknowledge time
 - c) Response Time
 - d) Servicing Time
- 8) The maximum clock frequency of 8085 is
- a) 3 MHZ
 - b) 3 KHZ
 - c) 3 GHZ
 - d) None
- 9) Which bus is bidirectional bus ?
- a) Address bus
 - b) Data bus
 - c) Address and Data bus
 - d) None
- 10) PSW is the content of
- a) PC
 - b) SP
 - c) HL
 - d) AF
- 11) The tuned circuit supported by 8085 is
- a) LC
 - b) RC
 - c) Crystal
 - d) All
- 12) Operation of DAD D is
- a) $HL \leftarrow HL + D$
 - b) $HL \leftarrow HL + DE$
 - c) $HL \leftarrow HL + PC$
 - d) $HL \leftarrow HL + SP$
- 13) Register B has 65 H and the accumulator has 97H. What is the status of s, z, cy flags after subtracting the content of register B from accumulator ?
- a) $s = 0, z = 1, cy = 0$
 - b) $s = 1, z = 0, cy = 0$
 - c) $s = 0, z = 0, cy = 0$
 - d) $s = 1, z = 0, cy = 1$
- 14) NOP is of type
- a) Machine control instruction
 - b) Branch instruction
 - c) Logic and bit manipulation instruction
 - d) Data transfer instruction
-



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
- 1) Describe instruction register and instruction decoder.
 - 2) Draw timing diagram of memory write cycle.
 - 3) Describe functions of
 - a) HOLD
 - b) ALE
 - c) TRAP
 - d) $\overline{\text{RESETIN}}$
 - 4) Explain branch instructions.
3. Attempt **any 1** : **(1×8=8)**
- 1) Write assembly language program to add two 4 digit BCD numbers.
 - 2) Discuss various addressing modes of 8085 with the help of suitable examples.
4. Draw internal architecture of 8085 and explain the features of 8085. **8**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
- 1) What are the different software interrupts ? Write instructions, opcode and address of ISR of each software interrupts.
 - 2) Explain operating modes of 8257.
 - 3) Explain features of 80286.
 - 4) Define communication. What are types of communication system ? Explain in brief.
6. Attempt **any one** : **(1×8=8)**
- 1) Draw and explain block diagram of programmable interrupt controller.
 - 2) Explain difference between slave and master modes of DMA.
7. Draw internal architecture of 8086 and explain it in brief. **8**

Set Q



SLR-EP – 170

Seat No.	
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Set

R

**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016

Max. Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All** questions are **compulsory**.
4) Figures to **right** indicate **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- 1) Operation of DAD D is
 - a) $HL \leftarrow HL + D$
 - b) $HL \leftarrow HL + DE$
 - c) $HL \leftarrow HL + PC$
 - d) $HL \leftarrow HL + SP$
 - 2) Register B has 65 H and the accumulator has 97H. What is the status of s, z, cy flags after subtracting the content of register B from accumulator ?
 - a) s = 0, z = 1, cy = 0
 - b) s = 1, z = 0, cy = 0
 - c) s = 0, z = 0, cy = 0
 - d) s = 1, z = 0, cy = 1
 - 3) NOP is of type
 - a) Machine control instruction
 - b) Branch instruction
 - c) Logic and bit manipulation instruction
 - d) Data transfer instruction
 - 4) Synchronous baud rate for 8251 is
 - a) DC to 8 K baud
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 - d) DC to 128 K baud

P.T.O.



- 5) Software interrupt is
- a) Synchronous event
 - b) Asynchronous event
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 - d) None of these
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- 12) Which bus is bidirectional bus ?
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- a) PC
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Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
- 1) Describe instruction register and instruction decoder.
 - 2) Draw timing diagram of memory write cycle.
 - 3) Describe functions of
 - a) HOLD
 - b) ALE
 - c) TRAP
 - d) $\overline{\text{RESETIN}}$
 - 4) Explain branch instructions.
3. Attempt **any 1** : **(1×8=8)**
- 1) Write assembly language program to add two 4 digit BCD numbers.
 - 2) Discuss various addressing modes of 8085 with the help of suitable examples.
4. Draw internal architecture of 8085 and explain the features of 8085. **8**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
- 1) What are the different software interrupts ? Write instructions, opcode and address of ISR of each software interrupts.
 - 2) Explain operating modes of 8257.
 - 3) Explain features of 80286.
 - 4) Define communication. What are types of communication system ? Explain in brief.
6. Attempt **any one** : **(1×8=8)**
- 1) Draw and explain block diagram of programmable interrupt controller.
 - 2) Explain difference between slave and master modes of DMA.
7. Draw internal architecture of 8086 and explain it in brief. **8**

Set R



SLR-EP – 170

Seat No.	
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Set	S
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to **right** indicate **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- ISR address of interrupt RST 6.5 interrupt is
a) 0034 H b) 0024 H c) 002C H d) 003C H
 - For serial communication which IC is used
a) 8259 b) 8251 c) 8085 d) 8255
 - How many interrupt levels are handled by 8259 ?
a) 32 b) 128 c) 16 d) 64
 - If $\overline{CS} = 0$, $A1 = 0$, $A0 = 0$ of 8255 then _____ is selected.
a) Port A b) Port B
c) Port C d) Control Register
 - Time elapsed between occurrence of interrupt and beginning of execution of ISR ($t1-t5$) is
a) Latency Time b) Interrupt acknowledge time
c) Response Time d) Servicing Time
 - The maximum clock frequency of 8085 is
a) 3 MHZ b) 3 KHZ c) 3 GHZ d) None

P.T.O.



- 7) Which bus is bidirectional bus ?
- | | |
|-------------------------|-------------|
| a) Address bus | b) Data bus |
| c) Address and Data bus | d) None |
- 8) PSW is the content of
- | | | | |
|-------|-------|-------|-------|
| a) PC | b) SP | c) HL | d) AF |
|-------|-------|-------|-------|
- 9) The tuned circuit supported by 8085 is
- | | | | |
|-------|-------|------------|--------|
| a) LC | b) RC | c) Crystal | d) All |
|-------|-------|------------|--------|
- 10) Operation of DAD D is
- | | |
|----------------------------|----------------------------|
| a) $HL \leftarrow HL + D$ | b) $HL \leftarrow HL + DE$ |
| c) $HL \leftarrow HL + PC$ | d) $HL \leftarrow HL + SP$ |
- 11) Register B has 65 H and the accumulator has 97H. What is the status of s, z, cy flags after subtracting the content of register B from accumulator ?
- | | |
|---------------------------|---------------------------|
| a) $s = 0, z = 1, cy = 0$ | b) $s = 1, z = 0, cy = 0$ |
| c) $s = 0, z = 0, cy = 0$ | d) $s = 1, z = 0, cy = 1$ |
- 12) NOP is of type
- a) Machine control instruction
 - b) Branch instruction
 - c) Logic and bit manipulation instruction
 - d) Data transfer instruction
- 13) Synchronous baud rate for 8251 is
- | | |
|--------------------|---------------------|
| a) DC to 8 K baud | b) DC to 16 K baud |
| c) DC to 64 K baud | d) DC to 128 K baud |
- 14) Software interrupt is
- | | |
|----------------------|-----------------------|
| a) Synchronous event | b) Asynchronous event |
| c) Both a and b | d) None of these |
-



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
MICROPROCESSORS**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
- 1) Describe instruction register and instruction decoder.
 - 2) Draw timing diagram of memory write cycle.
 - 3) Describe functions of
 - a) HOLD
 - b) ALE
 - c) TRAP
 - d) $\overline{\text{RESETIN}}$
 - 4) Explain branch instructions.
3. Attempt **any 1** : **(1×8=8)**
- 1) Write assembly language program to add two 4 digit BCD numbers.
 - 2) Discuss various addressing modes of 8085 with the help of suitable examples.
4. Draw internal architecture of 8085 and explain the features of 8085. **8**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
- 1) What are the different software interrupts ? Write instructions, opcode and address of ISR of each software interrupts.
 - 2) Explain operating modes of 8257.
 - 3) Explain features of 80286.
 - 4) Define communication. What are types of communication system ? Explain in brief.
6. Attempt **any one** : **(1×8=8)**
- 1) Draw and explain block diagram of programmable interrupt controller.
 - 2) Explain difference between slave and master modes of DMA.
7. Draw internal architecture of 8086 and explain it in brief. **8**

Set S



Seat No.	
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Set	P
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S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- N.B. :**
- 1) Q.No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) Attempt **all** questions from **each** Section.
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

14

- 1) The postfix form of the following infix notation is : $(A + B) * (C * D - E) * F$.
A) $AB + CD * E - * F *$
B) $AB + CDE + - * F *$
C) $AB + CD - EF + - **$
D) $ABCDEF * - + * +$
- 2) If the elements “A”, “B”, “C” and “D” are placed in a queue and are deleted one at a time, in what order will they be removed ?
A) ABCD
B) DCBA
C) DCAB
D) None of the above
- 3) Which of the following Data structure is non-linear type ?
1. Queues 2. Lists 3. Stacks 4. Circular Lists 5. Graph
A) 1, 4 only
B) 5 only
C) 4 and 5
D) None of above
- 4) A strictly binary has n leaf nodes. How many nodes does it contains ?
A) 2n
B) 2n – 1
C) 2n + 1
D) n
- 5) A circular queue is implemented using an array of size 10. The array index starts with 0, front is 6, and rear is 9. The insertion of next element takes place at the array index
A) 0 B) 7 C) 9 D) 10



- 6) B+ Trees are considered BALANCED because
- A) The lengths of the paths from the root to all leaf nodes are all equal
 - B) The lengths of the paths from the root to all leaf nodes differ from each other by at most 1
 - C) The number of children of any two non-leaf sibling nodes differ by at most 1
 - D) The number of records in any two leaf nodes differ by at most 1
- 7) The balance factor for an AVL tree is either
- A) 0, 1 or -1
 - B) -2, -1 or 0
 - C) 0, 1 or 2
 - D) All the above
- 8) If every node u in G is adjacent to every other node v in G , A graph is said to be
- A) Isolated
 - B) Complete
 - C) Finite
 - D) Strongly connected
- 9) A data structure in which an element is added and removed only from one end, is known as
- A) Queue
 - B) Stack
 - C) In-built structure
 - D) None of the above
- 10) To represent hierarchical relationship between elements, which data structure is suitable ?
- A) Deque
 - B) Priority Queue
 - C) Tree
 - D) Stack
- 11) Which of the following is application area of B/B + trees ?
- A) Indexing Database
 - B) File Organization
 - C) Both (A) and (B)
 - D) Expression Evaluation
- 12) The result of evaluating the following postfix expression is
5, 7, 9, *, +, 4, 9, 3, /, +, -
- A) 50
 - B) 65
 - C) 61
 - D) 69
- 13) For empty AVL tree if we insert node in order as : 45, 75, 63 then which of the following rotation is applied ?
- A) RL rotation
 - B) LR rotation
 - C) RR rotation
 - D) LL rotation
- 14) Graphs are represented using
- A) Adjacency tree
 - B) Adjacency linked list
 - C) Adjacency graph
 - D) Adjacency queue
-



Seat No.	
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

Instruction : Attempt all questions from each Section.

SECTION – I

2. Attempt **any four** : **(4×4=16)**
- A) Define data structures and explain types of data structures with examples.
 - B) What is priority queue ? Give example.
 - C) Write a C function for inserting a node at the BEGINNING in a Double linked list. (state all required variables and parameters)
 - D) What are the various stack operations ? Explain.
 - E) Explain the following tree terms with proper diagram :
 - i) Siblings
 - ii) Ancestor
 - iii) Strict Binary Tree
 - iv) Full (Complete) Binary Tree
 - F) Evaluate the postfix expression $[723*5 + 842/ - * -]$ using stack. Show all steps (All operands are single digit).
3. Attempt **any two** : **(2×6=12)**
- A) What are height balanced trees ? Explain Red-Black tree with proper example.
 - B) Write a program to implement a QUEUE using dynamic memory allocation (using Linked List).
 - C) Explain application of linked list in Polynomial Representation. Show example for Addition and Subtraction.
 - D) Explain Tree Traversal Algorithms with proper examples.

Set P



SECTION – II

4. Attempt **any four** : **(4×4=16)**
- A) Discuss B+ Tree with an example. What is the difference between B Tree and B+ tree ?
 - B) What is AVL tree ? With an example explain the single rotation in AVL.
 - C) What is cycle in a graph ? With an example explain Adjacency List Graph Representation.
 - D) Explain Topological Sort algorithm with proper example.
 - E) Why there is a need of multiway tree ? Explain.
 - F) Explain the following terms related to graph :
 - a) Graph
 - b) Weighted Graph
 - c) Self loop
 - d) Complete graph
5. Attempt **any two** : **(2×6=12)**
- A) What are the properties of a B+ tree ? Construct the B-tree of order 4 for the following elements 14, 46, 8, 22, 91, 12, 15, 72, 18, 53, 42, 20 (with explanation for every step.)
 - B) Insert the following key in order to build an AVL tree
 - a) 21, 66, 82, 5, 59, 28, 78
 - b) A, C, B, Q, I, S, M
 - C) With an example explain the Dijkstra shortest path algorithm.
 - D) Which data structure is used for Breadth First Search traversal ? Explain the procedure for BFS traversal algorithm and one example.
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Seat No.	
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Set	Q
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- N.B. :** 1) *Q.No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) *Attempt all questions from each Section.*
3) *Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.*

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

14

- 1) If every node u in G is adjacent to every other node v in G , A graph is said to be
 - A) Isolated
 - B) Complete
 - C) Finite
 - D) Strongly connected
- 2) A data structure in which an element is added and removed only from one end, is known as
 - A) Queue
 - B) Stack
 - C) In-built structure
 - D) None of the above
- 3) To represent hierarchical relationship between elements, which data structure is suitable ?
 - A) Deque
 - B) Priority Queue
 - C) Tree
 - D) Stack
- 4) Which of the following is application area of B/B + trees ?
 - A) Indexing Database
 - B) File Organization
 - C) Both (A) and (B)
 - D) Expression Evaluation
- 5) The result of evaluating the following postfix expression is
5, 7, 9, *, +, 4, 9, 3, /, +, -
 - A) 50
 - B) 65
 - C) 61
 - D) 69



- 6) For empty AVL tree if we insert node in order as : 45, 75, 63 then which of the following rotation is applied ?
- A) RL rotation
B) LR rotation
C) RR rotation
D) LL rotation
- 7) Graphs are represented using
- A) Adjacency tree
B) Adjacency linked list
C) Adjacency graph
D) Adjacency queue
- 8) The postfix form of the following infix notation is : $(A + B) * (C * D - E) * F$.
- A) $AB + CD * E - * F *$
B) $AB + CDE + - * F *$
C) $AB + CD - EF + - **$
D) $ABCDEF * - + * +$
- 9) If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed ?
- A) ABCD
B) DCBA
C) DCAB
D) None of the above
- 10) Which of the following Data structure is non-linear type ?
1. Queues 2. Lists 3. Stacks 4. Circular Lists 5. Graph
- A) 1, 4 only
B) 5 only
C) 4 and 5
D) None of above
- 11) A strictly binary has n leaf nodes. How many nodes does it contains ?
- A) $2n$
B) $2n - 1$
C) $2n + 1$
D) n
- 12) A circular queue is implemented using an array of size 10. The array index starts with 0, front is 6, and rear is 9. The insetion of next element takes place at the array index
- A) 0
B) 7
C) 9
D) 10
- 13) B+ Trees are considered BALANCED because
- A) The lengths of the paths from the root to all leaf nodes are all equal
B) The lengths of the paths from the root to all leaf nodes differ from each other by at most 1
C) The number of children of any two non-leaf sibling nodes differ by at most 1
D) The number of records in any two leaf nodes differ by at most 1
- 14) The balance factor for an AVL tree is either
- A) 0, 1 or - 1
B) -2, -1 or 0
C) 0, 1 or 2
D) All the above
-



Seat No.	
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

Instruction : Attempt all questions from each Section.

SECTION – I

2. Attempt **any four** : **(4×4=16)**

- A) Define data structures and explain types of data structures with examples.
- B) What is priority queue ? Give example.
- C) Write a C function for inserting a node at the BEGINNING in a Double linked list. (state all required variables and parameters)
- D) What are the various stack operations ? Explain.
- E) Explain the following tree terms with proper diagram :
 - i) Siblings
 - ii) Ancestor
 - iii) Strict Binary Tree
 - iv) Full (Complete) Binary Tree
- F) Evaluate the postfix expression $[723*5 + 842/ - * -]$ using stack. Show all steps (All operands are single digit).

3. Attempt **any two** : **(2×6=12)**

- A) What are height balanced trees ? Explain Red-Black tree with proper example.
- B) Write a program to implement a QUEUE using dynamic memory allocation (using Linked List).
- C) Explain application of linked list in Polynomial Representation. Show example for Addition and Subtraction.
- D) Explain Tree Traversal Algorithms with proper examples.

Set Q



SECTION – II

4. Attempt **any four** : **(4×4=16)**
- A) Discuss B+ Tree with an example. What is the difference between B Tree and B+ tree ?
 - B) What is AVL tree ? With an example explain the single rotation in AVL.
 - C) What is cycle in a graph ? With an example explain Adjacency List Graph Representation.
 - D) Explain Topological Sort algorithm with proper example.
 - E) Why there is a need of multiway tree ? Explain.
 - F) Explain the following terms related to graph :
 - a) Graph
 - b) Weighted Graph
 - c) Self loop
 - d) Complete graph
5. Attempt **any two** : **(2×6=12)**
- A) What are the properties of a B+ tree ? Construct the B-tree of order 4 for the following elements 14, 46, 8, 22, 91, 12, 15, 72, 18, 53, 42, 20 (with explanation for every step.)
 - B) Insert the following key in order to build an AVL tree
 - a) 21, 66, 82, 5, 59, 28, 78
 - b) A, C, B, Q, I, S, M
 - C) With an example explain the Dijkstra shortest path algorithm.
 - D) Which data structure is used for Breadth First Search traversal ? Explain the procedure for BFS traversal algorithm and one example.
-



SLR-EP – 171

Seat No.	
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Set	R
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- N.B. :** 1) Q.No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) Attempt **all** questions from **each** Section.
3) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

14

- 1) A circular queue is implemented using an array of size 10. The array index starts with 0, front is 6, and rear is 9. The insertion of next element takes place at the array index
A) 0 B) 7 C) 9 D) 10
- 2) B+ Trees are considered BALANCED because
A) The lengths of the paths from the root to all leaf nodes are all equal
B) The lengths of the paths from the root to all leaf nodes differ from each other by at most 1
C) The number of children of any two non-leaf sibling nodes differ by at most 1
D) The number of records in any two leaf nodes differ by at most 1
- 3) The balance factor for an AVL tree is either
A) 0, 1 or – 1 B) –2, –1 or 0 C) 0, 1 or 2 D) All the above
- 4) If every node u in G is adjacent to every other node v in G, A graph is said to be
A) Isolated B) Complete
C) Finite D) Strongly connected
- 5) A data structure in which an element is added and removed only from one end, is known as
A) Queue B) Stack
C) In-built structure D) None of the above

P.T.O.



- 6) To represent hierarchical relationship between elements, which data structure is suitable ?
- A) Deque B) Priority Queue
C) Tree D) Stack
- 7) Which of the following is application area of B/B + trees ?
- A) Indexing Database B) File Organization
C) Both (A) and (B) D) Expression Evaluation
- 8) The result of evaluating the following postfix expression is
5, 7, 9, *, +, 4, 9, 3, /, +, -
- A) 50 B) 65
C) 61 D) 69
- 9) For empty AVL tree if we insert node in order as : 45, 75, 63 then which of the following rotation is applied ?
- A) RL rotation B) LR rotation
C) RR rotation D) LL rotation
- 10) Graphs are represented using
- A) Adjacency tree B) Adjacency linked list
C) Adjacency graph D) Adjacency queue
- 11) The postfix form of the following infix notation is : $(A + B)(C * D - E) * F$.
- A) $AB + CD * E - * F *$ B) $AB + CDE + - * F *$
C) $AB + CD - EF + - **$ D) $ABCDEF * - + * +$
- 12) If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed ?
- A) ABCD B) DCBA
C) DCAB D) None of the above
- 13) Which of the following Data structure is non-linear type ?
1. Queues 2. Lists 3. Stacks 4. Circular Lists 5. Graph
- A) 1, 4 only B) 5 only
C) 4 and 5 D) None of above
- 14) A strictly binary has n leaf nodes. How many nodes does it contains ?
- A) $2n$ B) $2n - 1$
C) $2n + 1$ D) n
-



Seat No.	
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

Instruction : Attempt all questions from each Section.

SECTION – I

2. Attempt **any four** : **(4×4=16)**

- A) Define data structures and explain types of data structures with examples.
- B) What is priority queue ? Give example.
- C) Write a C function for inserting a node at the BEGINNING in a Double linked list. (state all required variables and parameters)
- D) What are the various stack operations ? Explain.
- E) Explain the following tree terms with proper diagram :
 - i) Siblings
 - ii) Ancestor
 - iii) Strict Binary Tree
 - iv) Full (Complete) Binary Tree
- F) Evaluate the postfix expression $[723*5 + 842/ - * -]$ using stack. Show all steps (All operands are single digit).

3. Attempt **any two** : **(2×6=12)**

- A) What are height balanced trees ? Explain Red-Black tree with proper example.
- B) Write a program to implement a QUEUE using dynamic memory allocation (using Linked List).
- C) Explain application of linked list in Polynomial Representation. Show example for Addition and Subtraction.
- D) Explain Tree Traversal Algorithms with proper examples.

Set R



SECTION – II

4. Attempt **any four** : **(4×4=16)**
- A) Discuss B+ Tree with an example. What is the difference between B Tree and B+ tree ?
 - B) What is AVL tree ? With an example explain the single rotation in AVL.
 - C) What is cycle in a graph ? With an example explain Adjacency List Graph Representation.
 - D) Explain Topological Sort algorithm with proper example.
 - E) Why there is a need of multiway tree ? Explain.
 - F) Explain the following terms related to graph :
 - a) Graph
 - b) Weighted Graph
 - c) Self loop
 - d) Complete graph
5. Attempt **any two** : **(2×6=12)**
- A) What are the properties of a B+ tree ? Construct the B-tree of order 4 for the following elements 14, 46, 8, 22, 91, 12, 15, 72, 18, 53, 42, 20 (with explanation for every step.)
 - B) Insert the following key in order to build an AVL tree
 - a) 21, 66, 82, 5, 59, 28, 78
 - b) A, C, B, Q, I, S, M
 - C) With an example explain the Dijkstra shortest path algorithm.
 - D) Which data structure is used for Breadth First Search traversal ? Explain the procedure for BFS traversal algorithm and one example.
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Seat No.	
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Set	S
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- N.B. :**
- 1) Q.No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) Attempt **all** questions from **each** Section.
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative :

14

- 1) To represent hierarchical relationship between elements, which data structure is suitable ?
A) Deque
B) Priority Queue
C) Tree
D) Stack
- 2) Which of the following is application area of B/B + trees ?
A) Indexing Database
B) File Organization
C) Both (A) and (B)
D) Expression Evaluation
- 3) The result of evaluating the following postfix expression is
5, 7, 9, *, +, 4, 9, 3, /, +, -
A) 50
B) 65
C) 61
D) 69
- 4) For empty AVL tree if we insert node in order as : 45, 75, 63 then which of the following rotation is applied ?
A) RL rotation
B) LR rotation
C) RR rotation
D) LL rotation
- 5) Graphs are represented using
A) Adjacency tree
B) Adjacency linked list
C) Adjacency graph
D) Adjacency queue

P.T.O.



- 6) The postfix form of the following infix notation is : $(A + B)(C * D - E) * F$.
- A) $AB + CD * E - * F *$ B) $AB + CDE + - * F *$
C) $AB + CD - EF + - **$ D) $ABCDEF * - + * +$
- 7) If the elements “A”, “B”, “C” and “D” are placed in a queue and are deleted one at a time, in what order will they be removed ?
- A) ABCD B) DCBA
C) DCAB D) None of the above
- 8) Which of the following Data structure is non-linear type ?
1. Queues 2. Lists 3. Stacks 4. Circular Lists 5. Graph
- A) 1, 4 only B) 5 only
C) 4 and 5 D) None of above
- 9) A strictly binary has n leaf nodes. How many nodes does it contains ?
- A) $2n$ B) $2n - 1$
C) $2n + 1$ D) n
- 10) A circular queue is implemented using an array of size 10. The array index starts with 0, front is 6, and rear is 9. The insetion of next element takes place at the array index
- A) 0 B) 7 C) 9 D) 10
- 11) B+ Trees are considered BALANCED because
- A) The lengths of the paths from the root to all leaf nodes are all equal
B) The lengths of the paths from the root to all leaf nodes differ from each other by at most 1
C) The number of children of any two non-leaf sibling nodes differ by at most 1
D) The number of records in any two leaf nodes differ by at most 1
- 12) The balance factor for an AVL tree is either
- A) 0, 1 or -1 B) $-2, -1$ or 0 C) 0, 1 or 2 D) All the above
- 13) If every node u in G is adjacent to every other node v in G , A graph is said to be
- A) Isolated B) Complete
C) Finite D) Strongly connected
- 14) A data structure in which an element is added and removed only from one end, is known as
- A) Queue B) Stack
C) In-built structure D) None of the above
-



Seat No.	
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**S.E. (Part – II) (CSE) (CGPA Pattern) Examination, 2016
DATA STRUCTURES**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 56

Instruction : Attempt all questions from each Section.

SECTION – I

2. Attempt **any four** : **(4×4=16)**
- A) Define data structures and explain types of data structures with examples.
 - B) What is priority queue ? Give example.
 - C) Write a C function for inserting a node at the BEGINNING in a Double linked list. (state all required variables and parameters)
 - D) What are the various stack operations ? Explain.
 - E) Explain the following tree terms with proper diagram :
 - i) Siblings
 - ii) Ancestor
 - iii) Strict Binary Tree
 - iv) Full (Complete) Binary Tree
 - F) Evaluate the postfix expression $[723*5 + 842/ - * -]$ using stack. Show all steps (All operands are single digit).
3. Attempt **any two** : **(2×6=12)**
- A) What are height balanced trees ? Explain Red-Black tree with proper example.
 - B) Write a program to implement a QUEUE using dynamic memory allocation (using Linked List).
 - C) Explain application of linked list in Polynomial Representation. Show example for Addition and Subtraction.
 - D) Explain Tree Traversal Algorithms with proper examples.

Set S



SECTION – II

4. Attempt **any four** : **(4×4=16)**
- A) Discuss B+ Tree with an example. What is the difference between B Tree and B+ tree ?
 - B) What is AVL tree ? With an example explain the single rotation in AVL.
 - C) What is cycle in a graph ? With an example explain Adjacency List Graph Representation.
 - D) Explain Topological Sort algorithm with proper example.
 - E) Why there is a need of multiway tree ? Explain.
 - F) Explain the following terms related to graph :
 - a) Graph
 - b) Weighted Graph
 - c) Self loop
 - d) Complete graph
5. Attempt **any two** : **(2×6=12)**
- A) What are the properties of a B+ tree ? Construct the B-tree of order 4 for the following elements 14, 46, 8, 22, 91, 12, 15, 72, 18, 53, 42, 20 (with explanation for every step.)
 - B) Insert the following key in order to build an AVL tree
 - a) 21, 66, 82, 5, 59, 28, 78
 - b) A, C, B, Q, I, S, M
 - C) With an example explain the Dijkstra shortest path algorithm.
 - D) Which data structure is used for Breadth First Search traversal ? Explain the procedure for BFS traversal algorithm and one example.
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SLR-EP – 172

Seat No.	
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Set	P
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) **All** questions are **compulsory**.
 - 3) Assume data **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

- 1) _____ is the Nyquist Bandwidth formula.
a) $C = B \log_2 M$
b) $C = 2B \log_2 M$
c) $C = B \log_2(1 + \text{SNR})$
d) None of the above
- 2) The sine wave is the fundamental of _____ signal.
a) Periodic
b) Digital
c) Aperiodic
d) All of the above
- 3) Which of the following noise is referred to as white noise ?
a) Impulse
b) Cross talk
c) Thermal
d) Both a) and b)
- 4) MAC is sublayer of _____
a) Application
b) DLL
c) Physical
d) None of the above
- 5) Persistent and non persistent CSMA are an improvement over
a) CSMA/CD
b) CSMA/CA
c) ALOHA
d) Binary countdown
- 6) In _____ protocols, stations listen for a medium and act accordingly.
a) ALOHA
b) Carrier sense
c) Slotted ALOHA
d) None of the above

P.T.O.



- 7) The representation of data in Network layer is _____
a) Bitstreams b) Frames c) Packets d) Segments
- 8) Repeaters can be used in Transmission impairments for _____
a) Increasing the signal strength b) Decrease the signal strength
c) To maintain the constant level d) Both a) and b)
- 9) Which of the following is collision free protocol ?
a) Bit map b) Binary countdown
c) Both a) and b) d) None of the above
- 10) Which of the following is not a type of bridge ?
a) Transparent b) Destination
c) Source-routing d) Remote
- 11) The DQDB stands for _____
a) Distributed Queue Dual Bus b) Distributed Queue Data Bus
c) Data Queue Dual Bus d) None of these
- 12) When too many packets are present in the subnet, the performance degrades this situation is called _____
a) Flow control b) Error control
c) Congestion control d) None of the above
- 13) Protocol in which the sender sends one frame and then waits for an acknowledgment before proceeding are called _____ protocol.
a) Go back n b) Selective repeat
c) Stop-and-wait d) None of the above
- 14) FTP and TELNET are used in _____ layer of TCP/IP.
a) Transport b) Internet
c) Host to Network d) Application
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016

Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) **All** questions are **compulsory**.
3) Assume data **wherever** necessary.

SECTION – I

2. Attempt **any four** : **(4×4=16)**
- A) Describe the design issues of data link layer in detail.
 - B) What is guided transmission media ? Explain twisted pair cable in detail.
 - C) Describe the uses of computer network.
 - D) Explain TCP/IP protocol in detail.
 - E) Compare the difference between analog and digital transmission.
 - F) What is framing ? Explain types of framing.
3. Attempt **any one** : **(6×1=6)**
- A) Describe the OSI reference model in detail.
 - B) Describe all three transmission impairments in detail.
4. Attempt the following : **(6×1=6)**
- List different elementary DLL protocol and explain any one of them.

Set P



SECTION – II

5. Attempt **any four** : **(4×4=16)**
- A) What is ALOHA protocol ? And explain its types.
 - B) Describe IEEE standard 802.5 : Token ring.
 - C) What is CSMA ? Explain different types of CSMA.
 - D) List and explain the different network layer design issues.
 - E) Explain in detail collision-free protocol and its types.
6. Attempt **any one** : **(6×1=6)**
- A) What is bridge ? Explain different types of bridges.
 - B) Explain link state routing algorithm in detail.
7. Attempt the following : **(6×1=6)**
- Explain in detail IPV4 classful, classless addresses.
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SLR-EP – 172

Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) **All** questions are **compulsory**.
 - 3) Assume data **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

- 1) Repeaters can be used in Transmission impairments for _____
 - a) Increasing the signal strength
 - b) Decrease the signal strength
 - c) To maintain the constant level
 - d) Both a) and b)
- 2) Which of the following is collision free protocol ?
 - a) Bit map
 - b) Binary countdown
 - c) Both a) and b)
 - d) None of the above
- 3) Which of the following is not a type of bridge ?
 - a) Transparent
 - b) Destination
 - c) Source-routing
 - d) Remote
- 4) The DQDB stands for _____
 - a) Distributed Queue Dual Bus
 - b) Distributed Queue Data Bus
 - c) Data Queue Dual Bus
 - d) None of these
- 5) When too many packets are present in the subnet, the performance degrades this situation is called _____
 - a) Flow control
 - b) Error control
 - c) Congestion control
 - d) None of the above

P.T.O.



- 6) Protocol in which the sender sends one frame and then waits for an acknowledgment before proceeding are called _____ protocol.
 - a) Go back n
 - b) Selective repeat
 - c) Stop-and-wait
 - d) None of the above
 - 7) FTP and TELNET are used in _____ layer of TCP/IP.
 - a) Transport
 - b) Internet
 - c) Host to Network
 - d) Application
 - 8) _____ is the Nyquist Bandwidth formula.
 - a) $C = B \log_2 M$
 - b) $C = 2B \log_2 M$
 - c) $C = B \log_2 (1 + \text{SNR})$
 - d) None of the above
 - 9) The sine wave is the fundamental of _____ signal.
 - a) Periodic
 - b) Digital
 - c) Aperiodic
 - d) All of the above
 - 10) Which of the following noise is referred to as white noise ?
 - a) Impulse
 - b) Cross talk
 - c) Thermal
 - d) Both a) and b)
 - 11) MAC is sublayer of _____
 - a) Application
 - b) DLL
 - c) Physical
 - d) None of the above
 - 12) Persistent and non persistent CSMA are an improvement over
 - a) CSMA/CD
 - b) CSMA/CA
 - c) ALOHA
 - d) Binary countdown
 - 13) In _____ protocols, stations listen for a medium and act accordingly.
 - a) ALOHA
 - b) Carrier sense
 - c) Slotted ALOHA
 - d) None of the above
 - 14) The representation of data in Network layer is _____
 - a) Bitstreams
 - b) Frames
 - c) Packets
 - d) Segments
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016

Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) **All** questions are **compulsory**.
3) Assume data **wherever** necessary.

SECTION – I

2. Attempt **any four** : **(4×4=16)**
- A) Describe the design issues of data link layer in detail.
 - B) What is guided transmission media ? Explain twisted pair cable in detail.
 - C) Describe the uses of computer network.
 - D) Explain TCP/IP protocol in detail.
 - E) Compare the difference between analog and digital transmission.
 - F) What is framing ? Explain types of framing.
3. Attempt **any one** : **(6×1=6)**
- A) Describe the OSI reference model in detail.
 - B) Describe all three transmission impairments in detail.
4. Attempt the following : **(6×1=6)**
- List different elementary DLL protocol and explain any one of them.

Set Q



SECTION – II

5. Attempt **any four** : **(4×4=16)**
- A) What is ALOHA protocol ? And explain its types.
 - B) Describe IEEE standard 802.5 : Token ring.
 - C) What is CSMA ? Explain different types of CSMA.
 - D) List and explain the different network layer design issues.
 - E) Explain in detail collision-free protocol and its types.
6. Attempt **any one** : **(6×1=6)**
- A) What is bridge ? Explain different types of bridges.
 - B) Explain link state routing algorithm in detail.
7. Attempt the following : **(6×1=6)**
- Explain in detail IPV4 classful, classless addresses.
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SLR-EP – 172

Seat No.	
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Set	R
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) **All** questions are **compulsory**.
 - 3) Assume data **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**

- 1) Persistent and non persistent CSMA are an improvement over
 - a) CSMA/CD
 - b) CSMA/CA
 - c) ALOHA
 - d) Binary countdown
- 2) In _____ protocols, stations listen for a medium and act accordingly.
 - a) ALOHA
 - b) Carrier sense
 - c) Slotted ALOHA
 - d) None of the above
- 3) The representation of data in Network layer is _____
 - a) Bitstreams
 - b) Frames
 - c) Packets
 - d) Segments
- 4) Repeaters can be used in Transmission impairments for _____.
 - a) Increasing the signal strength
 - b) Decrease the signal strength
 - c) To maintain the constant level
 - d) Both a) and b)
- 5) Which of the following is collision free protocol ?
 - a) Bit map
 - b) Binary countdown
 - c) Both a) and b)
 - d) None of the above

P.T.O.



- 6) Which of the following is not a type of bridge ?
- a) Transparent
 - b) Destination
 - c) Source-routing
 - d) Remote
- 7) The DQDB stands for _____
- a) Distributed Queue Dual Bus
 - b) Distributed Queue Data Bus
 - c) Data Queue Dual Bus
 - d) None of these
- 8) When too many packets are present in the subnet, the performance degrades this situation is called _____
- a) Flow control
 - b) Error control
 - c) Congestion control
 - d) None of the above
- 9) Protocol in which the sender sends one frame and then waits for an acknowledgment before proceeding are called _____ protocol.
- a) Go back n
 - b) Selective repeat
 - c) Stop-and-wait
 - d) None of the above
- 10) FTP and TELNET are used in _____ layer of TCP/IP.
- a) Transport
 - b) Internet
 - c) Host to Network
 - d) Application
- 11) _____ is the Nyquist Bandwidth formula.
- a) $C = B \log_2 M$
 - b) $C = 2B \log_2 M$
 - c) $C = B \log_2(1 + \text{SNR})$
 - d) None of the above
- 12) The sine wave is the fundamental of _____ signal.
- a) Periodic
 - b) Digital
 - c) Aperiodic
 - d) All of the above
- 13) Which of the following noise is referred to as white noise ?
- a) Impulse
 - b) Cross talk
 - c) Thermal
 - d) Both a) and b)
- 14) MAC is sublayer of _____
- a) Application
 - b) DLL
 - c) Physical
 - d) None of the above
-



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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016

Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) **All** questions are **compulsory**.
3) Assume data **wherever** necessary.

SECTION – I

2. Attempt **any four** : **(4×4=16)**
- A) Describe the design issues of data link layer in detail.
 - B) What is guided transmission media ? Explain twisted pair cable in detail.
 - C) Describe the uses of computer network.
 - D) Explain TCP/IP protocol in detail.
 - E) Compare the difference between analog and digital transmission.
 - F) What is framing ? Explain types of framing.
3. Attempt **any one** : **(6×1=6)**
- A) Describe the OSI reference model in detail.
 - B) Describe all three transmission impairments in detail.
4. Attempt the following : **(6×1=6)**
- List different elementary DLL protocol and explain any one of them.

Set R



SECTION – II

5. Attempt **any four** : **(4×4=16)**
- A) What is ALOHA protocol ? And explain its types.
 - B) Describe IEEE standard 802.5 : Token ring.
 - C) What is CSMA ? Explain different types of CSMA.
 - D) List and explain the different network layer design issues.
 - E) Explain in detail collision-free protocol and its types.
6. Attempt **any one** : **(6×1=6)**
- A) What is bridge ? Explain different types of bridges.
 - B) Explain link state routing algorithm in detail.
7. Attempt the following : **(6×1=6)**
- Explain in detail IPV4 classful, classless addresses.
-



Seat No.	
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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) **All** questions are **compulsory**.
 - 3) Assume data **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- 1) Which of the following is not a type of bridge ?
 - a) Transparent
 - b) Destination
 - c) Source-routing
 - d) Remote
 - 2) The DQDB stands for _____
 - a) Distributed Queue Dual Bus
 - b) Distributed Queue Data Bus
 - c) Data Queue Dual Bus
 - d) None of these
 - 3) When too many packets are present in the subnet, the performance degrades this situation is called _____
 - a) Flow control
 - b) Error control
 - c) Congestion control
 - d) None of the above
 - 4) Protocol in which the sender sends one frame and then waits for an acknowledgment before proceeding are called _____ protocol.
 - a) Go back n
 - b) Selective repeat
 - c) Stop-and-wait
 - d) None of the above
 - 5) FTP and TELNET are used in _____ layer of TCP/IP.
 - a) Transport
 - b) Internet
 - c) Host to Network
 - d) Application



- 6) _____ is the Nyquist Bandwidth formula.
- $C = B\log_2 M$
 - $C = 2B\log_2 M$
 - $C = B\log_2(1 + \text{SNR})$
 - None of the above
- 7) The sine wave is the fundamental of _____ signal.
- Periodic
 - Digital
 - Aperiodic
 - All of the above
- 8) Which of the following noise is referred to as white noise ?
- Impulse
 - Cross talk
 - Thermal
 - Both a) and b)
- 9) MAC is sublayer of _____
- Application
 - DLL
 - Physical
 - None of the above
- 10) Persistent and non persistent CSMA are an improvement over
- CSMA/CD
 - CSMA/CA
 - ALOHA
 - Binary countdown
- 11) In _____ protocols, stations listen for a medium and act accordingly.
- ALOHA
 - Carrier sense
 - Slotted ALOHA
 - None of the above
- 12) The representation of data in Network layer is _____
- Bitstreams
 - Frames
 - Packets
 - Segments
- 13) Repeaters can be used in Transmission impairments for _____
- Increasing the signal strength
 - Decrease the signal strength
 - To maintain the constant level
 - Both a) and b)
- 14) Which of the following is collision free protocol ?
- Bit map
 - Binary countdown
 - Both a) and b)
 - None of the above
-



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**S.E. (CSE) (Part – II) (CGPA) Examination, 2016
DATA COMMUNICATION**

Day and Date : Friday, 25-11-2016

Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) **All** questions are **compulsory**.
3) Assume data **wherever** necessary.

SECTION – I

2. Attempt **any four** : **(4×4=16)**
- A) Describe the design issues of data link layer in detail.
 - B) What is guided transmission media ? Explain twisted pair cable in detail.
 - C) Describe the uses of computer network.
 - D) Explain TCP/IP protocol in detail.
 - E) Compare the difference between analog and digital transmission.
 - F) What is framing ? Explain types of framing.
3. Attempt **any one** : **(6×1=6)**
- A) Describe the OSI reference model in detail.
 - B) Describe all three transmission impairments in detail.
4. Attempt the following : **(6×1=6)**
- List different elementary DLL protocol and explain any one of them.

Set S



SECTION – II

5. Attempt **any four** : **(4×4=16)**
- A) What is ALOHA protocol ? And explain its types.
 - B) Describe IEEE standard 802.5 : Token ring.
 - C) What is CSMA ? Explain different types of CSMA.
 - D) List and explain the different network layer design issues.
 - E) Explain in detail collision-free protocol and its types.
6. Attempt **any one** : **(6×1=6)**
- A) What is bridge ? Explain different types of bridges.
 - B) Explain link state routing algorithm in detail.
7. Attempt the following : **(6×1=6)**
- Explain in detail IPV4 classful, classless addresses.
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SLR-EP – 173

Seat No.	
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**S.E. (C.S.E.) (Part – II) (Old) Examination, 2016
DATA STRUCTURE – II**

Day and Date : Friday, 16-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

3) **All questions are compulsory.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(1×20=20)

- 1) Time complexity of bubble sort in best case is
a) $\theta(n)$ b) $\theta(n \log n)$ c) $\theta(n^2)$ d) $\theta(n(\log n)^2)$
- 2) Rehashing is used for
a) To avoid space wastage b) To increase collision
c) To avoid traversal d) To avoid clustering
- 3) In _____ searching technique records must be in sorted order.
a) Hashing b) Binary search c) Linear search d) Tree search
- 4) What data structure is used for breadth first traversal of a graph ?
a) Queue b) Stack c) List d) None of the above
- 5) The searching technique that takes $O(1)$ time to find a data is
a) Linear Search b) Binary Search c) Hashing d) Tree Search
- 6) A tree node that has no children is called a _____
a) Leaf node b) Root node c) Internal node d) Loop node
- 7) Two main measures for the efficiency of an algorithm are _____
a) Processor and memory b) Complexity and capacity
c) Time and space d) Data and space
- 8) Which of the following ways below is a pre order traversal ?
a) Root \rightarrow Left subtree \rightarrow Right subtree
b) Root \rightarrow Right subtree \rightarrow Left subtree
c) Right subtree \rightarrow Left subtree \rightarrow Root
d) Left subtree \rightarrow Right subtree \rightarrow Root

P.T.O.



- 9) In _____ tree, the heights of the two child subtrees of any node differ by at most one.
- a) Binary tree
 - b) Red black tree
 - c) Splay tree
 - d) AVL Tree
- 10) Level of any node of a tree is
- a) Height of its left subtree minus height of its right subtree
 - b) Height of its right subtree minus height of its left subtree
 - c) Its distance from the root
 - d) None of these
- 11) A B-tree of minimum degree t can maximum _____ pointers in a node.
- a) $t - 1$
 - b) $2t - 1$
 - c) $2t$
 - d) t
- 12) Hashing collision resolution techniques are
- a) Huffman coding, Linear hashing
 - b) Bucket addressing, Huffman coding
 - c) Chaining, Huffman coding
 - d) Close chaining, Open addressing
- 13) Graphs are represented using _____
- a) Adjacency tree
 - b) Adjacency linked list
 - c) Adjacency graph
 - d) Adjacency queue
- 14) The average case complexity of insertion sort is
- a) $O(2n)$
 - b) $O(n^3)$
 - c) $O(n^2)$
 - d) $O(2^n)$
- 15) If there exist one path atleast, between every pair of vertices in a graph, the graph is known as _____
- a) Complete graph
 - b) Disconnected graph
 - c) Connected graph
 - d) Euler graph
- 16) A tree in which all leaves arrive at the same level is called _____
- a) Binary tree
 - b) Multiway tree
 - c) B-tree
 - d) Complete binary tree
- 17) A connected graph T without any cycles is called
- a) A tree graph
 - b) Linked list
 - c) Non connected graph
 - d) Balanced graph
- 18) Other name for directed graph is _____
- a) Direct graph
 - b) Digraph
 - c) Dir-graph
 - d) Edge graph
- 19) In AVL tree allowed balance factor can be _____
- a) $1, 0, -1$
 - b) $2, 1, -2$
 - c) $1, 0, -2$
 - d) None of these
- 20) _____ data structure is non linear data structure.
- a) Stack
 - b) Queue
 - c) Tree
 - d) Linked list



Seat No.	
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**S.E. (C.S.E.) (Part – II) (Old) Examination, 2016
DATA STRUCTURE – II**

Day and Date : Friday, 16-12-2016

Marks : 80

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :** 1) **Each** Section carries **40** marks.
2) Attempt **all** questions in **each** Section.
3) Figures to the **right** indicate **full** marks.

SECTION – I

2. Solve **any four** : **(5×4=20)**
- 1) Write a program for searching a node in a binary search tree.
 - 2) What is data structure ? Explain its types.
 - 3) What is heap ? Explain min. heap and max. heap.
 - 4) Perform selection sort (ascending) of following numbers. Show every iteration.
17, 3, 21, 5, 11, 45, 17
 - 5) Explain the concept of asymptotic notations with corresponding graphs.
 - 6) Give any three Hashing functions with examples.
3. What is Hashing ? Discuss complexity of hashing. Explain different open addressing techniques to resolve collision in detail by giving suitable examples. **10**
4. Write a C program for implementing merge sort using recursive technique. **10**

OR

4. What is threaded-binary tree ? Explain with example. **10**
- a) Left-in threaded Binary Tree
 - b) Right-in threaded Binary Tree
 - c) Fully threaded Binary Tree.



SECTION – II

5. Solve **any four** : **(5×4=20)**
- 1) What is AVL tree ? Explain rotation in AVL tree.
 - 2) Compare between tree and graph.
 - 3) Insert the following nodes in AVL tree, show rotations
3, 2, 1, 4, 5, 6, 7.
 - 4) What is multi-way tree ? Discuss its properties.
 - 5) Give the Depth first traversal algorithm for graph. Also explain with example.
 - 6) Define the graph and explain adjacency list and adjacency matrix representation of graph.
6. Explain in detail structure of Leaf and Non-Leaf node in B+ tree, also give suitable example and diagram for insertion and deletion from B+ tree. **10**
7. Explain finding the shortest path in a given graph using Dijkstra algorithm (state and assume suitable data). **10**
- OR
7. Explain with example and algorithm the topological ordering of graph. **10**
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S.E. (C.S.E.) (Part – II) (Old) Examination, 2016
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2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

3) **All questions are compulsory.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(1×20=20)

- 1) A tree in which all leaves arrive at the same level is called _____
 - a) Binary tree
 - b) Multiway tree
 - c) B-tree
 - d) Complete binary tree
- 2) A connected graph T without any cycles is called
 - a) A tree graph
 - b) Linked list
 - c) Non connected graph
 - d) Balanced graph
- 3) Other name for directed graph is _____
 - a) Direct graph
 - b) Digraph
 - c) Dir-graph
 - d) Edge graph
- 4) In AVL tree allowed balance factor can be _____
 - a) 1, 0, -1
 - b) 2, 1, -2
 - c) 1, 0, -2
 - d) None of these
- 5) _____ data structure is non linear data structure.
 - a) Stack
 - b) Queue
 - c) Tree
 - d) Linked list
- 6) Time complexity of bubble sort in best case is
 - a) $\theta(n)$
 - b) $\theta(n \log n)$
 - c) $\theta(n^2)$
 - d) $\theta(n(\log n)^2)$
- 7) Rehashing is used for
 - a) To avoid space wastage
 - b) To increase collision
 - c) To avoid traversal
 - d) To avoid clustering
- 8) In _____ searching technique records must be in sorted order.
 - a) Hashing
 - b) Binary search
 - c) Linear search
 - d) Tree search
- 9) What data structure is used for breadth first traversal of a graph ?
 - a) Queue
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 - c) List
 - d) None of the above

P.T.O.



- 10) The searching technique that takes $O(1)$ time to find a data is
a) Linear Search b) Binary Search c) Hashing d) Tree Search
- 11) A tree node that has no children is called a _____
a) Leaf node b) Root node c) Internal node d) Loop node
- 12) Two main measures for the efficiency of an algorithm are _____
a) Processor and memory b) Complexity and capacity
c) Time and space d) Data and space
- 13) Which of the following ways below is a pre order traversal ?
a) Root \rightarrow Left subtree \rightarrow Right subtree
b) Root \rightarrow Right subtree \rightarrow Left subtree
c) Right subtree \rightarrow Left subtree \rightarrow Root
d) Left subtree \rightarrow Right subtree \rightarrow Root
- 14) In _____ tree, the heights of the two child subtrees of any node differ by at most one.
a) Binary tree b) Red black tree
c) Splay tree d) AVL Tree
- 15) Level of any node of a tree is
a) Height of its left subtree minus height of its right subtree
b) Height of its right subtree minus height of its left subtree
c) Its distance from the root
d) None of these
- 16) A B-tree of minimum degree t can maximum _____ pointers in a node.
a) $t - 1$ b) $2t - 1$ c) $2t$ d) t
- 17) Hashing collision resolution techniques are
a) Huffman coding, Linear hashing
b) Bucket addressing, Huffman coding
c) Chaining, Huffman coding
d) Close chaining, Open addressing
- 18) Graphs are represented using _____
a) Adjacency tree b) Adjacency linked list
c) Adjacency graph d) Adjacency queue
- 19) The average case complexity of insertion sort is
a) $O(2n)$ b) $O(n^3)$ c) $O(n^2)$ d) $O(2^n)$
- 20) If there exist one path atleast, between every pair of vertices in a graph, the graph is known as _____
a) Complete graph b) Disconnected graph
c) Connected graph d) Euler graph



Seat No.	
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SECTION – II

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- OR
7. Explain with example and algorithm the topological ordering of graph. **10**
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SLR-EP – 173

Seat No.	
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**S.E. (C.S.E.) (Part – II) (Old) Examination, 2016
DATA STRUCTURE – II**

Day and Date : Friday, 16-12-2016
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Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

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- 1) A B-tree of minimum degree t can maximum _____ pointers in a node.
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- 2) Hashing collision resolution techniques are
a) Huffman coding, Linear hashing
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- 3) Graphs are represented using _____
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- 4) The average case complexity of insertion sort is
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P.T.O.



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- 9) In AVL tree allowed balance factor can be _____
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- OR
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SLR-EP – 173

Seat No.	
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S.E. (C.S.E.) (Part – II) (Old) Examination, 2016
DATA STRUCTURE – II

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 - None of the above
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 - Binary Search
 - Hashing
 - Tree Search



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SECTION – II

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7. Explain with example and algorithm the topological ordering of graph. **10**
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Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Which is true for mechanical diagram of FA ?
 - a) FA contains a stack
 - b) The tape head reads as well as writes
 - c) The tape head moves from left to right
 - d) Input string is surrounded by infinite number of blanks in both side
- 2) Which of the following regular expression identity is true ?
 - a) $r^* = r^*$
 - b) $(r^*s^*) = (r + s)^*$
 - c) $(r^* + s)^* = r^* + s^*$
 - d) $r^*s^* = r^* + s^*$
- 3) The language $L = \{a^n b^n \mid n = 1, 2, 3, \dots\}$ can be generated by the CFG
 - a) $S \rightarrow ab \mid aSb$
 - b) $S \rightarrow aaSbb \mid ab$
 - c) $S \rightarrow ab \mid aSb \mid \wedge$
 - d) $S \rightarrow aaSbb \mid ab \mid aabb$
- 4) Which is the most powerful language acceptor ?
 - a) NFA
 - b) DFA
 - c) PDA
 - d) Turing Machine
- 5) $(a + b)^* a(a + b)^*$ gives
 - a) Odd length strings
 - b) String containing a and b
 - c) Even length
 - d) Strings with atleast one a
- 6) Ambiguous grammar produces
 - a) More parse tree
 - b) No parse tree
 - c) Graph
 - d) All of the above
- 7) The class of context-free language is not closed under
 - a) Concatenation
 - b) Intersection
 - c) Union
 - d) Repeated concatenation
- 8) Type-0 grammar is also called as
 - a) Unstructured grammar
 - b) Phrase-structured grammar
 - c) Context-free grammar
 - d) Both a) and b)
- 9) We can access any element randomly from the input tape in the model of
 - a) FA
 - b) PDA
 - c) TM
 - d) None of these

P.T.O.



- 10) If q_0 is the state and x is a string to be accepted by the TM then the accepting configuration of TM is represented by
- a) $(q_0, \Delta x)$ b) $(q_0, \Delta y \Delta)$ c) $(h_r, \Delta y \Delta)$ d) $(h_a, \Delta y \Delta)$
- 11) The δ for the Turing Machine is defined by
- a) $\delta : Q X (\Gamma \cup \{\Delta\}) \longrightarrow Q U \{h_a, h_r\} X (\Gamma \cup \{\Delta\}) X \{L, R, S\}$
 b) $\delta : Q X \sum \longrightarrow Q U \{h_a, h_r\} X (\Gamma \cup \{\Delta\}) X \{L, R, S\}$
 c) $\delta : Q X (\Gamma \cup \{\Delta\}) \longrightarrow Q X (\Gamma \cup \{\Delta\}) X \{L, R, S\}$
 d) $\delta : Q X \Gamma \cup \{\Delta\} \longrightarrow Q U \{h_a, h_r\} X (\Gamma \cup \{\Delta\})$
- 12) If a language is accepted by the FA, then
- a) It can be accepted by PDA only
 b) It may or may not be accepted PDA and TM
 c) It can not be accepted by PDA and TM
 d) It can be accepted by both PDA and TM
- 13) PDA makes the use of
- a) Linked list b) LIFO c) FIFO d) Tree
- 14) Power of
- a) DFMSM and NDFMSM are same b) DFMSM and NDFMSM are different
 c) DPDM and NDPDM are different d) Both a) and c)
- 15) Let the CFG Σ^* with the productions $S \rightarrow ABCD \mid bD, A \rightarrow BC \mid b, B \rightarrow b \mid \Lambda, C \rightarrow c \mid \Lambda, D \rightarrow d$, the nullable variables are
- a) B and C only b) B, C and D only
 c) S, A, B and C d) A, B and C only
- 16) Universal TM influenced the concept of
- a) Stored computer program
 b) Computability
 c) Interpretive implementation of programming language
 d) All of these
- 17) In the Universal TM, the nonhalting states of a TM T1 are encoded as
- a) $s(q_i) = 0^{i+1}$ b) $e(q_i) = 0^{i+2}$ c) $s(q_i) = 0^{i+2}$ d) $s(q_i) = 0^i$
- 18) The two-way infinite tape TM is equivalent to
- a) Only TM with one-way infinite tape
 b) Only multitape TM
 c) All variants of TM
 d) None of these
- 19) In the parse tree, the leaf nodes corresponds to
- a) The variables that appears in the derivation
 b) The terminals that appears in the derivation
 c) The start symbol of the CFG
 d) None of these
- 20) Which is not a part of the mechanical diagram of Turing machine ?
- a) Input tape b) Read-write head
 c) Finite control d) Stack



Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
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Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) **All questions are compulsory.**
2) **Figure to the right indicates full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- A) Draw and explain the FA for the language $L = \{0, 1\}^* \{010\}$.
 - B) Define \wedge – closure of set of states. Explain with suitable example.
 - C) Differentiate between DFA and NFA.
 - D) Prove that if a and b are odd numbers, then their product $a * b$ is also odd number.
 - E) For the following regular expression, draw an NFA, with the help of Kleene's theorem $(a + b) (ab)^* (abb)^*$.
 - F) Find languages corresponding to following CFG production.
 - i) $S \rightarrow aSa \mid bSb \mid a \mid b$
 - ii) $S \rightarrow aSb \mid B, B \rightarrow bB \mid b$
3. Attempt **any one** : **10**
- A) Prove that any regular language is accepted by finite automata.
 - B) Explain in details the types of grammars with their corresponding accepting automation models with grammar example.
4. What is CNF ? Obtain a CNF for the following CFG G : **10**
- A \rightarrow B B C D
 - B \rightarrow 0 B 1 \mid \wedge
 - C \rightarrow 0 C \mid 1
 - D \rightarrow 0 D 0 \mid 1 D 1 \mid \wedge .



SECTION – II

5. Attempt **any four** : **(4×5=20)**
- A) Define and explain deterministic PDA.
 - B) Draw the NPDA for the language of even palindromes over {a, b}.
 - C) State and explain the pumping lemma for CFL.
 - D) Explain the types of acceptance by PDA.
 - E) Design and explain Turing Machine for computing the function $f(x) = x + 3$, where x is any natural number.
 - F) What is parsing ? Explain the shift-reduce parsing with example.
6. Attempt **any one** : **10**
- A) Explain in detail how Turing Machines are combined.
 - B) Define the Turing Machine for computing numeric function. Draw and explain the TM to compute the function $f(n) = n \bmod 2$, for $n \geq 0$.
7. Explain in detail the Universal Turing Machine and its encoding function. Give simple TM encoding example. **10**
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Seat No.	
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Set	Q
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Universal TM influenced the concept of
 - a) Stored computer program
 - b) Computability
 - c) Interpretive implementation of programming language
 - d) All of these
- 2) In the Universal TM, the nonhalting states of a TM T1 are encoded as
 - a) $s(q_i) = 0^{i+1}$
 - b) $e(q_i) = 0^{i+2}$
 - c) $s(q_i) = 0^{i+2}$
 - d) $s(q_i) = 0^i$
- 3) The two-way infinite tape TM is equivalent to
 - a) Only TM with one-way infinite tape
 - b) Only multitape TM
 - c) All variants of TM
 - d) None of these
- 4) In the parse tree, the leaf nodes corresponds to
 - a) The variables that appears in the derivation
 - b) The terminals that appears in the derivation
 - c) The start symbol of the CFG
 - d) None of these
- 5) Which is not a part of the mechanical diagram of Turing machine ?
 - a) Input tape
 - b) Read-write head
 - c) Finite control
 - d) Stack
- 6) Which is true for mechanical diagram of FA ?
 - a) FA contains a stack
 - b) The tape head reads as well as writes
 - c) The tape head moves from left to right
 - d) Input string is surrounded by infinite number of blanks in both side
- 7) Which of the following regular expression identity is true ?
 - a) $r^* = r^*$
 - b) $(r^*s^*) = (r + s)^*$
 - c) $(r^* + s)^* = r^* + s^*$
 - d) $r^*s^* = r^* + s^*$



- 8) The language $L = \{a^n b^n \mid n = 1, 2, 3, \dots\}$ can be generated by the CFG

a) $S \rightarrow ab \mid aSb$	b) $S \rightarrow aaSbb \mid ab$
c) $S \rightarrow ab \mid aSb \mid \wedge$	d) $S \rightarrow aaSbb \mid ab \mid aabb$
- 9) Which is the most powerful language acceptor ?

a) NFA	b) DFA	c) PDA	d) Turing Machine
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- 10) $(a + b)^* a(a + b)^*$ gives

a) Odd length strings	b) String containing a and b
c) Even length	d) Strings with atleast one a
- 11) Ambiguous grammar produces

a) More parse tree	b) No parse tree
c) Graph	d) All of the above
- 12) The class of context-free language is not closed under

a) Concatenation	b) Intersection
c) Union	d) Repeated concatenation
- 13) Type-0 grammar is also called as

a) Unstructured grammar	b) Phrase-structured grammar
c) Context-free grammar	d) Both a) and b)
- 14) We can access any element randomly from the input tape in the model of

a) FA	b) PDA	c) TM	d) None of these
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- 15) If q_0 is the state and x is a string to be accepted by the TM then the accepting configuration of TM is represented by

a) $(q_0, \underline{\Delta} x)$	b) $(q_0, \Delta y \underline{\Delta})$	c) $(h_r, \Delta y \underline{\Delta})$	d) $(h_a, \Delta y \underline{\Delta})$
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- 16) The δ for the Turing Machine is defined by

a) $\delta : Q X (\Gamma U \{\Delta\}) \longrightarrow Q U \{h_a, h_r\} X (\Gamma U \{\Delta\}) X \{L, R, S\}$
b) $\delta : Q X \sum \longrightarrow Q U \{h_a, h_r\} X (\Gamma U \{\Delta\}) X \{L, R, S\}$
c) $\delta : Q X (\Gamma U \{\Delta\}) \longrightarrow Q X (\Gamma U \{\Delta\}) X \{L, R, S\}$
d) $\delta : Q X \Gamma U \{\wedge\} \longrightarrow Q U \{h_a, h_r\} X (\Gamma U \{\Delta\})$
- 17) If a language is accepted by the FA, then

a) It can be accepted by PDA only
b) It may or may not be accepted PDA and TM
c) It can not be accepted by PDA and TM
d) It can be accepted by both PDA and TM
- 18) PDA makes the use of

a) Linked list	b) LIFO	c) FIFO	d) Tree
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- 19) Power of

a) DFMSM and NDFMSM are same	b) DFMSM and NDFMSM are different
c) DPDM and NDPDM are different	d) Both a) and c)
- 20) Let the CFG – \wedge with the productions $S \rightarrow ABCD \mid bD, A \rightarrow BC \mid b, B \rightarrow b \mid \wedge, C \rightarrow c \mid \wedge D \rightarrow d$, the nullable variables are

a) B and C only	b) B, C and D only
c) S, A, B and C	d) A, B and C only



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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) **All questions are compulsory.**
2) **Figure to the right indicates full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- A) Draw and explain the FA for the language $L = \{0, 1\}^* \{010\}$.
 - B) Define \wedge – closure of set of states. Explain with suitable example.
 - C) Differentiate between DFA and NFA.
 - D) Prove that if a and b are odd numbers, then their product $a * b$ is also odd number.
 - E) For the following regular expression, draw an NFA, with the help of Kleene's theorem $(a + b) (ab)^* (abb)^*$.
 - F) Find languages corresponding to following CFG production.
 - i) $S \rightarrow aSa \mid bSb \mid a \mid b$
 - ii) $S \rightarrow aSb \mid B, B \rightarrow bB \mid b$
3. Attempt **any one** : **10**
- A) Prove that any regular language is accepted by finite automata.
 - B) Explain in details the types of grammars with their corresponding accepting automation models with grammar example.
4. What is CNF ? Obtain a CNF for the following CFG G : **10**
- A \rightarrow B B C D
 - B \rightarrow 0 B 1 \mid \wedge
 - C \rightarrow 0 C \mid 1
 - D \rightarrow 0 D 0 \mid 1 D 1 \mid \wedge .



SECTION – II

5. Attempt **any four** : **(4×5=20)**
- A) Define and explain deterministic PDA.
 - B) Draw the NPDA for the language of even palindromes over {a, b}.
 - C) State and explain the pumping lemma for CFL.
 - D) Explain the types of acceptance by PDA.
 - E) Design and explain Turing Machine for computing the function $f(x) = x + 3$, where x is any natural number.
 - F) What is parsing ? Explain the shift-reduce parsing with example.
6. Attempt **any one** : **10**
- A) Explain in detail how Turing Machines are combined.
 - B) Define the Turing Machine for computing numeric function. Draw and explain the TM to compute the function $f(n) = n \bmod 2$, for $n \geq 0$.
7. Explain in detail the Universal Turing Machine and its encoding function.
Give simple TM encoding example. **10**
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) The δ for the Turing Machine is defined by
 - a) $\delta : Q X (\Gamma U \{ \Delta \}) \longrightarrow Q U \{ h_a, h_r \} X (\Gamma U \{ \Delta \}) X \{ L, R, S \}$
 - b) $\delta : Q X \sum \longrightarrow Q U \{ h_a, h_r \} X (\Gamma U \{ \Delta \}) X \{ L, R, S \}$
 - c) $\delta : Q X (\Gamma U \{ \Delta \}) \longrightarrow Q X (\Gamma U \{ \Delta \}) X \{ L, R, S \}$
 - d) $\delta : Q X \Gamma U \{ \Delta \} \longrightarrow Q U \{ h_a, h_r \} X (\Gamma U \{ \Delta \})$
- 2) If a language is accepted by the FA, then
 - a) It can be accepted by PDA only
 - b) It may or may not be accepted PDA and TM
 - c) It can not be accepted by PDA and TM
 - d) It can be accepted by both PDA and TM
- 3) PDA makes the use of
 - a) Linked list
 - b) LIFO
 - c) FIFO
 - d) Tree
- 4) Power of
 - a) DFSA and NDFSA are same
 - b) DFSA and NDFSA are different
 - c) DPDA and NDPDA are different
 - d) Both a) and c)
- 5) Let the CFG- Λ with the productions $S \rightarrow ABCD \mid bD, A \rightarrow BC \mid b, B \rightarrow b \mid \Lambda, C \rightarrow c \mid \Lambda, D \rightarrow d$, the nullable variables are
 - a) B and C only
 - b) B, C and D only
 - c) S, A, B and C
 - d) A, B and C only
- 6) Universal TM influenced the concept of
 - a) Stored computer program
 - b) Computability
 - c) Interpretive implementation of programming language
 - d) All of these
- 7) In the Universal TM, the nonhalting states of a TM T1 are encoded as
 - a) $s(q_i) = 0^{i+1}$
 - b) $e(q_i) = 0^{i+2}$
 - c) $s(q_i) = 0^{i+2}$
 - d) $s(q_i) = 0^i$



- 8) The two-way infinite tape TM is equivalent to
- Only TM with one-way infinite tape
 - Only multitape TM
 - All variants of TM
 - None of these
- 9) In the parse tree, the leaf nodes corresponds to
- The variables that appears in the derivation
 - The terminals that appears in the derivation
 - The start symbol of the CFG
 - None of these
- 10) Which is not a part of the mechanical diagram of Turing machine ?
- Input tape
 - Read-write head
 - Finite control
 - Stack
- 11) Which is true for mechanical diagram of FA ?
- FA contains a stack
 - The tape head reads as well as writes
 - The tape head moves from left to right
 - Input string is surrounded by infinite number of blanks in both side
- 12) Which of the following regular expression identity is true ?
- $r^* = r^*$
 - $(r^*s^*) = (r + s)^*$
 - $(r^* + s)^* = r^* + s^*$
 - $r^*s^* = r^* + s^*$
- 13) The language $L = \{a^n b^n \mid n = 1, 2, 3, \dots\}$ can be generated by the CFG
- $S \rightarrow ab \mid aSb$
 - $S \rightarrow aaSbb \mid ab$
 - $S \rightarrow ab \mid aSb \mid \wedge$
 - $S \rightarrow aaSbb \mid ab \mid aabb$
- 14) Which is the most powerful language acceptor ?
- NFA
 - DFA
 - PDA
 - Turing Machine
- 15) $(a + b)^* a(a + b)^*$ gives
- Odd length strings
 - String containing a and b
 - Even length
 - Strings with atleast one a
- 16) Ambiguous grammar produces
- More parse tree
 - No parse tree
 - Graph
 - All of the above
- 17) The class of context-free language is not closed under
- Concatenation
 - Intersection
 - Union
 - Repeated concatenation
- 18) Type-0 grammar is also called as
- Unstructured grammar
 - Phrase-structured grammar
 - Context-free grammar
 - Both a) and b)
- 19) We can access any element randomly from the input tape in the model of
- FA
 - PDA
 - TM
 - None of these
- 20) If q_0 is the state and x is a string to be accepted by the TM then the accepting configuration of TM is represented by
- $(q_0, \underline{\Delta} x)$
 - $(q_0, \Delta y \underline{\Delta})$
 - $(h_r, \Delta y \underline{\Delta})$
 - $(h_a, \Delta y \underline{\Delta})$



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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) **All questions are compulsory.**
2) **Figure to the right indicates full marks.**
3) **Assume suitable data if necessary.**

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- A) Draw and explain the FA for the language $L = \{0, 1\}^* \{010\}$.
 - B) Define \wedge – closure of set of states. Explain with suitable example.
 - C) Differentiate between DFA and NFA.
 - D) Prove that if a and b are odd numbers, then their product $a * b$ is also odd number.
 - E) For the following regular expression, draw an NFA, with the help of Kleene's theorem $(a + b) (ab)^* (abb)^*$.
 - F) Find languages corresponding to following CFG production.
 - i) $S \rightarrow aSa \mid bSb \mid a \mid b$
 - ii) $S \rightarrow aSb \mid B, B \rightarrow bB \mid b$
3. Attempt **any one** : **10**
- A) Prove that any regular language is accepted by finite automata.
 - B) Explain in details the types of grammars with their corresponding accepting automation models with grammar example.
4. What is CNF ? Obtain a CNF for the following CFG G : **10**
- A \rightarrow BBCD
 - B \rightarrow 0B1 \mid \wedge
 - C \rightarrow 0C \mid 1
 - D \rightarrow 0D0 \mid 1D1 \mid \wedge .



SECTION – II

5. Attempt **any four** : **(4×5=20)**
- A) Define and explain deterministic PDA.
 - B) Draw the NPDA for the language of even palindromes over {a, b}.
 - C) State and explain the pumping lemma for CFL.
 - D) Explain the types of acceptance by PDA.
 - E) Design and explain Turing Machine for computing the function $f(x) = x + 3$, where x is any natural number.
 - F) What is parsing ? Explain the shift-reduce parsing with example.
6. Attempt **any one** : **10**
- A) Explain in detail how Turing Machines are combined.
 - B) Define the Turing Machine for computing numeric function. Draw and explain the TM to compute the function $f(n) = n \bmod 2$, for $n \geq 0$.
7. Explain in detail the Universal Turing Machine and its encoding function. Give simple TM encoding example. **10**
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Ambiguous grammar produces
 - a) More parse tree
 - b) No parse tree
 - c) Graph
 - d) All of the above
- 2) The class of context-free language is not closed under
 - a) Concatenation
 - b) Intersection
 - c) Union
 - d) Repeated concatenation
- 3) Type-0 grammar is also called as
 - a) Unstructured grammar
 - b) Phrase-structured grammar
 - c) Context-free grammar
 - d) Both a) and b)
- 4) We can access any element randomly from the input tape in the model of
 - a) FA
 - b) PDA
 - c) TM
 - d) None of these
- 5) If q_0 is the state and x is a string to be accepted by the TM then the accepting configuration of TM is represented by
 - a) $(q_0, \underline{\Delta} x)$
 - b) $(q_0, \Delta y \underline{\Delta})$
 - c) $(h_r, \Delta y \underline{\Delta})$
 - d) $(h_a, \Delta y \underline{\Delta})$
- 6) The δ for the Turing Machine is defined by
 - a) $\delta : Q X (\Gamma U \{\Delta\}) \longrightarrow Q U \{h_a, h_r\} X (\Gamma U \{\Delta\}) X \{L, R, S\}$
 - b) $\delta : Q X \sum \longrightarrow Q U \{h_a, h_r\} X (\Gamma U \{\Delta\}) X \{L, R, S\}$
 - c) $\delta : Q X (\Gamma U \{\Delta\}) \longrightarrow Q X (\Gamma U \{\Delta\}) X \{L, R, S\}$
 - d) $\delta : Q X \Gamma U \{\wedge\} \longrightarrow Q U \{h_a, h_r\} X (\Gamma U \{\Delta\})$
- 7) If a language is accepted by the FA, then
 - a) It can be accepted by PDA only
 - b) It may or may not be accepted PDA and TM
 - c) It can not be accepted by PDA and TM
 - d) It can be accepted by both PDA and TM
- 8) PDA makes the use of
 - a) Linked list
 - b) LIFO
 - c) FIFO
 - d) Tree

P.T.O.



- 9) Power of
- DFSM and NDFSM are same
 - DFSM and NDFSM are different
 - DPDM and NDPDM are different
 - Both a) and c)
- 10) Let the CFG G with the productions $S \rightarrow ABCD \mid bD$, $A \rightarrow BC \mid b$, $B \rightarrow b \mid \wedge$, $C \rightarrow c \mid \wedge$, $D \rightarrow d$, the nullable variables are
- B and C only
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 - S, A, B and C
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- 11) Universal TM influenced the concept of
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- 12) In the Universal TM, the nonhalting states of a TM T1 are encoded as
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 - $s(q_i) = 0^{i+2}$
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- 13) The two-way infinite tape TM is equivalent to
- Only TM with one-way infinite tape
 - Only multitape TM
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 - None of these
- 14) In the parse tree, the leaf nodes corresponds to
- The variables that appears in the derivation
 - The terminals that appears in the derivation
 - The start symbol of the CFG
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- 15) Which is not a part of the mechanical diagram of Turing machine ?
- Input tape
 - Read-write head
 - Finite control
 - Stack
- 16) Which is true for mechanical diagram of FA ?
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 - The tape head moves from left to right
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- $r^* = r^*$
 - $(r^*s^*) = (r + s)^*$
 - $(r^* + s)^* = r^* + s^*$
 - $r^*s^* = r^* + s^*$
- 18) The language $L = \{a^n b^n \mid n = 1, 2, 3, \dots\}$ can be generated by the CFG
- $S \rightarrow ab \mid aSb$
 - $S \rightarrow aaSbb \mid ab$
 - $S \rightarrow ab \mid aSb \mid \wedge$
 - $S \rightarrow aaSbb \mid ab \mid aabb$
- 19) Which is the most powerful language acceptor ?
- NFA
 - DFA
 - PDA
 - Turing Machine
- 20) $(a + b)^* a(a + b)^*$ gives
- Odd length strings
 - String containing a and b
 - Even length
 - Strings with atleast one a



Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
FORMAL SYSTEM AND AUTOMATA**

Day and Date : Monday, 19-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figure to the right indicates full marks.**
 - 3) **Assume suitable data if necessary.**

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- A) Draw and explain the FA for the language $L = \{0, 1\}^* \{010\}$.
- B) Define \wedge – closure of set of states. Explain with suitable example.
- C) Differentiate between DFA and NFA.
- D) Prove that if a and b are odd numbers, then their product $a * b$ is also odd number.
- E) For the following regular expression, draw an NFA, with the help of Kleene's theorem $(a + b) (ab)^* (abb)^*$.
- F) Find languages corresponding to following CFG production.
 - i) $S \rightarrow aSa \mid bSb \mid a \mid b$
 - ii) $S \rightarrow aSb \mid B, B \rightarrow bB \mid b$

3. Attempt **any one** : **10**

- A) Prove that any regular language is accepted by finite automata.
- B) Explain in details the types of grammars with their corresponding accepting automation models with grammar example.

4. What is CNF ? Obtain a CNF for the following CFG G : **10**

- A \rightarrow B B C D
- B \rightarrow 0 B 1 \mid \wedge
- C \rightarrow 0 C \mid 1
- D \rightarrow 0 D 0 \mid 1 D 1 \mid \wedge .



SECTION – II

5. Attempt **any four** : **(4×5=20)**
- A) Define and explain deterministic PDA.
 - B) Draw the NPDA for the language of even palindromes over {a, b}.
 - C) State and explain the pumping lemma for CFL.
 - D) Explain the types of acceptance by PDA.
 - E) Design and explain Turing Machine for computing the function $f(x) = x + 3$, where x is any natural number.
 - F) What is parsing ? Explain the shift-reduce parsing with example.
6. Attempt **any one** : **10**
- A) Explain in detail how Turing Machines are combined.
 - B) Define the Turing Machine for computing numeric function. Draw and explain the TM to compute the function $f(n) = n \bmod 2$, for $n \geq 0$.
7. Explain in detail the Universal Turing Machine and its encoding function. Give simple TM encoding example. **10**
-



SLR-EP – 175

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Set

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**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) Figures to the **right** indicate **full** marks.
4) **All** questions are **compulsory**.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct alternatives :

(20×1=20)

- 1) _____ is used to convert analog data or signal into digital signals.
A) Modem B) Co-dec C) Telephone D) All
- 2) CRC method used for
A) Error correction B) Error detection
C) Error detection and correction D) None
- 3) Framing is the function of _____ layer.
A) DLL B) Network C) Physical D) Transport
- 4) _____ is used to detect as well as correct the error.
A) CRC B) Two dimension parity check
C) Parity check D) Hamming code
- 5) DQDB stands for
A) Dual Queue Distributed bus B) Distributed Queue Dual Bus
C) Both A & B D) None
- 6) MAC is sublayer of
A) Application B) Physical C) DLL D) None
- 7) FTP & TELNET protocols are used at _____ layer in TCP/IP.
A) transport B) network
C) application D) host-to-network

P.T.O.



- 8) Which guided medium is suitable for long distance communication ?
A) Twisted pair B) Fiber optic C) Co-axial D) None of above
- 9) _____ signal is one in which the signal intensity varies in a smooth fashion over time.
A) Analog B) Digital C) Discrete D) All above
- 10) In connection less network packets are called as
A) Datagram B) Segment C) Frames D) Data
- 11) In IEEE 802.4 LAN standard stations logically operate in
A) Mesh B) Bus C) Ring D) Star
- 12) LANs can be interconnected by a device called as _____ which operate in DLL.
A) Repeater B) Router C) Bridge D) Gateway
- 13) In simplex transmission
A) Data format is simple
B) Data transmission is one way
C) Data transmission is two way
D) Data can be transmitted to small distance only
- 14) Typical bandwidth of optical fibers is
A) Order of G Hz B) Order of K Hz
C) Order of Hz D) Order of MHz
- 15) Hierarchical routing is _____ routing algorithm.
A) Adaptive B) Non-Adaptive C) Simple D) Static
- 16) Which of the following method detects error ?
A) Hamming code B) CRC C) Parity bit D) All above
- 17) _____ protocol maps physical address to logical address.
A) ARP B) OSPF C) RARP D) SMTP
- 18) For outgoing traffic NAT box converts _____ IP address to company's public IP address.
A) public B) both A & C C) private D) none of the above
- 19) IPv4 address is _____ bit long.
A) 64 B) 128 C) 32 D) 48
- 20) Loopback address is used to route packets from _____ to _____
A) Host to all other hosts B) Router to all other hosts
C) Host to specific host D) Host to self
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Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) *Figures to the **right** indicate **full** marks.*
2) **All questions are compulsory.**
3) *Wherever **required** draw diagrams and assume data.*

SECTION – I

- II. Write answer to **any four** questions. **(4×5=20)**
- A) What is guided transmission media ? Explain optical fiber in detail.
 - B) Specify the use of computer network.
 - C) What is flow control ? How it is handled by DLL ?
 - D) Explain CRC method with example.
 - E) Describe unrestricted simplex protocol.
 - F) Describe different type of noise.

- III. A) List and explain in detail different transmission impairments. **10**

OR

- B) What is the need of sliding window protocol ? Explain. Describe GO Back N and selective repeat methods. **10**

- IV. Draw the diagram of OSI reference model and explain in detail the communication functions of each layer. **10**

SECTION – II

- V. Write answer to **any four** questions. **(4×5=20)**
- A) Explain ALOHA with its types.
 - B) Describe IEEE standards 802.6 that is DQDB.
 - C) What is flooding ? Explain. State disadvantage of flooding.

Set P



D) What is IP address ? Explain special IP address.

E) Explain the concept of CSMA/CD.

F) Describe the working of RARP.

VI. A) Explain distance vector routing. What is count to infinity problem ? How it is solved ? **10**

OR

B) What is adaptive and non adaptive routing ? Describe shortest path routing with its algorithm and suitable example. **10**

VII. Specify the need of IP address. Draw and explain all classes of IP address. What is subnetting ? What is Subnet mask ? Describe in detail. **10**



Seat No.	
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Set

Q

S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) *Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.*
3) *Figures to the right indicate full marks.*
4) *All questions are compulsory.*

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct alternatives :

(20×1=20)

- 1) Which of the following method detects error ?
A) Hamming code B) CRC C) Parity bit D) All above
- 2) _____ protocol maps physical address to logical address.
A) ARP B) OSPF C) RARP D) SMTP
- 3) For outgoing traffic NAT box converts _____ IP address to company's public IP address.
A) public B) both A & C C) private D) none of the above
- 4) IPv4 address is _____ bit long.
A) 64 B) 128 C) 32 D) 48
- 5) Loopback address is used to route packets from _____ to _____.
A) Host to all other hosts B) Router to all other hosts
C) Host to specific host D) Host to self
- 6) _____ is used to convert analog data or signal into digital signals.
A) Modem B) Co-dec C) Telephone D) All
- 7) CRC method used for
A) Error correction B) Error detection
C) Error detection and correction D) None
- 8) Framing is the function of _____ layer.
A) DLL B) Network C) Physical D) Transport

P.T.O.



- 9) _____ is used to detect as well as correct the error.
A) CRC
B) Two dimension parity check
C) Parity check
D) Hamming code
- 10) DQDB stands for
A) Dual Queue Distributed bus
B) Distributed Queue Dual Bus
C) Both A & B
D) None
- 11) MAC is sublayer of
A) Application
B) Physical
C) DLL
D) None
- 12) FTP & TELNET protocols are used at _____ layer in TCP/IP.
A) transport
B) network
C) application
D) host-to-network
- 13) Which guided medium is suitable for long distance communication ?
A) Twisted pair
B) Fiber optic
C) Co-axial
D) None of above
- 14) _____ signal is one in which the signal intensity varies in a smooth fashion over time.
A) Analog
B) Digital
C) Discrete
D) All above
- 15) In connection less network packets are called as
A) Datagram
B) Segment
C) Frames
D) Data
- 16) In IEEE 802.4 LAN standard stations logically operate in
A) Mesh
B) Bus
C) Ring
D) Star
- 17) LANs can be interconnected by a device called as _____ which operate in DLL.
A) Repeater
B) Router
C) Bridge
D) Gateway
- 18) In simplex transmission
A) Data format is simple
B) Data transmission is one way
C) Data transmission is two way
D) Data can be transmitted to small distance only
- 19) Typical bandwidth of optical fibers is
A) Order of G Hz
B) Order of K Hz
C) Order of Hz
D) Order of MHz
- 20) Hierarchical routing is _____ routing algorithm.
A) Adaptive
B) Non-Adaptive
C) Simple
D) Static
-



Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) *Figures to the **right** indicate **full** marks.*
2) **All questions are compulsory.**
3) *Wherever **required** draw diagrams and assume data.*

SECTION – I

II. Write answer to **any four** questions. **(4×5=20)**

- A) What is guided transmission media ? Explain optical fiber in detail.
- B) Specify the use of computer network.
- C) What is flow control ? How it is handled by DLL ?
- D) Explain CRC method with example.
- E) Describe unrestricted simplex protocol.
- F) Describe different type of noise.

III. A) List and explain in detail different transmission impairments. **10**

OR

- B) What is the need of sliding window protocol ? Explain. Describe GO Back N and selective repeat methods. **10**

IV. Draw the diagram of OSI reference model and explain in detail the communication functions of each layer. **10**

SECTION – II

V. Write answer to **any four** questions. **(4×5=20)**

- A) Explain ALOHA with its types.
- B) Describe IEEE standards 802.6 that is DQDB.
- C) What is flooding ? Explain. State disadvantage of flooding.

Set Q



D) What is IP address ? Explain special IP address.

E) Explain the concept of CSMA/CD.

F) Describe the working of RARP.

VI. A) Explain distance vector routing. What is count to infinity problem ? How it is solved ? **10**

OR

B) What is adaptive and non adaptive routing ? Describe shortest path routing with its algorithm and suitable example. **10**

VII. Specify the need of IP address. Draw and explain all classes of IP address. What is subnetting ? What is Subnet mask ? Describe in detail. **10**



Seat No.	
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Set

R

**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) Figures to the **right** indicate **full** marks.
4) **All** questions are **compulsory**.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct alternatives :

(20×1=20)

- 1) In IEEE 802.4 LAN standard stations logically operate in
A) Mesh B) Bus C) Ring D) Star
- 2) LANs can be interconnected by a device called as _____ which operate in DLL.
A) Repeater B) Router C) Bridge D) Gateway
- 3) In simplex transmission
A) Data format is simple
B) Data transmission is one way
C) Data transmission is two way
D) Data can be transmitted to small distance only
- 4) Typical bandwidth of optical fibers is
A) Order of G Hz B) Order of K Hz
C) Order of Hz D) Order of MHz
- 5) Hierarchical routing is _____ routing algorithm.
A) Adaptive B) Non-Adaptive C) Simple D) Static
- 6) Which of the following method detects error ?
A) Hamming code B) CRC C) Parity bit D) All above
- 7) _____ protocol maps physical address to logical address.
A) ARP B) OSPF C) RARP D) SMTP

P.T.O.



- 8) For outgoing traffic NAT box converts _____ IP address to company's public IP address.
A) public B) both A & C C) private D) none of the above
- 9) IPv4 address is _____ bit long.
A) 64 B) 128 C) 32 D) 48
- 10) Loopback address is used to route packets from _____ to _____.
A) Host to all other hosts B) Router to all other hosts
C) Host to specific host D) Host to self
- 11) _____ is used to convert analog data or signal into digital signals.
A) Modem B) Co-dec C) Telephone D) All
- 12) CRC method used for
A) Error correction B) Error detection
C) Error detection and correction D) None
- 13) Framing is the function of _____ layer.
A) DLL B) Network C) Physical D) Transport
- 14) _____ is used to detect as well as correct the error.
A) CRC B) Two dimension parity check
C) Parity check D) Hamming code
- 15) DQDB stands for
A) Dual Queue Distributed bus B) Distributed Queue Dual Bus
C) Both A & B D) None
- 16) MAC is sublayer of
A) Application B) Physical C) DLL D) None
- 17) FTP & TELNET protocols are used at _____ layer in TCP/IP.
A) transport B) network
C) application D) host-to-network
- 18) Which guided medium is suitable for long distance communication ?
A) Twisted pair B) Fiber optic C) Co-axial D) None of above
- 19) _____ signal is one in which the signal intensity varies in a smooth fashion over time.
A) Analog B) Digital C) Discrete D) All above
- 20) In connection less network packets are called as
A) Datagram B) Segment C) Frames D) Data
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Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) *Figures to the **right** indicate **full** marks.*
2) **All questions are compulsory.**
3) *Wherever **required** draw diagrams and assume data.*

SECTION – I

II. Write answer to **any four** questions. **(4×5=20)**

- A) What is guided transmission media ? Explain optical fiber in detail.
- B) Specify the use of computer network.
- C) What is flow control ? How it is handled by DLL ?
- D) Explain CRC method with example.
- E) Describe unrestricted simplex protocol.
- F) Describe different type of noise.

III. A) List and explain in detail different transmission impairments. **10**

OR

- B) What is the need of sliding window protocol ? Explain. Describe GO Back N and selective repeat methods. **10**

IV. Draw the diagram of OSI reference model and explain in detail the communication functions of each layer. **10**

SECTION – II

V. Write answer to **any four** questions. **(4×5=20)**

- A) Explain ALOHA with its types.
- B) Describe IEEE standards 802.6 that is DQDB.
- C) What is flooding ? Explain. State disadvantage of flooding.

Set R



D) What is IP address ? Explain special IP address.

E) Explain the concept of CSMA/CD.

F) Describe the working of RARP.

VI. A) Explain distance vector routing. What is count to infinity problem ? How it is solved ? **10**

OR

B) What is adaptive and non adaptive routing ? Describe shortest path routing with its algorithm and suitable example. **10**

VII. Specify the need of IP address. Draw and explain all classes of IP address. What is subnetting ? What is Subnet mask ? Describe in detail. **10**



Seat No.	
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Set

S

**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) Figures to the **right** indicate **full** marks.
4) **All** questions are **compulsory**.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct alternatives :

(20×1=20)

- 1) MAC is sublayer of
A) Application B) Physical C) DLL D) None
- 2) FTP & TELNET protocols are used at _____ layer in TCP/IP.
A) transport B) network
C) application D) host-to-network
- 3) Which guided medium is suitable for long distance communication ?
A) Twisted pair B) Fiber optic C) Co-axial D) None of above
- 4) _____ signal is one in which the signal intensity varies in a smooth fashion over time.
A) Analog B) Digital C) Discrete D) All above
- 5) In connection less network packets are called as
A) Datagram B) Segment C) Frames D) Data
- 6) In IEEE 802.4 LAN standard stations logically operate in
A) Mesh B) Bus C) Ring D) Star
- 7) LANs can be interconnected by a device called as _____ which operate in DLL.
A) Repeater B) Router C) Bridge D) Gateway

P.T.O.



- 8) In simplex transmission
- A) Data format is simple
 - B) Data transmission is one way
 - C) Data transmission is two way
 - D) Data can be transmitted to small distance only
- 9) Typical bandwidth of optical fibers is
- A) Order of G Hz
 - B) Order of K Hz
 - C) Order of Hz
 - D) Order of MHz
- 10) Hierarchical routing is _____ routing algorithm.
- A) Adaptive
 - B) Non-Adaptive
 - C) Simple
 - D) Static
- 11) Which of the following method detects error ?
- A) Hamming code
 - B) CRC
 - C) Parity bit
 - D) All above
- 12) _____ protocol maps physical address to logical address.
- A) ARP
 - B) OSPF
 - C) RARP
 - D) SMTP
- 13) For outgoing traffic NAT box converts _____ IP address to company's public IP address.
- A) public
 - B) both A & C
 - C) private
 - D) none of the above
- 14) IPv4 address is _____ bit long.
- A) 64
 - B) 128
 - C) 32
 - D) 48
- 15) Loopback address is used to route packets from _____ to _____
- A) Host to all other hosts
 - B) Router to all other hosts
 - C) Host to specific host
 - D) Host to self
- 16) _____ is used to convert analog data or signal into digital signals.
- A) Modem
 - B) Co-dec
 - C) Telephone
 - D) All
- 17) CRC method used for
- A) Error correction
 - B) Error detection
 - C) Error detection and correction
 - D) None
- 18) Framing is the function of _____ layer.
- A) DLL
 - B) Network
 - C) Physical
 - D) Transport
- 19) _____ is used to detect as well as correct the error.
- A) CRC
 - B) Two dimension parity check
 - C) Parity check
 - D) Hamming code
- 20) DQDB stands for
- A) Dual Queue Distributed bus
 - B) Distributed Queue Dual Bus
 - C) Both A & B
 - D) None
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Seat No.	
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**S.E. (CSE) (Part – II) (Old) Examination, 2016
COMPUTER NETWORKS – I**

Day and Date : Wednesday, 21-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

- Instructions :** 1) *Figures to the **right** indicate **full** marks.*
2) **All questions are compulsory.**
3) *Wherever **required** draw diagrams and assume data.*

SECTION – I

II. Write answer to **any four** questions. **(4×5=20)**

- A) What is guided transmission media ? Explain optical fiber in detail.
- B) Specify the use of computer network.
- C) What is flow control ? How it is handled by DLL ?
- D) Explain CRC method with example.
- E) Describe unrestricted simplex protocol.
- F) Describe different type of noise.

III. A) List and explain in detail different transmission impairments. **10**

OR

- B) What is the need of sliding window protocol ? Explain. Describe GO Back N and selective repeat methods. **10**

IV. Draw the diagram of OSI reference model and explain in detail the communication functions of each layer. **10**

SECTION – II

V. Write answer to **any four** questions. **(4×5=20)**

- A) Explain ALOHA with its types.
- B) Describe IEEE standards 802.6 that is DQDB.
- C) What is flooding ? Explain. State disadvantage of flooding.

Set S



D) What is IP address ? Explain special IP address.

E) Explain the concept of CSMA/CD.

F) Describe the working of RARP.

VI. A) Explain distance vector routing. What is count to infinity problem ? How it is solved ? **10**

OR

B) What is adaptive and non adaptive routing ? Describe shortest path routing with its algorithm and suitable example. **10**

VII. Specify the need of IP address. Draw and explain all classes of IP address. What is subnetting ? What is Subnet mask ? Describe in detail. **10**



Seat No.	
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Set	P
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) **Assume suitable data if necessary.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) The degree of multiprogramming is
 - a) The number of processes executed per unit time
 - b) The number of processes in ready queue
 - c) The number of processes in I/O queue
 - d) The number of processes in memory
- 2) To access the services of an os, the interface is provided by
 - a) System calls
 - b) API
 - c) Library
 - d) Assembly instructions
- 3) The processes that are waiting for some device to be available are kept on a list called
 - a) Job queue
 - b) Ready queue
 - c) Device queue
 - d) None of these
- 4) Which of the following state transition is not possible ?
 - a) Waiting to running
 - b) Ready to running
 - c) Waiting to ready
 - d) Running to waiting
- 5) Whenever CPU becomes idle, the operating system must select one of the processes in the ready queue to be executed, this selection processes is carried out by the
 - a) Long term scheduler
 - b) Short term scheduler
 - c) Medium term scheduler
 - d) Dispatcher



- 6) Mutual exclusion can be provided by the
- a) Mutex locks
 - b) Binary semaphores
 - c) Both (a) and (b)
 - d) None of these
- 7) In bakery algorithm to solve the critical section problem
- a) Each process is put into a queue and picked up in an ordered manner
 - b) Each process receives a number and the one with the lowest number is served next
 - c) Each process receives a number and the one with the highest number is served next
 - d) None of these
- 8) System can be recovered from deadlock by
- a) Process termination
 - b) Resource preemption
 - c) Both (a) and (b)
 - d) None of these
- 9) Unsafe state indicates
- a) Deadlock may occur in system
 - b) Deadlock will must occur in system
 - c) Deadlock will not occur in system
 - d) None of these
- 10) In _____ policy, process can replace pages of other processes.
- a) Local page replacement
 - b) Global page replacement
 - c) Both (a) and (b)
 - d) None of these
- 11) Logical memory is divided into
- a) Pages
 - b) Frames
 - c) Partitions
 - d) None of these
- 12) Very high paging activity with reduced CPU utilization is known as
- a) Demand paging
 - b) Demand segmentation
 - c) Thrashing
 - d) None of these
- 13) When device A has a cable that plugs into device B and device B has a cable that plugs into device C and device C plugs into a port on the computer, this arrangement is called a
- a) Daisy chain
 - b) Port
 - c) Bus
 - d) Cable
- 14) _____ fragmentation leads to wastage of memory that can't be utilized for other processes.
- a) Internal
 - b) External
 - c) Both (a) and (b)
 - d) None of these
-



Seat No.	
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

- a) Write a short note on time sharing system.
- b) How operating system maintains the information associated with a specific process entering the system ?
- c) Discuss the role of CPU scheduler and dispatcher.
- d) Can synchronization be achieved at hardware level ? If yes, list the various instructions used to achieve the synchronization. Also define one of the instructions.

3. Attempt **any two** : **(2×8=16)**

- a) Define the cooperating processes. Also explain the bounded buffer problem with the help of an algorithm.
- b) Consider the following set of processes, with the length of the CPU burst time given in milliseconds,

Process	Burst time
P1	24
P2	3
P3	3



The processes are assumed to have arrived in the order P1, P2, P3 all at time 0.

Answer the following :

- i) Draw Gantt charts that illustrate the execution of these processes using FCFS and RR scheduling with time quantum of 4 milliseconds.
- ii) What is average waiting time for both the scheduling algorithms in part (i) ?
- iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
- iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?

Represent waiting time and turnaround time for all processes in table.

- c) Write and explain the bakery algorithm for solving the critical section problem for multiple processes.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
 - a) What is deadlock ? Explain RAG for deadlock detection.
 - b) Explain process termination and resource preemption techniques to recover from deadlock.
 - c) Explain best fit and worst fit methods.
 - d) Explain address translation mechanism with the help of base and limit registers in fixed partitioning.
5. Attempt **any two** questions : **(2×8=16)**
 - a) Explain FIFO and optimal algorithm. Calculate number of page fault with following reference (assume 3 frames are available to store pages).
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
Which algorithm generates least page faults ?
 - b) What are global and local page replacement strategies ? Explain how thrashing effect can be minimized ?
 - c) What are different data structures used in Bankers algorithm ? Write Safety and resource request algorithms. Show how both the algorithms can be used to avoid deadlock with an example.



Seat No.	
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Set	Q
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T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) **Assume suitable data if necessary.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) System can be recovered from deadlock by
 - a) Process termination
 - b) Resource preemption
 - c) Both (a) and (b)
 - d) None of these
- 2) Unsafe state indicates
 - a) Deadlock may occur in system
 - b) Deadlock will must occur in system
 - c) Deadlock will not occur in system
 - d) None of these
- 3) In _____ policy, process can replace pages of other processes.
 - a) Local page replacement
 - b) Global page replacement
 - c) Both (a) and (b)
 - d) None of these
- 4) Logical memory is divided into
 - a) Pages
 - b) Frames
 - c) Partitions
 - d) None of these
- 5) Very high paging activity with reduced CPU utilization is known as
 - a) Demand paging
 - b) Demand segmentation
 - c) Thrashing
 - d) None of these
- 6) When device A has a cable that plugs into device B and device B has a cable that plugs into device C and device C plugs into a port on the computer, this arrangement is called a
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 - b) Port
 - c) Bus
 - d) Cable



- 7) _____ fragmentation leads to wastage of memory that can't be utilized for other processes.
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- 8) The degree of multiprogramming is
- a) The number of processes executed per unit time
 - b) The number of processes in ready queue
 - c) The number of processes in I/O queue
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- 9) To access the services of an os, the interface is provided by
- a) System calls
 - b) API
 - c) Library
 - d) Assembly instructions
- 10) The processes that are waiting for some device to be available are kept on a list called
- a) Job queue
 - b) Ready queue
 - c) Device queue
 - d) None of these
- 11) Which of the following state transition is not possible ?
- a) Waiting to running
 - b) Ready to running
 - c) Waiting to ready
 - d) Running to waiting
- 12) Whenever CPU becomes idle, the operating system must select one of the processes in the ready queue to be executed, this selection processes is carried out by the
- a) Long term scheduler
 - b) Short term scheduler
 - c) Medium term scheduler
 - d) Dispatcher
- 13) Mutual exclusion can be provided by the
- a) Mutex locks
 - b) Binary semaphores
 - c) Both (a) and (b)
 - d) None of these
- 14) In bakery algorithm to solve the critical section problem
- a) Each process is put into a queue and picked up in an ordered manner
 - b) Each process receives a number and the one with the lowest number is served next
 - c) Each process receives a number and the one with the highest number is served next
 - d) None of these



Seat No.	
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) **All questions are compulsory.**
2) **Assume suitable data if necessary.**

SECTION – I

2. Attempt **any three** : **(3×4=12)**

- a) Write a short note on time sharing system.
- b) How operating system maintains the information associated with a specific process entering the system ?
- c) Discuss the role of CPU scheduler and dispatcher.
- d) Can synchronization be achieved at hardware level ? If yes, list the various instructions used to achieve the synchronization. Also define one of the instructions.

3. Attempt **any two** : **(2×8=16)**

- a) Define the cooperating processes. Also explain the bounded buffer problem with the help of an algorithm.
- b) Consider the following set of processes, with the length of the CPU burst time given in milliseconds,

Process	Burst time
P1	24
P2	3
P3	3



The processes are assumed to have arrived in the order P1, P2, P3 all at time 0.

Answer the following :

- i) Draw Gantt charts that illustrate the execution of these processes using FCFS and RR scheduling with time quantum of 4 milliseconds.
- ii) What is average waiting time for both the scheduling algorithms in part (i) ?
- iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
- iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?

Represent waiting time and turnaround time for all processes in table.

- c) Write and explain the bakery algorithm for solving the critical section problem for multiple processes.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**

- a) What is deadlock ? Explain RAG for deadlock detection.
- b) Explain process termination and resource preemption techniques to recover from deadlock.
- c) Explain best fit and worst fit methods.
- d) Explain address translation mechanism with the help of base and limit registers in fixed partitioning.

5. Attempt **any two** questions : **(2×8=16)**

- a) Explain FIFO and optimal algorithm. Calculate number of page fault with following reference (assume 3 frames are available to store pages).
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
Which algorithm generates least page faults ?
- b) What are global and local page replacement strategies ? Explain how thrashing effect can be minimized ?
- c) What are different data structures used in Bankers algorithm ? Write Safety and resource request algorithms. Show how both the algorithms can be used to avoid deadlock with an example.



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Set

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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) **Assume suitable data if necessary.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- 1) Whenever CPU becomes idle, the operating system must select one of the processes in the ready queue to be executed, this selection processes is carried out by the
 - a) Long term scheduler
 - b) Short term scheduler
 - c) Medium term scheduler
 - d) Dispatcher
 - 2) Mutual exclusion can be provided by the
 - a) Mutex locks
 - b) Binary semaphores
 - c) Both (a) and (b)
 - d) None of these
 - 3) In bakery algorithm to solve the critical section problem
 - a) Each process is put into a queue and picked up in an ordered manner
 - b) Each process receives a number and the one with the lowest number is served next
 - c) Each process receives a number and the one with the highest number is served next
 - d) None of these
 - 4) System can be recovered from deadlock by
 - a) Process termination
 - b) Resource preemption
 - c) Both (a) and (b)
 - d) None of these
 - 5) Unsafe state indicates
 - a) Deadlock may occur in system
 - b) Deadlock will must occur in system
 - c) Deadlock will not occur in system
 - d) None of these

P.T.O.



- 6) In _____ policy, process can replace pages of other processes.
- a) Local page replacement
 - b) Global page replacement
 - c) Both (a) and (b)
 - d) None of these
- 7) Logical memory is divided into
- a) Pages
 - b) Frames
 - c) Partitions
 - d) None of these
- 8) Very high paging activity with reduced CPU utilization is known as
- a) Demand paging
 - b) Demand segmentation
 - c) Thrashing
 - d) None of these
- 9) When device A has a cable that plugs into device B and device B has a cable that plugs into device C and device C plugs into a port on the computer, this arrangement is called a
- a) Daisy chain
 - b) Port
 - c) Bus
 - d) Cable
- 10) _____ fragmentation leads to wastage of memory that can't be utilized for other processes.
- a) Internal
 - b) External
 - c) Both (a) and (b)
 - d) None of these
- 11) The degree of multiprogramming is
- a) The number of processes executed per unit time
 - b) The number of processes in ready queue
 - c) The number of processes in I/O queue
 - d) The number of processes in memory
- 12) To access the services of an os, the interface is provided by
- a) System calls
 - b) API
 - c) Library
 - d) Assembly instructions
- 13) The processes that are waiting for some device to be available are kept on a list called
- a) Job queue
 - b) Ready queue
 - c) Device queue
 - d) None of these
- 14) Which of the following state transition is not possible ?
- a) Waiting to running
 - b) Ready to running
 - c) Waiting to ready
 - d) Running to waiting
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) **All questions are compulsory.**
2) **Assume suitable data if necessary.**

SECTION – I

2. Attempt **any three** : **(3×4=12)**

- a) Write a short note on time sharing system.
- b) How operating system maintains the information associated with a specific process entering the system ?
- c) Discuss the role of CPU scheduler and dispatcher.
- d) Can synchronization be achieved at hardware level ? If yes, list the various instructions used to achieve the synchronization. Also define one of the instructions.

3. Attempt **any two** : **(2×8=16)**

- a) Define the cooperating processes. Also explain the bounded buffer problem with the help of an algorithm.
- b) Consider the following set of processes, with the length of the CPU burst time given in milliseconds,

Process	Burst time
P1	24
P2	3
P3	3



The processes are assumed to have arrived in the order P1, P2, P3 all at time 0.

Answer the following :

- i) Draw Gantt charts that illustrate the execution of these processes using FCFS and RR scheduling with time quantum of 4 milliseconds.
 - ii) What is average waiting time for both the scheduling algorithms in part (i) ?
 - iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
 - iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?
- Represent waiting time and turnaround time for all processes in table.
- c) Write and explain the bakery algorithm for solving the critical section problem for multiple processes.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
 - a) What is deadlock ? Explain RAG for deadlock detection.
 - b) Explain process termination and resource preemption techniques to recover from deadlock.
 - c) Explain best fit and worst fit methods.
 - d) Explain address translation mechanism with the help of base and limit registers in fixed partitioning.
5. Attempt **any two** questions : **(2×8=16)**
 - a) Explain FIFO and optimal algorithm. Calculate number of page fault with following reference (assume 3 frames are available to store pages).
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
Which algorithm generates least page faults ?
 - b) What are global and local page replacement strategies ? Explain how thrashing effect can be minimized ?
 - c) What are different data structures used in Bankers algorithm ? Write Safety and resource request algorithms. Show how both the algorithms can be used to avoid deadlock with an example.



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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) **Assume suitable data if necessary.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer : **(1×14=14)**
- 1) In _____ policy, process can replace pages of other processes.
a) Local page replacement b) Global page replacement
c) Both (a) and (b) d) None of these
 - 2) Logical memory is divided into
a) Pages b) Frames c) Partitions d) None of these
 - 3) Very high paging activity with reduced CPU utilization is known as
a) Demand paging b) Demand segmentation
c) Thrashing d) None of these
 - 4) When device A has a cable that plugs into device B and device B has a cable that plugs into device C and device C plugs into a port on the computer, this arrangement is called a
a) Daisy chain b) Port c) Bus d) Cable
 - 5) _____ fragmentation leads to wastage of memory that can't be utilized for other processes.
a) Internal b) External
c) Both (a) and (b) d) None of these
 - 6) The degree of multiprogramming is
a) The number of processes executed per unit time
b) The number of processes in ready queue
c) The number of processes in I/O queue
d) The number of processes in memory

P.T.O.



- 7) To access the services of an os, the interface is provided by
- a) System calls
 - b) API
 - c) Library
 - d) Assembly instructions
- 8) The processes that are waiting for some device to be available are kept on a list called
- a) Job queue
 - b) Ready queue
 - c) Device queue
 - d) None of these
- 9) Which of the following state transition is not possible ?
- a) Waiting to running
 - b) Ready to running
 - c) Waiting to ready
 - d) Running to waiting
- 10) Whenever CPU becomes idle, the operating system must select one of the processes in the ready queue to be executed, this selection processes is carried out by the
- a) Long term scheduler
 - b) Short term scheduler
 - c) Medium term scheduler
 - d) Dispatcher
- 11) Mutual exclusion can be provided by the
- a) Mutex locks
 - b) Binary semaphores
 - c) Both (a) and (b)
 - d) None of these
- 12) In bakery algorithm to solve the critical section problem
- a) Each process is put into a queue and picked up in an ordered manner
 - b) Each process receives a number and the one with the lowest number is served next
 - c) Each process receives a number and the one with the highest number is served next
 - d) None of these
- 13) System can be recovered from deadlock by
- a) Process termination
 - b) Resource preemption
 - c) Both (a) and (b)
 - d) None of these
- 14) Unsafe state indicates
- a) Deadlock may occur in system
 - b) Deadlock will must occur in system
 - c) Deadlock will not occur in system
 - d) None of these
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
OPERATING SYSTEM CONCEPTS**

Day and Date : Monday, 28-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

Instructions : 1) *All questions are compulsory.*
2) *Assume suitable data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

- a) Write a short note on time sharing system.
- b) How operating system maintains the information associated with a specific process entering the system ?
- c) Discuss the role of CPU scheduler and dispatcher.
- d) Can synchronization be achieved at hardware level ? If yes, list the various instructions used to achieve the synchronization. Also define one of the instructions.

3. Attempt **any two** : **(2×8=16)**

- a) Define the cooperating processes. Also explain the bounded buffer problem with the help of an algorithm.
- b) Consider the following set of processes, with the length of the CPU burst time given in milliseconds,

Process	Burst time
P1	24
P2	3
P3	3



The processes are assumed to have arrived in the order P1, P2, P3 all at time 0.

Answer the following :

- i) Draw Gantt charts that illustrate the execution of these processes using FCFS and RR scheduling with time quantum of 4 milliseconds.
 - ii) What is average waiting time for both the scheduling algorithms in part (i) ?
 - iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
 - iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?
- Represent waiting time and turnaround time for all processes in table.
- c) Write and explain the bakery algorithm for solving the critical section problem for multiple processes.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
 - a) What is deadlock ? Explain RAG for deadlock detection.
 - b) Explain process termination and resource preemption techniques to recover from deadlock.
 - c) Explain best fit and worst fit methods.
 - d) Explain address translation mechanism with the help of base and limit registers in fixed partitioning.
5. Attempt **any two** questions : **(2×8=16)**
 - a) Explain FIFO and optimal algorithm. Calculate number of page fault with following reference (assume 3 frames are available to store pages).
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
Which algorithm generates least page faults ?
 - b) What are global and local page replacement strategies ? Explain how thrashing effect can be minimized ?
 - c) What are different data structures used in Bankers algorithm ? Write Safety and resource request algorithms. Show how both the algorithms can be used to avoid deadlock with an example.



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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Chose the correct answers :

14

- 1) Which of the following is not valid type of loader ?
 - a) Relocating loader
 - b) Absolute loader
 - c) Compile-and-go loader
 - d) None
- 2) Overlays are used
 - a) Reduce Execution time
 - b) Reduce cost
 - c) Reduce memory requirement
 - d) Reduce linking requirement
- 3) Language translator bridges
 - a) Execution gap
 - b) Specification gap
 - c) Semantic gap
 - d) None of above
- 4) Object module of program unit consists of _____ components.
 - a) RELOCTAB
 - b) LINKTAB
 - c) Header
 - d) All
- 5) Data structure used during the design of macro processor are
 - a) MNT
 - b) MDT
 - c) APT
 - d) All
- 6) Which of the following is not assembly directive ?
 - a) START
 - b) LTOrg
 - c) MEND
 - d) EQU
- 7) A _____ is a unit of specification for program generation through expansion.
 - a) Lexical Expansion
 - b) Semantic Expansion
 - c) Macro Expansion
 - d) Macro

P.T.O.



- 8) External reference is mainly handled by
a) Linker b) Loader c) Programmer d) Compiler
- 9) Front end analysis involves the task
i) determine validity of source statement
ii) determine the content of the source statement
iii) perform memory allocation
iv) code generation
v) construction of IR
a) i, ii, iii, iv b) i, iii, iv c) i, ii, v d) v, iv, iii, ii
- 10) A model statement is a statement from which a/an _____ language statement may be generated during macro expansion.
a) Machine b) Assembly
c) Programming d) Object
- 11) An overlay is a part of a program (or software package) which has
a) The different load origin as some other part(s) of the program
b) The same load origin as some other part(s) of the program
c) The overloaded mapping within the memory
d) The overlaid structure as compared with other parts of the program
- 12) All errors are reported against the erroneous statement itself, if error reports are produced
a) in Pass-1 b) in Pass-2
c) After preprocessing step d) after code generation
- 13) Fundamental language processing activity which bridges the specification gap is called as
a) Program generation activity b) program execution activity
c) Program specification activity d) none of these
- 14) Which of the following register is NOT used in based indexed addressing mode of 8088 ?
a) SS b) BX c) BP d) SI
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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Solve **any four** : **(4×5=20)**
- a) What are the activities of language processor ? Explain any one.
 - b) What is language processor development tool ? Explain lex.
 - c) List and explain advanced assembler directive with example.
 - d) Explain design of macro-processor with neat diagram.
 - e) Explain Variant – I with example.

3. Solve **any one** : **(1×8=8)**
- a) Explain Macro expansion with example and how parameters are processed.
 - b) Give the following source program

```
START 200
MOVER AREG, A
ADD AREG, B
MOVEM AREG, A
    STOP
A    DC    '2'
B    DS    1
    END
```

Display the contents of symbol table and show the intermediate code generated for the program (variant I).



SECTION – II

4. Solve **any four** : **(4×5=20)**
- a) Give different optimizing transformations. Explain any two in detail.
 - b) Describe memory allocation strategies.
 - c) Describe program execution steps in detail with proper schematic.
 - d) Explain following terminologies with example :
 - i) Translated time address and translated origin
 - ii) Load time address and load origin.
 - e) Write a note on program relocation and linking concepts.
5. List types of loader and explain any two types of loader. **8**
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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Chose the correct answers :

14

- 1) External reference is mainly handled by
 - a) Linker
 - b) Loader
 - c) Programmer
 - d) Compiler
- 2) Front end analysis involves the task
 - i) determine validity of source statement
 - ii) determine the content of the source statement
 - iii) perform memory allocation
 - iv) code generation
 - v) construction of IR
 - a) i, ii, iii, iv
 - b) i, iii, iv
 - c) i, ii, v
 - d) v, iv, iii, ii
- 3) A model statement is a statement from which a/an _____ language statement may be generated during macro expansion.
 - a) Machine
 - b) Assembly
 - c) Programming
 - d) Object
- 4) An overlay is a part of a program (or software package) which has
 - a) The different load origin as some other part(s) of the program
 - b) The same load origin as some other part(s) of the program
 - c) The overloaded mapping within the memory
 - d) The overlaid structure as compared with other parts of the program

P.T.O.



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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Solve **any four** : **(4×5=20)**
- a) What are the activities of language processor ? Explain any one.
 - b) What is language processor development tool ? Explain lex.
 - c) List and explain advanced assembler directive with example.
 - d) Explain design of macro-processor with neat diagram.
 - e) Explain Variant – I with example.

3. Solve **any one** : **(1×8=8)**
- a) Explain Macro expansion with example and how parameters are processed.
 - b) Give the following source program

```
START 200
MOVER AREG, A
ADD AREG, B
MOVEM AREG, A
    STOP
A    DC    '2'
B    DS    1
    END
```

Display the contents of symbol table and show the intermediate code generated for the program (variant I).



SECTION – II

4. Solve **any four** : **(4×5=20)**
- a) Give different optimizing transformations. Explain any two in detail.
 - b) Describe memory allocation strategies.
 - c) Describe program execution steps in detail with proper schematic.
 - d) Explain following terminologies with example :
 - i) Translated time address and translated origin
 - ii) Load time address and load origin.
 - e) Write a note on program relocation and linking concepts.
5. List types of loader and explain any two types of loader. **8**
-



SLR-EP – 177

Seat No.	
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Set	R
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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Chose the correct answers :

14

- 1) Data structure used during the design of macro processor are
 - a) MNT
 - b) MDT
 - c) APT
 - d) All
- 2) Which of the following is not assembly directive ?
 - a) START
 - b) LTORG
 - c) MEND
 - d) EQU
- 3) A _____ is a unit of specification for program generation through expansion.
 - a) Lexical Expansion
 - b) Semantic Expansion
 - c) Macro Expansion
 - d) Macro
- 4) External reference is mainly handled by
 - a) Linker
 - b) Loader
 - c) Programmer
 - d) Compiler
- 5) Front end analysis involves the task
 - i) determine validity of source statement
 - ii) determine the content of the source statement
 - iii) perform memory allocation
 - iv) code generation
 - v) construction of IR
 - a) i, ii, iii, iv
 - b) i, iii, iv
 - c) i, ii, v
 - d) v, iv, iii, ii

P.T.O.



- 6) A model statement is a statement from which a/an _____ language statement may be generated during macro expansion.
 - a) Machine
 - b) Assembly
 - c) Programming
 - d) Object
- 7) An overlay is a part of a program (or software package) which has
 - a) The different load origin as some other part(s) of the program
 - b) The same load origin as some other part(s) of the program
 - c) The overloaded mapping within the memory
 - d) The overlaid structure as compared with other parts of the program
- 8) All errors are reported against the erroneous statement itself, if error reports are produced
 - a) in Pass-1
 - b) in Pass-2
 - c) After preprocessing step
 - d) after code generation
- 9) Fundamental language processing activity which bridges the specification gap is called as
 - a) Program generation activity
 - b) program execution activity
 - c) Program specification activity
 - d) none of these
- 10) Which of the following register is NOT used in based indexed addressing mode of 8088 ?
 - a) SS
 - b) BX
 - c) BP
 - d) SI
- 11) Which of the following is not valid type of loader ?
 - a) Relocating loader
 - b) Absolute loader
 - c) Compile-and-go loader
 - d) None
- 12) Overlays are used
 - a) Reduce Execution time
 - b) Reduce cost
 - c) Reduce memory requirement
 - d) Reduce linking requirement
- 13) Language translator bridges
 - a) Execution gap
 - b) Specification gap
 - c) Semantic gap
 - d) None of above
- 14) Object module of program unit consists of _____ components.
 - a) RELOCTAB
 - b) LINKTAB
 - c) Header
 - d) All



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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Solve **any four** : **(4×5=20)**
- a) What are the activities of language processor ? Explain any one.
 - b) What is language processor development tool ? Explain lex.
 - c) List and explain advanced assembler directive with example.
 - d) Explain design of macro-processor with neat diagram.
 - e) Explain Variant – I with example.

3. Solve **any one** : **(1×8=8)**
- a) Explain Macro expansion with example and how parameters are processed.
 - b) Give the following source program

```
START 200
MOVER AREG, A
ADD AREG, B
MOVEM AREG, A
    STOP
A    DC    '2'
B    DS    1
    END
```

Display the contents of symbol table and show the intermediate code generated for the program (variant I).



SECTION – II

4. Solve **any four** : **(4×5=20)**
- a) Give different optimizing transformations. Explain any two in detail.
 - b) Describe memory allocation strategies.
 - c) Describe program execution steps in detail with proper schematic.
 - d) Explain following terminologies with example :
 - i) Translated time address and translated origin
 - ii) Load time address and load origin.
 - e) Write a note on program relocation and linking concepts.
5. List types of loader and explain any two types of loader. **8**
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SLR-EP – 177

Seat No.	
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Set	S
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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Chose the correct answers :

14

- 1) A model statement is a statement from which a/an _____ language statement may be generated during macro expansion.
 - a) Machine
 - b) Assembly
 - c) Programming
 - d) Object
- 2) An overlay is a part of a program (or software package) which has
 - a) The different load origin as some other part(s) of the program
 - b) The same load origin as some other part(s) of the program
 - c) The overloaded mapping within the memory
 - d) The overlaid structure as compared with other parts of the program
- 3) All errors are reported against the erroneous statement itself, if error reports are produced
 - a) in Pass-1
 - b) in Pass-2
 - c) After preprocessing step
 - d) after code generation
- 4) Fundamental language processing activity which bridges the specification gap is called as
 - a) Program generation activity
 - b) program execution activity
 - c) Program specification activity
 - d) none of these

P.T.O.



- 5) Which of the following register is NOT used in based indexed addressing mode of 8088 ?
a) SS b) BX c) BP d) SI
- 6) Which of the following is not valid type of loader ?
a) Relocating loader b) Absolute loader
c) Compile-and-go loader d) None
- 7) Overlays are used
a) Reduce Execution time b) Reduce cost
c) Reduce memory requirement d) Reduce linking requirement
- 8) Language translator bridges
a) Execution gap b) Specification gap
c) Semantic gap d) None of above
- 9) Object module of program unit consists of _____ components.
a) RELOCTAB b) LINKTAB c) Header d) All
- 10) Data structure used during the design of macro processor are
a) MNT b) MDT c) APT d) All
- 11) Which of the following is not assembly directive ?
a) START b) LORG c) MEND d) EQU
- 12) A _____ is a unit of specification for program generation through expansion.
a) Lexical Expansion b) Semantic Expansion
c) Macro Expansion d) Macro
- 13) External reference is mainly handled by
a) Linker b) Loader c) Programmer d) Compiler
- 14) Front end analysis involves the task
i) determine validity of source statement
ii) determine the content of the source statement
iii) perform memory allocation
iv) code generation
v) construction of IR
a) i, ii, iii, iv b) i, iii, iv c) i, ii, v d) v, iv, iii, ii



Seat No.	
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**T.E. (CSE) (Part – I) Examination, 2016
SYSTEM PROGRAMMING
(New CGPA)**

Day and Date : Wednesday, 30-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Solve **any four** : **(4×5=20)**
- a) What are the activities of language processor ? Explain any one.
 - b) What is language processor development tool ? Explain lex.
 - c) List and explain advanced assembler directive with example.
 - d) Explain design of macro-processor with neat diagram.
 - e) Explain Variant – I with example.

3. Solve **any one** : **(1×8=8)**
- a) Explain Macro expansion with example and how parameters are processed.
 - b) Give the following source program

```
START 200
MOVER AREG, A
ADD AREG, B
MOVEM AREG, A
    STOP
A    DC    '2'
B    DS    1
    END
```

Display the contents of symbol table and show the intermediate code generated for the program (variant I).



SECTION – II

4. Solve **any four** : **(4×5=20)**
- a) Give different optimizing transformations. Explain any two in detail.
 - b) Describe memory allocation strategies.
 - c) Describe program execution steps in detail with proper schematic.
 - d) Explain following terminologies with example :
 - i) Translated time address and translated origin
 - ii) Load time address and load origin.
 - e) Write a note on program relocation and linking concepts.
5. List types of loader and explain any two types of loader. **8**
-



Seat No.	
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Set	P
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternatives : **(1×14=14)**
- 1) What protocol is used to find the hardware address of local device ?
a) RARP b) ARP c) IP d) ICMP
 - 2) Which IP address is reserved for loop back or local host ?
a) 192.168.0.0 b) 172.2.1.0 c) 127.0.0.1 d) None of these
 - 3) The subnet mask 255.255.0.0 belongs to
a) Class A b) Class B c) Class C d) Class D
 - 4) In DNS, each node in the tree has a label, which is string with maximum _____ characters.
a) 46 b) 63 c) 65 d) 16
 - 5) The _____ field in a BOOTP packet identifies the type of network.
a) Operation code b) Hardware type
c) Transaction ID d) Hope code
 - 6) Remote login can involve
a) NVT b) TELNET c) TCP/IP d) All of the above



- 7) _____ is the simple file transfer protocol without the complexities and sophistication of File transfer protocol.
- a) SNTP b) TFTP c) FFTP d) FTP
- 8) Socket system call is returns an integer called _____ which uniquely defines the created socket.
- a) Socket number b) Socket descriptor
c) Socket address d) All
- 9) Which of the following server uses the accept () system call ?
- a) Iterative TCP b) Concurrent TCP
c) UDP d) Both a) and b)
- 10) In TCP timers, _____ is used to prevent a long idle connection between two TCPs.
- a) Persistence Timer b) Retransmission Timer
c) Keepalive Timer d) All
- 11) The size of sliding window used in TCP is minimum value of receiver window and
- a) Sender window b) Congestion window
c) Closing window d) None
- 12) The connection establishment in TCP is called _____ handshaking.
- a) Two-way b) Three-way
c) Synchronous d) Asynchronous
- 13) IPV6 has _____ bit addresses.
- a) 32 b) 64
c) 128 d) None of the above
- 14) The range of port numbers is
- a) 0 to 65535 b) 0 to 1024
c) 0 to 1023 d) – 65535 to +65535
-



Seat No.	
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any four** of the following : **(4×5=20)**
- a) Explain TCP timers in detail.
 - b) Comparison between OSI model and TCP/IP protocol suite.
 - c) What is the use of port number ? List and explain different ranges of port numbers.
 - d) Describe SCTP services in details.
 - e) Explain concept of byte ordering used in client server model.
 - f) Describe connectionless iterative server with suitable diagram.
3. Attempt **any one** of the following : **(1×8=8)**
- a) Describe TCP connection establishment and connection termination in detail.
 - b) Show how UDP handles the sending and receiving of UDP packets by taking a simple version of UDP package ?

SECTION – II

4. Attempt **any four** of the following : **(4×5=20)**
- a) Explain HTTP architecture in details.
 - b) Explain the types of web documents.
 - c) What is MIME ? Explain its application in detail.
 - d) Differentiate between FTP and TFTP.
 - e) What is DHCP ? Explain need of DHCP with the help of packet format.
 - f) Write a note on POP3.
5. Attempt **any one** of the following : **(1×8=8)**
- a) Describe DNS in internet. What are different types of domain ? List the characteristics of each type of domain.
 - b) Explain SSH in detail with its components. Describe port forwarding in SSH.

Set P



Seat No.	
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Set	Q
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternatives : **(1×14=14)**
- 1) Socket system call returns an integer called _____ which uniquely defines the created socket.
a) Socket number b) Socket descriptor
c) Socket address d) All
 - 2) Which of the following server uses the accept () system call ?
a) Iterative TCP b) Concurrent TCP
c) UDP d) Both a) and b)
 - 3) In TCP timers, _____ is used to prevent a long idle connection between two TCPs.
a) Persistence Timer b) Retransmission Timer
c) Keepalive Timer d) All
 - 4) The size of sliding window used in TCP is minimum value of receiver window and
a) Sender window b) Congestion window
c) Closing window d) None



- 5) The connection establishment in TCP is called _____ handshaking.
- a) Two-way b) Three-way
c) Synchronous d) Asynchronous
- 6) IPV6 has _____ bit addresses.
- a) 32 b) 64
c) 128 d) None of the above
- 7) The range of port numbers is
- a) 0 to 65535 b) 0 to 1024
c) 0 to 1023 d) – 65535 to +65535
- 8) What protocol is used to find the hardware address of local device ?
- a) RARP b) ARP c) IP d) ICMP
- 9) Which IP address is reserved for loop back or local host ?
- a) 192.168.0.0 b) 172.2.1.0 c) 127.0.0.1 d) None of these
- 10) The subnet mask 255.255.0.0 belongs to
- a) Class A b) Class B c) Class C d) Glass D
- 11) In DNS, each node in the tree has a label, which is string with maximum _____ characters.
- a) 46 b) 63 c) 65 d) 16
- 12) The _____ field in a BOOTP packet identifies the type of network.
- a) Operation code b) Hardware type
c) Transaction ID d) Hope code
- 13) Remote login can involve
- a) NVT b) TELNET c) TCP/IP d) All of the above
- 14) _____ is the simple file transfer protocol without the complexities and sophistication of File transfer protocol.
- a) SNTP b) TFTP c) FFTP d) FTP
-



Seat No.	
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any four** of the following : **(4×5=20)**
- a) Explain TCP timers in detail.
 - b) Comparison between OSI model and TCP/IP protocol suite.
 - c) What is the use of port number ? List and explain different ranges of port numbers.
 - d) Describe SCTP services in details.
 - e) Explain concept of byte ordering used in client server model.
 - f) Describe connectionless iterative server with suitable diagram.
3. Attempt **any one** of the following : **(1×8=8)**
- a) Describe TCP connection establishment and connection termination in detail.
 - b) Show how UDP handles the sending and receiving of UDP packets by taking a simple version of UDP package ?

SECTION – II

4. Attempt **any four** of the following : **(4×5=20)**
- a) Explain HTTP architecture in details.
 - b) Explain the types of web documents.
 - c) What is MIME ? Explain its application in detail.
 - d) Differentiate between FTP and TFTP.
 - e) What is DHCP ? Explain need of DHCP with the help of packet format.
 - f) Write a note on POP3.
5. Attempt **any one** of the following : **(1×8=8)**
- a) Describe DNS in internet. What are different types of domain ? List the characteristics of each type of domain.
 - b) Explain SSH in detail with its components. Describe port forwarding in SSH.

Set Q



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Seat No.	
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Set	R
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternatives :

(1×14=14)

- 1) The _____ field in a BOOTP packet identifies the type of network.
 - a) Operation code
 - b) Hardware type
 - c) Transaction ID
 - d) Hope code
- 2) Remote login can involve
 - a) NVT
 - b) TELNET
 - c) TCP/IP
 - d) All of the above
- 3) _____ is the simple file transfer protocol without the complexities and sophistication of File transfer protocol.
 - a) SNTP
 - b) TFTP
 - c) FFTP
 - d) FTP
- 4) Socket system call is returns an integer called _____ which uniquely defines the created socket.
 - a) Socket number
 - b) Socket descriptor
 - c) Socket address
 - d) All
- 5) Which of the following server uses the accept () system call ?
 - a) Iterative TCP
 - b) Concurrent TCP
 - c) UDP
 - d) Both a) and b)

P.T.O.



- 6) In TCP timers, _____ is used to prevent a long idle connection between two TCPs.
- a) Persistence Timer b) Retransmission Timer
c) Keepalive Timer d) All
- 7) The size of sliding window used in TCP is minimum value of receiver window and
- a) Sender window b) Congestion window
c) Closing window d) None
- 8) The connection establishment in TCP is called _____ handshaking.
- a) Two-way b) Three-way
c) Synchronous d) Asynchronous
- 9) IPV6 has _____ bit addresses.
- a) 32 b) 64
c) 128 d) None of the above
- 10) The range of port numbers is
- a) 0 to 65535 b) 0 to 1024
c) 0 to 1023 d) – 65535 to +65535
- 11) What protocol is used to find the hardware address of local device ?
- a) RARP b) ARP c) IP d) ICMP
- 12) Which IP address is reserved for loop back or local host ?
- a) 192.168.0.0 b) 172.2.1.0 c) 127.0.0.1 d) None of these
- 13) The subnet mask 255.255.0.0 belongs to
- a) Class A b) Class B c) Class C d) Glass D
- 14) In DNS, each node in the tree has a label, which is string with maximum _____ characters.
- a) 46 b) 63 c) 65 d) 16
-



Seat No.	
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any four** of the following : **(4×5=20)**
- a) Explain TCP timers in detail.
 - b) Comparison between OSI model and TCP/IP protocol suite.
 - c) What is the use of port number ? List and explain different ranges of port numbers.
 - d) Describe SCTP services in details.
 - e) Explain concept of byte ordering used in client server model.
 - f) Describe connectionless iterative server with suitable diagram.
3. Attempt **any one** of the following : **(1×8=8)**
- a) Describe TCP connection establishment and connection termination in detail.
 - b) Show how UDP handles the sending and receiving of UDP packets by taking a simple version of UDP package ?

SECTION – II

4. Attempt **any four** of the following : **(4×5=20)**
- a) Explain HTTP architecture in details.
 - b) Explain the types of web documents.
 - c) What is MIME ? Explain its application in detail.
 - d) Differentiate between FTP and TFTP.
 - e) What is DHCP ? Explain need of DHCP with the help of packet format.
 - f) Write a note on POP3.
5. Attempt **any one** of the following : **(1×8=8)**
- a) Describe DNS in internet. What are different types of domain ? List the characteristics of each type of domain.
 - b) Explain SSH in detail with its components. Describe port forwarding in SSH.

Set R



Seat No.	
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Set	S
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternatives : **(1×14=14)**

- 1) In TCP timers, _____ is used to prevent a long idle connection between two TCPs.
 - a) Persistence Timer
 - b) Retransmission Timer
 - c) Keepalive Timer
 - d) All
- 2) The size of sliding window used in TCP is minimum value of receiver window and
 - a) Sender window
 - b) Congestion window
 - c) Closing window
 - d) None
- 3) The connection establishment in TCP is called _____ handshaking.
 - a) Two-way
 - b) Three-way
 - c) Synchronous
 - d) Asynchronous
- 4) IPV6 has _____ bit addresses.
 - a) 32
 - b) 64
 - c) 128
 - d) None of the above
- 5) The range of port numbers is
 - a) 0 to 65535
 - b) 0 to 1024
 - c) 0 to 1023
 - d) – 65535 to +65535

P.T.O.



- 6) What protocol is used to find the hardware address of local device ?
a) RARP b) ARP c) IP d) ICMP
- 7) Which IP address is reserved for loop back or local host ?
a) 192.168.0.0 b) 172.2.1.0 c) 127.0.0.1 d) None of these
- 8) The subnet mask 255.255.0.0 belongs to
a) Class A b) Class B c) Class C d) Class D
- 9) In DNS, each node in the tree has a label, which is string with maximum _____ characters.
a) 46 b) 63 c) 65 d) 16
- 10) The _____ field in a BOOTP packet identifies the type of network.
a) Operation code b) Hardware type
c) Transaction ID d) Hope code
- 11) Remote login can involve
a) NVT b) TELNET c) TCP/IP d) All of the above
- 12) _____ is the simple file transfer protocol without the complexities and sophistication of File transfer protocol.
a) SNTP b) TFTP c) FFTP d) FTP
- 13) Socket system call is returns an integer called _____ which uniquely defines the created socket.
a) Socket number b) Socket descriptor
c) Socket address d) All
- 14) Which of the following server uses the accept () system call ?
a) Iterative TCP b) Concurrent TCP
c) UDP d) Both a) and b)
-



Seat No.	
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**T.E. (CSE) (Part – I) (CGPA) Examination, 2016
COMPUTER NETWORKS (New)**

Day and Date : Friday, 2-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

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

SECTION – I

2. Attempt **any four** of the following : **(4×5=20)**
- a) Explain TCP timers in detail.
 - b) Comparison between OSI model and TCP/IP protocol suite.
 - c) What is the use of port number ? List and explain different ranges of port numbers.
 - d) Describe SCTP services in details.
 - e) Explain concept of byte ordering used in client server model.
 - f) Describe connectionless iterative server with suitable diagram.
3. Attempt **any one** of the following : **(1×8=8)**
- a) Describe TCP connection establishment and connection termination in detail.
 - b) Show how UDP handles the sending and receiving of UDP packets by taking a simple version of UDP package ?

SECTION – II

4. Attempt **any four** of the following : **(4×5=20)**
- a) Explain HTTP architecture in details.
 - b) Explain the types of web documents.
 - c) What is MIME ? Explain its application in detail.
 - d) Differentiate between FTP and TFTP.
 - e) What is DHCP ? Explain need of DHCP with the help of packet format.
 - f) Write a note on POP3.
5. Attempt **any one** of the following : **(1×8=8)**
- a) Describe DNS in internet. What are different types of domain ? List the characteristics of each type of domain.
 - b) Explain SSH in detail with its components. Describe port forwarding in SSH.



SLR-EP – 179

Seat No.	
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Set	P
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicate **full** marks.
 - 4) Assume suitable data, **if** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative for the following :
 - 1) The average case occur in linear search algorithm
 - a) When item is somewhere in the middle of the array
 - b) When item is not in the array at all
 - c) When item is the last element in the array
 - d) When item is the last element in the array or is not there at all
 - 2) Job sequencing with deadlines is an example of _____ of greedy method.
 - a) subset paradigm
 - b) ordering paradigm
 - c) a) and b)
 - d) none of the above
 - 3) Algorithm that terminate after a finite number of operations.
 - a) Definiteness
 - b) Finiteness
 - c) Effectiveness
 - d) Terminate
 - 4) The complexity of optimal merge pattern is
 - a) $m \times n$
 - b) $\log (m \times n)$
 - c) $m + n$
 - d) $\log (m + n)$
 - 5) In an optimal storage on tape problem if $(\lambda_1, \lambda_2, \lambda_3) = (5, 10, 3)$ then the optimal ordering of program is
 - a) 1, 2, 3
 - b) 3, 1, 2
 - c) 2, 3, 1
 - d) 1, 3, 2
 - 6) Huffman code is an application of
 - a) Optimal storage
 - b) Optimal merge
 - c) Optimal retrieval
 - d) None of these
 - 7) Which of the following sorting algorithm is of divide-and-conquer type ?
 - a) Bubble sort
 - b) Insertion sort
 - c) Quick sort
 - d) All of above

P.T.O.



- 8) In dynamic programming an optimal sequence of decision is obtained by making explicit appeal to the
- a) Principal of optimality
 - b) Optimal merge
 - c) Both a) and b)
 - d) None of the above
- 9) Which one of the following techniques is used to find all pairs shortest distance in graph ?
- a) Greedy method
 - b) Dynamic programming
 - c) Backtracking
 - d) None of the above
- 10) Purging rule are also known as
- a) Divide rule
 - b) Iter rule
 - c) Dominance rule
 - d) Common rule
- 11) The minimum integer m to color a particular graph is called as
- a) $m + 1$ colorability
 - b) n -colorability optimization
 - c) chromatic number
 - d) none
- 12) In 8-queen problem two queen (i, j) and (k, l) are on the same diagonal only if
- a) $|j - l| = |i - k|$
 - b) $|j - i| = |k - l|$
 - c) $|j - i| < > |k - l|$
 - d) None of the above
- 13) Backtracking is another name for method of traversal
- a) Depth-First
 - b) Breadth-First
 - c) D-Search
 - d) None of the above
- 14) A problem is NP-Complete if the problem is
- a) NP-Hard
 - b) P only
 - c) NP-hard, and in NP
 - d) NP-hard but not in NP
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Seat No.	
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- a) Define an amortized algorithm. Explain its type with example.
- b) Write a control abstraction for subset paradigm using Greedy method.
- c) Explain time and space complexity with example.
- d) Calculate the time complexity for the following algorithm for addition of $m \times n$ matrices

```
Algorithm Add (a, b, c, m, n)
{
  for l = 1 to m do
    for j = 1 to n do
      c [i, j] = a [i, j] + b [i, j]
    }
  }
```

- e) Write an algorithm for binary search using divide and conquer.
- f) Find an optimal merge pattern for 5 files whose lengths are (20, 30, 10, 5, 30) and calculate number of record moves.

3. Attempt **any one** : **(1×8=8)**

- a) Write an recursive algorithm for finding maximum and minimum. Prove that $T(n) = 3n/2 - 2$.
- b) Find the optimal solution to the knapsack problem with greedy method for
 $N = 7, m = 15, P = (P1, P2, \dots, P7) = (10, 5, 15, 7, 6, 18, 3)$
 $W = (W1, W2, \dots, W7) = (2, 3, 5, 7, 1, 4, 1)$

Set P



SECTION – II

4. Attempt **any four** : **(4×5=20)**
- 1) Write an recursive backtracking algorithm.
 - 2) Solve the 0/1 knapsack instance with $n = 3$, $(w_1, w_2, w_3) = (2, 3, 4)$, $(P_1, p_2, p_3) = (1, 2, 5)$ and $m = 6$ using dynamic programming.
 - 3) Explain Reliability Design in detail.
 - 4) Explain Hamiltonian cycle with example.
 - 5) Explain Tractable and non-Tractable problem.
 - 6) Calculate cost of any three possible binary search trees for identifier set $(a_1, a_2, a_3) = (\text{do}, \text{if}, \text{when})$ with probabilities $p(i) = q(i) = 1/7$ for all i .
5. Attempt **any one** : **8**
- a) Let $w = \{5, 7, 10, 12, 15, 18, 20\}$ and $m = 35$. Find all possible subsets of w that sum to m using backtracking. Show state space tree.
 - b) Write a note on (any two) :
 - i) Graph Coloring
 - ii) P, NP-complete and NP
 - iii) Reduction Technique.
-



SLR-EP – 179

Seat No.	
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Set	Q
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicate **full** marks.
 - 4) Assume suitable data, **if** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative for the following :

- 1) In dynamic programming an optimal sequence of decision is obtained by making explicit appeal to the
 - a) Principal of optimality
 - b) Optimal merge
 - c) Both a) and b)
 - d) None of the above
- 2) Which one of the following techniques is used to find all pairs shortest distance in graph ?
 - a) Greedy method
 - b) Dynamic programming
 - c) Backtracking
 - d) None of the above
- 3) Purging rule are also known as
 - a) Divide rule
 - b) Iter rule
 - c) Dominance rule
 - d) Common rule
- 4) The minimum integer m to color a particular graph is called as
 - a) m + 1 colorability
 - b) n-colorability optimization
 - c) chromatic number
 - d) none
- 5) In 8-queen problem two queen (i, j) and (k, l) are on the same diagonal only if
 - a) $|j-l| = |i-k|$
 - b) $|j-i| = |k-l|$
 - c) $|j-i| < > |k-l|$
 - d) None of the above
- 6) Backtracking is another name for method of traversal
 - a) Depth-First
 - b) Breadth-First
 - c) D-Search
 - d) None of the above

P.T.O.



- 7) A problem is NP-Complete if the problem is
- a) NP-Hard
 - b) P only
 - c) NP-hard, and in NP
 - d) NP-hard but not in NP
- 8) The average case occur in linear search algorithm
- a) When item is somewhere in the middle of the array
 - b) When item is not in the array at all
 - c) When item is the last element in the array
 - d) When item is the last element in the array or is not there at all
- 9) Job sequencing with deadlines is an example of _____ of greedy method.
- a) subset paradigm
 - b) ordering paradigm
 - c) a) and b)
 - d) none of the above
- 10) Algorithm that terminate after a finite number of operations.
- a) Definiteness
 - b) Finiteness
 - c) Effectiveness
 - d) Terminate
- 11) The complexity of optimal merge pattern is
- a) $m \times n$
 - b) $\log (m \times n)$
 - c) $m + n$
 - d) $\log (m + n)$
- 12) In an optimal storage on tape problem if $(\lambda_1, \lambda_2, \lambda_3) = (5, 10, 3)$ then the optimal ordering of program is
- a) 1, 2, 3
 - b) 3, 1, 2
 - c) 2, 3, 1
 - d) 1, 3, 2
- 13) Huffman code is an application of
- a) Optimal storage
 - b) Optimal merge
 - c) Optimal retrieval
 - d) None of these
- 14) Which of the following sorting algorithm is of divide-and-conquer type ?
- a) Bubble sort
 - b) Insertion sort
 - c) Quick sort
 - d) All of above
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Seat No.	
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- a) Define an amortized algorithm. Explain its type with example.
- b) Write a control abstraction for subset paradigm using Greedy method.
- c) Explain time and space complexity with example.
- d) Calculate the time complexity for the following algorithm for addition of $m \times n$ matrices

```
Algorithm Add (a, b, c, m, n)
{
  for l = 1 to m do
    for j = 1 to n do
      c [i, j] = a [i, j] + b [i, j]
    }
  }
```

- e) Write an algorithm for binary search using divide and conquer.
- f) Find an optimal merge pattern for 5 files whose lengths are (20, 30, 10, 5, 30) and calculate number of record moves.

3. Attempt **any one** : **(1×8=8)**

- a) Write an recursive algorithm for finding maximum and minimum. Prove that $T(n) = 3n/2 - 2$.
- b) Find the optimal solution to the knapsack problem with greedy method for
 $N = 7, m = 15, P = (P1, P2, \dots, P7) = (10, 5, 15, 7, 6, 18, 3)$
 $W = (W1, W2, \dots, W7) = (2, 3, 5, 7, 1, 4, 1)$

Set Q



SECTION – II

4. Attempt **any four** : **(4×5=20)**
- 1) Write an recursive backtracking algorithm.
 - 2) Solve the 0/1 knapsack instance with $n = 3$, $(w_1, w_2, w_3) = (2, 3, 4)$, $(P_1, p_2, p_3) = (1, 2, 5)$ and $m = 6$ using dynamic programming.
 - 3) Explain Reliability Design in detail.
 - 4) Explain Hamiltonian cycle with example.
 - 5) Explain Tractable and non-Tractable problem.
 - 6) Calculate cost of any three possible binary search trees for identifier set $(a_1, a_2, a_3) = (\text{do, if, when})$ with probabilities $p(i) = q(i) = 1/7$ for all i .
5. Attempt **any one** : **8**
- a) Let $w = \{5, 7, 10, 12, 15, 18, 20\}$ and $m = 35$. Find all possible subsets of w that sum to m using backtracking. Show state space tree.
 - b) Write a note on (any two) :
 - i) Graph Coloring
 - ii) P, NP-complete and NP
 - iii) Reduction Technique.
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SLR-EP – 179

Seat No.	
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Set	R
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicate **full** marks.
 - 4) Assume suitable data, **if** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative for the following :

- 1) In an optimal storage on tape problem if $(\lambda_1, \lambda_2, \lambda_3) = (5, 10, 3)$ then the optimal ordering of program is
a) 1, 2, 3 b) 3, 1, 2 c) 2, 3, 1 d) 1, 3, 2
- 2) Huffman code is an application of
a) Optimal storage b) Optimal merge
c) Optimal retrieval d) None of these
- 3) Which of the following sorting algorithm is of divide-and-conquer type ?
a) Bubble sort b) Insertion sort c) Quick sort d) All of above
- 4) In dynamic programming an optimal sequence of decision is obtained by making explicit appeal to the
a) Principal of optimality b) Optimal merge
c) Both a) and b) d) None of the above
- 5) Which one of the following techniques is used to find all pairs shortest distance in graph ?
a) Greedy method b) Dynamic programming
c) Backtracking d) None of the above
- 6) Purging rule are also known as
a) Divide rule b) Iter rule
c) Dominance rule d) Common rule

P.T.O.



- 7) The minimum integer m to color a particular graph is called as
- a) $m + 1$ colorability
 - b) n -colorability optimization
 - c) chromatic number
 - d) none
- 8) In 8-queen problem two queen (i, j) and (k, l) are on the same diagonal only if
- a) $|j - l| = |i - k|$
 - b) $|j - i| = |k - l|$
 - c) $|j - i| < > |k - l|$
 - d) None of the above
- 9) Backtracking is another name for method of traversal
- a) Depth-First
 - b) Breadth-First
 - c) D-Search
 - d) None of the above
- 10) A problem is NP-Complete if the problem is
- a) NP-Hard
 - b) P only
 - c) NP-hard, and in NP
 - d) NP-hard but not in NP
- 11) The average case occur in linear search algorithm
- a) When item is somewhere in the middle of the array
 - b) When item is not in the array at all
 - c) When item is the last element in the array
 - d) When item is the last element in the array or is not there at all
- 12) Job sequencing with deadlines is an example of _____ of greedy method.
- a) subset paradigm
 - b) ordering paradigm
 - c) a) and b)
 - d) none of the above
- 13) Algorithm that terminate after a finite number of operations.
- a) Definiteness
 - b) Finiteness
 - c) Effectiveness
 - d) Terminate
- 14) The complexity of optimal merge pattern is
- a) $m \times n$
 - b) $\log (m \times n)$
 - c) $m + n$
 - d) $\log (m + n)$
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Seat No.	
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- a) Define an amortized algorithm. Explain its type with example.
- b) Write a control abstraction for subset paradigm using Greedy method.
- c) Explain time and space complexity with example.
- d) Calculate the time complexity for the following algorithm for addition of $m \times n$ matrices
Algorithm Add (a, b, c, m, n)
{
 for l = 1 to m do
 for j = 1 to n do
 c [i, j] = a [i, j] + b [i, j]
 }
 }
e) Write an algorithm for binary search using divide and conquer.
- f) Find an optimal merge pattern for 5 files whose lengths are (20, 30, 10, 5, 30) and calculate number of record moves.

3. Attempt **any one** : **(1×8=8)**

- a) Write an recursive algorithm for finding maximum and minimum. Prove that $T(n) = 3n/2 - 2$.
- b) Find the optimal solution to the knapsack problem with greedy method for
 $N = 7, m = 15, P = (P1, P2, \dots, P7) = (10, 5, 15, 7, 6, 18, 3)$
 $W = (W1, W2, \dots, W7) = (2, 3, 5, 7, 1, 4, 1)$

Set R



SECTION – II

4. Attempt **any four** : **(4×5=20)**
- 1) Write an recursive backtracking algorithm.
 - 2) Solve the 0/1 knapsack instance with $n = 3$, $(w_1, w_2, w_3) = (2, 3, 4)$, $(P_1, p_2, p_3) = (1, 2, 5)$ and $m = 6$ using dynamic programming.
 - 3) Explain Reliability Design in detail.
 - 4) Explain Hamiltonian cycle with example.
 - 5) Explain Tractable and non-Tractable problem.
 - 6) Calculate cost of any three possible binary search trees for identifier set $(a_1, a_2, a_3) = (\text{do}, \text{if}, \text{when})$ with probabilities $p(i) = q(i) = 1/7$ for all i .
5. Attempt **any one** : **8**
- a) Let $w = \{5, 7, 10, 12, 15, 18, 20\}$ and $m = 35$. Find all possible subsets of w that sum to m using backtracking. Show state space tree.
 - b) Write a note on (any two) :
 - i) Graph Coloring
 - ii) P, NP-complete and NP
 - iii) Reduction Technique.
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SLR-EP – 179

Seat No.	
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Set	S
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicate **full** marks.
 - 4) Assume suitable data, **if** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct alternative for the following :

- 1) Purging rule are also known as
 - a) Divide rule
 - b) Iter rule
 - c) Dominance rule
 - d) Common rule
- 2) The minimum integer m to color a particular graph is called as
 - a) $m + 1$ colorability
 - b) n -colorability optimization
 - c) chromatic number
 - d) none
- 3) In 8-queen problem two queen (i, j) and (k, l) are on the same diagonal only if
 - a) $|j - l| = |i - k|$
 - b) $|j - i| = |k - l|$
 - c) $|j - i| < > |k - l|$
 - d) None of the above
- 4) Backtracking is another name for method of traversal
 - a) Depth-First
 - b) Breadth-First
 - c) D-Search
 - d) None of the above
- 5) A problem is NP-Complete if the problem is
 - a) NP-Hard
 - b) P only
 - c) NP-hard, and in NP
 - d) NP-hard but not in NP
- 6) The average case occur in linear search algorithm
 - a) When item is somewhere in the middle of the array
 - b) When item is not in the array at all
 - c) When item is the last element in the array
 - d) When item is the last element in the array or is not there at all

P.T.O.



Seat No.	
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**T.E. (CSE) (Part – I) (New) (CGPA) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM**

Day and Date : Monday, 5-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 56

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- a) Define an amortized algorithm. Explain its type with example.
- b) Write a control abstraction for subset paradigm using Greedy method.
- c) Explain time and space complexity with example.
- d) Calculate the time complexity for the following algorithm for addition of $m \times n$ matrices

```
Algorithm Add (a, b, c, m, n)
{
  for l = 1 to m do
    for j = 1 to n do
      c [i, j] = a [i, j] + b [i, j]
    }
  }
```

- e) Write an algorithm for binary search using divide and conquer.
- f) Find an optimal merge pattern for 5 files whose lengths are (20, 30, 10, 5, 30) and calculate number of record moves.

3. Attempt **any one** : **(1×8=8)**

- a) Write an recursive algorithm for finding maximum and minimum. Prove that $T(n) = 3n/2 - 2$.
- b) Find the optimal solution to the knapsack problem with greedy method for

$$N = 7, m = 15, P = (P1, P2, \dots, P7) = (10, 5, 15, 7, 6, 18, 3)$$

$$W = (W1, W2, \dots, W7) = (2, 3, 5, 7, 1, 4, 1)$$

Set S



SECTION – II

4. Attempt **any four** : **(4×5=20)**
- 1) Write an recursive backtracking algorithm.
 - 2) Solve the 0/1 knapsack instance with $n = 3$, $(w_1, w_2, w_3) = (2, 3, 4)$, $(P_1, p_2, p_3) = (1, 2, 5)$ and $m = 6$ using dynamic programming.
 - 3) Explain Reliability Design in detail.
 - 4) Explain Hamiltonian cycle with example.
 - 5) Explain Tractable and non-Tractable problem.
 - 6) Calculate cost of any three possible binary search trees for identifier set $(a_1, a_2, a_3) = (\text{do}, \text{if}, \text{when})$ with probabilities $p(i) = q(i) = 1/7$ for all i .
5. Attempt **any one** : **8**
- a) Let $w = \{5, 7, 10, 12, 15, 18, 20\}$ and $m = 35$. Find all possible subsets of w that sum to m using backtracking. Show state space tree.
 - b) Write a note on (any two) :
 - i) Graph Coloring
 - ii) P, NP-complete and NP
 - iii) Reduction Technique.
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Seat No.	
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Set

P

**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figure to the **right** indicates **full** marks.
 - 4) Assume data **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) Who built ENIAC ?
 - a) John W. Mauchly
 - b) Presper Eckert
 - c) Both John W. Mauchly and Presper Eckert
 - d) Babbage
- 2) Transistor was invented at
 - a) University of Pennsylvania
 - b) Bell Laboratories
 - c) Cambridge University
 - d) Iowa State University
- 3) In _____ architecture instruction cache and data cache are split.
 - a) RISC
 - b) CISC
 - c) Both RISC and CISC
 - d) None of the above
- 4) What is the width of exponent field in single precision format ?
 - a) 23 bit
 - b) 52 bit
 - c) 11 bit
 - d) 8 bit
- 5) Multiply B is a
 - a) Three address machine instruction
 - b) Two address machine instruction
 - c) One address machine instruction
 - d) None of the above
- 6) Which of the following function is performed by C3 control signal of two's complement multiplier.
 - a) Transfer adder output to A
 - b) Transfer A to left input of adder
 - c) Transfer M to right input of adder
 - d) Transfer A to OUTBUS

P.T.O.



- 7) Which of the following method uses one flip flop per state ?
- a) one-hot
 - b) classical
 - c) both one-hot and classical
 - d) none of the above
- 8) What is the function of Presence bit ?
- a) Indicates whether segment is assigned to memory or not
 - b) Gives the size of segment
 - c) Whether it is copy of original segment
 - d) None
- 9) Memory allocation means
- a) Address translation
 - b) Placement of Block in memory
 - c) Rejection of Block from memory
 - d) None of the above
- 10) Memory management is mainly implemented by software in case of
- a) Cache-Secondary memory hierarchy
 - b) Level-1 cache and Level-2 cache memory hierarchy
 - c) Cache-main memory hierarchy
 - d) Main-secondary memory hierarchy
- 11) Cycle stealing is used in which concept ?
- a) Programmed I/O
 - b) DMA
 - c) Interrupts
 - d) Memory mapped I/O
- 12) If hazards arises from the pipelining of branches and other instructions that changes the PC, then the type of hazards is
- a) Control Hazard
 - b) Structural Hazard
 - c) Data Hazard
 - d) None
- 13) Array processor is a
- a) SIMD machine
 - b) MIMD machine
 - c) MISD machine
 - d) SISD machine
- 14) The following relationship normally hold between adjacent memory levels M_i and M_{i+1} in memory hierarchy, where C - > cost per bit, t_A - > Access time and S -> storage capacity.
- a) $C_i < C_{i+1}, t_{Ai} < t_{Ai+1}, S_i < S_{i+1}$
 - b) $C_i < C_{i+1}, t_{Ai} > t_{Ai+1}, S_i < S_{i+1}$
 - c) $C_i > C_{i+1}, t_{Ai} > t_{Ai+1}, S_i > S_{i+1}$
 - d) $C_i > C_{i+1}, t_{Ai} < t_{Ai+1}, S_i < S_{i+1}$



Seat No.	
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**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016

Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :** 1) Answer **all** the questions from Section I and II.
2) Figure to the **right** indicates **full** marks.
3) Assume data **wherever** necessary.

SECTION – I

2. Answer **any three** questions. **(3×4=12)**
- 1) Compute x^2 by the method of difference, represent computation and the corresponding difference engine configuration.
 - 2) Draw the circuit diagram of n bit two's-complement adder-subtractor. Explain how it performs both addition and subtraction.
 - 3) Differentiate RISC and CISC.
 - 4) Write a note on state table for a control unit.
3. Answer **any two** questions. **(2×8=16)**
- 1) Explain the working of stack in second generation computer with an example.
 - 2) What is addressing mode ? Explain different types of addressing mode with example.
 - 3) Explain multiplier control unit using a sequence counter.



SECTION – II

4. Attempt **any three**. **(3×4=12)**

- 1) Define Segmentation. What are advantages of segmentation ?
- 2) Explain I/O interface for any input devices.
- 3) Explain SISD and MIMD architecture.
- 4) What are the major differences between cache-main memory and main- secondary memory ?

5. Attempt **any two** : **(2×8=16)**

- 1) Explain Synchronous and Asynchronous model of pipelining.
 - 2) Explain TWO NUMA models of multiprocessor.
 - 3) Describe concept of stall and bubbles in pipeline. Describe structural Hazards.
-



SLR-EP – 180

Seat No.	
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Set

Q

**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016

Max. Marks : 70

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figure to the **right** indicates **full** marks.
 - 4) Assume data **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) What is the function of Presence bit ?
 - a) Indicates whether segment is assigned to memory or not
 - b) Gives the size of segment
 - c) Whether it is copy of original segment
 - d) None
- 2) Memory allocation means
 - a) Address translation
 - b) Placement of Block in memory
 - c) Rejection of Block from memory
 - d) None of the above
- 3) Memory management is mainly implemented by software in case of
 - a) Cache-Secondary memory hierarchy
 - b) Level-1 cache and Level-2 cache memory hierarchy
 - c) Cache-main memory hierarchy
 - d) Main-secondary memory hierarchy
- 4) Cycle stealing is used in which concept ?
 - a) Programmed I/O
 - b) DMA
 - c) Interrupts
 - d) Memory mapped I/O

P.T.O.



- 5) If hazards arises from the pipelining of branches and other instructions that changes the PC, then the type of hazards is
- a) Control Hazard
 - b) Structural Hazard
 - c) Data Hazard
 - d) None
- 6) Array processor is a
- a) SIMD machine
 - b) MIMD machine
 - c) MISD machine
 - d) SISD machine
- 7) The following relationship normally hold between adjacent memory levels M_i and M_{i+1} in memory hierarchy, where C - \rightarrow cost per bit, t_A - \rightarrow Access time and S - \rightarrow storage capacity.
- a) $C_i < C_{i+1}$, $t_{Ai} < t_{Ai+1}$, $S_i < S_{i+1}$
 - b) $C_i < C_{i+1}$, $t_{Ai} > t_{Ai+1}$, $S_i < S_{i+1}$
 - c) $C_i > C_{i+1}$, $t_{Ai} > t_{Ai+1}$, $S_i > S_{i+1}$
 - d) $C_i > C_{i+1}$, $t_{Ai} < t_{Ai+1}$, $S_i < S_{i+1}$
- 8) Who built ENIAC ?
- a) John W. Mauchly
 - b) Presper Eckert
 - c) Both John W. Mauchly and Presper Eckert
 - d) Babbage
- 9) Transistor was invented at
- a) University of Pennsylvania
 - b) Bell Laboratories
 - c) Cambridge University
 - d) Iowa State University
- 10) In _____ architecture instruction cache and data cache are split.
- a) RISC
 - b) CISC
 - c) Both RISC and CISC
 - d) None of the above
- 11) What is the width of exponent field in single precision format ?
- a) 23 bit
 - b) 52 bit
 - c) 11 bit
 - d) 8 bit
- 12) Multiply B is a
- a) Three address machine instruction
 - b) Two address machine instruction
 - c) One address machine instruction
 - d) None of the above
- 13) Which of the following function is performed by C3 control signal of two's complement multiplier.
- a) Transfer adder output to A
 - b) Transfer A to left input of adder
 - c) Transfer M to right input of adder
 - d) Transfer A to OUTBUS
- 14) Which of the following method uses one flip flop per state ?
- a) one-hot
 - b) classical
 - c) both one-hot and classical
 - d) none of the above



Seat No.	
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**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016

Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :** 1) Answer **all** the questions from Section I and II.
2) Figure to the **right** indicates **full** marks.
3) Assume data **wherever** necessary.

SECTION – I

2. Answer **any three** questions. **(3×4=12)**
- 1) Compute x^2 by the method of difference, represent computation and the corresponding difference engine configuration.
 - 2) Draw the circuit diagram of n bit two's-complement adder-subtractor. Explain how it performs both addition and subtraction.
 - 3) Differentiate RISC and CISC.
 - 4) Write a note on state table for a control unit.
3. Answer **any two** questions. **(2×8=16)**
- 1) Explain the working of stack in second generation computer with an example.
 - 2) What is addressing mode ? Explain different types of addressing mode with example.
 - 3) Explain multiplier control unit using a sequence counter.



SECTION – II

4. Attempt **any three**. **(3×4=12)**

- 1) Define Segmentation. What are advantages of segmentation ?
- 2) Explain I/O interface for any input devices.
- 3) Explain SISD and MIMD architecture.
- 4) What are the major differences between cache-main memory and main- secondary memory ?

5. Attempt **any two** : **(2×8=16)**

- 1) Explain Synchronous and Asynchronous model of pipelining.
 - 2) Explain TWO NUMA models of multiprocessor.
 - 3) Describe concept of stall and bubbles in pipeline. Describe structural Hazards.
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Seat No.	
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R

**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016

Max. Marks : 70

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figure to the **right** indicates **full** marks.
 - 4) Assume data **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) Multiply B is a
 - a) Three address machine instruction
 - b) Two address machine instruction
 - c) One address machine instruction
 - d) None of the above
- 2) Which of the following function is performed by C3 control signal of two's complement multiplier.
 - a) Transfer adder output to A
 - b) Transfer A to left input of adder
 - c) Transfer M to right input of adder
 - d) Transfer A to OUTBUS
- 3) Which of the following method uses one flip flop per state ?
 - a) one-hot
 - b) classical
 - c) both one-hot and classical
 - d) none of the above
- 4) What is the function of Presence bit ?
 - a) Indicates whether segment is assigned to memory or not
 - b) Gives the size of segment
 - c) Whether it is copy of original segment
 - d) None
- 5) Memory allocation means
 - a) Address translation
 - b) Placement of Block in memory
 - c) Rejection of Block from memory
 - d) None of the above

P.T.O.



- 6) Memory management is mainly implemented by software in case of
- Cache-Secondary memory hierarchy
 - Level-1 cache and Level-2 cache memory hierarchy
 - Cache-main memory hierarchy
 - Main-secondary memory hierarchy
- 7) Cycle stealing is used in which concept ?
- Programmed I/O
 - DMA
 - Interrupts
 - Memory mapped I/O
- 8) If hazards arises from the pipelining of branches and other instructions that changes the PC, then the type of hazards is
- Control Hazard
 - Structural Hazard
 - Data Hazard
 - None
- 9) Array processor is a
- SIMD machine
 - MIMD machine
 - MISD machine
 - SISD machine
- 10) The following relationship normally hold between adjacent memory levels M_i and M_{i+1} in memory hierarchy, where C - > cost per bit, t_A - > Access time and S -> storage capacity.
- $C_i < C_{i+1}, t_{Ai} < t_{Ai+1}, S_i < S_{i+1}$
 - $C_i < C_{i+1}, t_{Ai} > t_{Ai+1}, S_i < S_{i+1}$
 - $C_i > C_{i+1}, t_{Ai} > t_{Ai+1}, S_i > S_{i+1}$
 - $C_i > C_{i+1}, t_{Ai} < t_{Ai+1}, S_i < S_{i+1}$
- 11) Who built ENIAC ?
- John W. Mauchly
 - Presper Eckert
 - Both John W. Mauchly and Presper Eckert
 - Babbage
- 12) Transistor was invented at
- University of Pennsylvania
 - Bell Laboratories
 - Cambridge University
 - Iowa State University
- 13) In _____ architecture instruction cache and data cache are split.
- RISC
 - CISC
 - Both RISC and CISC
 - None of the above
- 14) What is the width of exponent field in single precision format ?
- 23 bit
 - 52 bit
 - 11 bit
 - 8 bit



Seat No.	
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**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016

Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :** 1) Answer **all** the questions from Section I and II.
2) Figure to the **right** indicates **full** marks.
3) Assume data **wherever** necessary.

SECTION – I

2. Answer **any three** questions. **(3×4=12)**
- 1) Compute x^2 by the method of difference, represent computation and the corresponding difference engine configuration.
 - 2) Draw the circuit diagram of n bit two's-complement adder-subtractor. Explain how it performs both addition and subtraction.
 - 3) Differentiate RISC and CISC.
 - 4) Write a note on state table for a control unit.
3. Answer **any two** questions. **(2×8=16)**
- 1) Explain the working of stack in second generation computer with an example.
 - 2) What is addressing mode ? Explain different types of addressing mode with example.
 - 3) Explain multiplier control unit using a sequence counter.



SECTION – II

4. Attempt **any three**. **(3×4=12)**
- 1) Define Segmentation. What are advantages of segmentation ?
 - 2) Explain I/O interface for any input devices.
 - 3) Explain SISD and MIMD architecture.
 - 4) What are the major differences between cache-main memory and main- secondary memory ?
5. Attempt **any two** : **(2×8=16)**
- 1) Explain Synchronous and Asynchronous model of pipelining.
 - 2) Explain TWO NUMA models of multiprocessor.
 - 3) Describe concept of stall and bubbles in pipeline. Describe structural Hazards.
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Seat No.	
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Set	S
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**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figure to the **right** indicates **full** marks.
 - 4) Assume data **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 14

1. Choose the correct answer :

(1×14=14)

- 1) Memory management is mainly implemented by software in case of
 - a) Cache-Secondary memory hierarchy
 - b) Level-1 cache and Level-2 cache memory hierarchy
 - c) Cache-main memory hierarchy
 - d) Main-secondary memory hierarchy
- 2) Cycle stealing is used in which concept ?
 - a) Programmed I/O
 - b) DMA
 - c) Interrupts
 - d) Memory mapped I/O
- 3) If hazards arises from the pipelining of branches and other instructions that changes the PC, then the type of hazards is
 - a) Control Hazard
 - b) Structural Hazard
 - c) Data Hazard
 - d) None
- 4) Array processor is a
 - a) SIMD machine
 - b) MIMD machine
 - c) MISD machine
 - d) SISD machine
- 5) The following relationship normally hold between adjacent memory levels M_i and M_{i+1} in memory hierarchy, where C - > cost per bit, t_A - > Access time and S -> storage capacity.
 - a) $C_i < C_{i+1}, t_{Ai} < t_{Ai+1}, S_i < S_{i+1}$
 - b) $C_i < C_{i+1}, t_{Ai} > t_{Ai+1}, S_i < S_{i+1}$
 - c) $C_i > C_{i+1}, t_{Ai} > t_{Ai+1}, S_i > S_{i+1}$
 - d) $C_i > C_{i+1}, t_{Ai} < t_{Ai+1}, S_i < S_{i+1}$

P.T.O.



- 6) Who built ENIAC ?
- a) John W. Mauchly
 - b) Presper Eckert
 - c) Both John W. Mauchly and Presper Eckert
 - d) Babbage
- 7) Transistor was invented at
- a) University of Pennsylvania
 - b) Bell Laboratories
 - c) Cambridge University
 - d) Iowa State University
- 8) In _____ architecture instruction cache and data cache are split.
- a) RISC
 - b) CISC
 - c) Both RISC and CISC
 - d) None of the above
- 9) What is the width of exponent field in single precision format ?
- a) 23 bit
 - b) 52 bit
 - c) 11 bit
 - d) 8 bit
- 10) Multiply B is a
- a) Three address machine instruction
 - b) Two address machine instruction
 - c) One address machine instruction
 - d) None of the above
- 11) Which of the following function is performed by C3 control signal of two's complement multiplier.
- a) Transfer adder output to A
 - b) Transfer A to left input of adder
 - c) Transfer M to right input of adder
 - d) Transfer A to OUTBUS
- 12) Which of the following method uses one flip flop per state ?
- a) one-hot
 - b) classical
 - c) both one-hot and classical
 - d) none of the above
- 13) What is the function of Presence bit ?
- a) Indicates whether segment is assigned to memory or not
 - b) Gives the size of segment
 - c) Whether it is copy of original segment
 - d) None
- 14) Memory allocation means
- a) Address translation
 - b) Placement of Block in memory
 - c) Rejection of Block from memory
 - d) None of the above



Seat No.	
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**T.E. (CSE) (Part – I) (New CGPA) Examination, 2016
COMPUTER ORGANIZATION**

Day and Date : Wednesday, 7-12-2016

Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :** 1) Answer **all** the questions from Section I and II.
2) Figure to the **right** indicates **full** marks.
3) Assume data **wherever** necessary.

SECTION – I

2. Answer **any three** questions. **(3×4=12)**
- 1) Compute x^2 by the method of difference, represent computation and the corresponding difference engine configuration.
 - 2) Draw the circuit diagram of n bit two's-complement adder-subtractor. Explain how it performs both addition and subtraction.
 - 3) Differentiate RISC and CISC.
 - 4) Write a note on state table for a control unit.
3. Answer **any two** questions. **(2×8=16)**
- 1) Explain the working of stack in second generation computer with an example.
 - 2) What is addressing mode ? Explain different types of addressing mode with example.
 - 3) Explain multiplier control unit using a sequence counter.



SECTION – II

4. Attempt **any three**. **(3×4=12)**
- 1) Define Segmentation. What are advantages of segmentation ?
 - 2) Explain I/O interface for any input devices.
 - 3) Explain SISD and MIMD architecture.
 - 4) What are the major differences between cache-main memory and main- secondary memory ?
5. Attempt **any two** : **(2×8=16)**
- 1) Explain Synchronous and Asynchronous model of pipelining.
 - 2) Explain TWO NUMA models of multiprocessor.
 - 3) Describe concept of stall and bubbles in pipeline. Describe structural Hazards.
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SLR-EP – 182

Seat No.	
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Set

P

**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) Union operation in SQL on relation A and B generates
 - A) Tuples in A and B with common tuples displayed twice
 - B) Tuples in A and B with common tuples displayed once
 - C) Tuples in A that doesn't belong to B
 - D) Only tuples belonging to both A and B
- 2) Following is anomaly in bad database design
 - A) Redundancy
 - B) Excess NULL values
 - C) Both (A) and (B)
 - D) None
- 3) Tuple relational calculus is
 - A) Non procedural language
 - B) Procedural language
 - C) Both (A) and (B)
 - D) None
- 4) To delete a particular column in a relation, the command used is
 - A) UPDATE
 - B) DROP
 - C) ALTER
 - D) DELETE
- 5) _____ is a virtual table that draws its data from the result of an SQL SELECT statement.
 - A) View
 - B) Synonym
 - C) Sequence
 - D) Transaction
- 6) INF avoids
 - A) Composite attribute
 - B) Derived attribute
 - C) Transitive dependency
 - D) Partial dependency
- 7) Configuring users of database, assigning privileges to them is task of
 - A) Naïve user
 - B) Programmer
 - C) Database administrator
 - D) System administrator

P.T.O.



- 8) Branch = {brname, city, asset}
Select brname, avg(asset) from branch group by(city) having avg(asset) > 200000
Output of above query is
A) Average asset in all cities
B) Average asset in all branches
C) Average asset in cities where average asset > 200000
D) Average asset in branches where average asset > 200000
- 9) Naïve user operates at _____ level of DBMS architecture.
A) Physical B) Logical C) View D) None
- 10) To extract columns in relation _____ operation is used in relational algebra.
A) Select B) Project C) Set difference D) Union
- 11) In _____ indexing, search keys are distributed uniformly across bucket.
A) Ordered indices B) Hash indices C) B + tree D) All
- 12) Whenever transaction performs reading on data item, _____ is updated in timestamp mechanism.
A) readTimestamp B) writeTimestamp
C) Both (A) and (B) D) None
- 13) In growing phase
A) Locks are granted and released B) Locks are neither granted nor released
C) Locks are granted but not released D) Locks are released but not granted
- 14) _____ locks are applied on parent when descendant of node is locked in shared mode.
A) Shared B) Exclusive
C) Intention shared D) Intention exclusive
- 15) _____ is not concurrency control mechanism.
A) Lock based protocol B) Timestamp based protocol
C) Log based mechanism D) Validation based protocol
- 16) _____ operation is used to write buffer block to disk.
A) input(Bx) B) output(Bx) C) read(X) D) write(X)
- 17) _____ index file generates large volume of indexing information.
A) Sparse B) Dense
C) Both (A) and (B) D) None
- 18) Undo is applied to transaction when
A) Commit record present in log B) No commit record present in log
C) Abort record present in log D) No abort record present in log
- 19) _____ is not type of failure.
A) Transaction failure B) System crash
C) Disk failure D) None
- 20) _____ storage doesn't lose data after any type of failure occurrence.
A) Hard disk B) Stable storage
C) Volatile storage D) All



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- 1) Explain in short any 5 operations in relational algebra along with notation.
- 2) Explain 1NF and 2NF with example.
- 3) Explain DDL and DML.
- 4) What is SQL ? Explain distinct, group by clause in SQL.
- 5) List and explain task of Database administrator.
- 6) Explain 3 level architecture of DBMS.

3. Explain different joins supported in SQL with example. **10**

OR

Draw ER diagram banking course administration for college (student, test, library, labs etc). Write following queries. **10**

- 1) Determine names and phone number of students belonging to CSE dept., semester 3.
- 2) For each class, find number of students belonging to class.

4. Explain advantages of DBMS over conventional file system. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**

- 1) Discuss force, no force, steal and no steal policies in buffer management.
- 2) Explain timestamp based protocol in short.
- 3) Define transaction. Explain its state diagram.

Set P



- 4) Explain how update, commit abort record generated in log file.
- 5) Explain cascaded rollback with example.
- 6) Write a note on shadow paging.

6. Explain insertion and deletion in B + tree. **10**

OR

What are types of locks ? Explain 2PL in detail. **10**

7. Explain types of failure. What is stable storage ? How stable storage is approximated using RAID ? **10**



SLR-EP – 182

Seat No.	
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Set **Q**

T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) _____ operation is used to write buffer block to disk.
A) input(Bx) B) output(Bx) C) read(X) D) write(X)
- 2) _____ index file generates large volume of indexing information.
A) Sparse B) Dense
C) Both (A) and (B) D) None
- 3) Undo is applied to transaction when
A) Commit record present in log B) No commit record present in log
C) Abort record present in log D) No abort record present in log
- 4) _____ is not type of failure.
A) Transaction failure B) System crash
C) Disk failure D) None
- 5) _____ storage doesn't loose data after any type of failure occurrence.
A) Hard disk B) Stable storage
C) Volatile storage D) All
- 6) Union operation in SQL on relation A and B generates
A) Tuples in A and B with common tuples displayed twice
B) Tuples in A and B with common tuples displayed once
C) Tuples in A that doesn't belong to B
D) Only tuples belonging to both A and B
- 7) Following is anomaly in bad database design
A) Redundancy B) Excess NULL values
C) Both (A) and (B) D) None
- 8) Tuple relational calculus is
A) Non procedural language B) Procedural language
C) Both (A) and (B) D) None

P.T.O.



- 9) To delete a particular column in a relation, the command used is
A) UPDATE B) DROP
C) ALTER D) DELETE
- 10) _____ is a virtual table that draws its data from the result of an SQL SELECT statement.
A) View B) Synonym
C) Sequence D) Transaction
- 11) INF avoids
A) Composite attribute B) Derived attribute
C) Transitive dependency D) Partial dependency
- 12) Configuring users of database, assigning privileges to them is task of
A) Naïve user B) Programmer
C) Database administrator D) System administrator
- 13) Branch = {brname, city, asset}
Select brname, avg(asset) from branch group by(city) having avg(asset) > 200000
Output of above query is
A) Average asset in all cities
B) Average asset in all branches
C) Average asset in cities where average asset > 200000
D) Average asset in branches where average asset > 200000
- 14) Naïve user operates at _____ level of DBMS architecture.
A) Physical B) Logical C) View D) None
- 15) To extract columns in relation _____ operation is used in relational algebra.
A) Select B) Project C) Set difference D) Union
- 16) In _____ indexing, search keys are distributed uniformly across bucket.
A) Ordered indices B) Hash indices C) B + tree D) All
- 17) Whenever transaction performs reading on data item, _____ is updated in timestamp mechanism.
A) readTimestamp B) writeTimestamp
C) Both (A) and (B) D) None
- 18) In growing phase
A) Locks are granted and released B) Locks are neither granted nor released
C) Locks are granted but not released D) Locks are released but not granted
- 19) _____ locks are applied on parent when descendant of node is locked in shared mode.
A) Shared B) Exclusive
C) Intention shared D) Intention exclusive
- 20) _____ is not concurrency control mechanism.
A) Lock based protocol B) Timestamp based protocol
C) Log based mechanism D) Validation based protocol
-



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- 1) Explain in short any 5 operations in relational algebra along with notation.
- 2) Explain 1NF and 2NF with example.
- 3) Explain DDL and DML.
- 4) What is SQL ? Explain distinct, group by clause in SQL.
- 5) List and explain task of Database administrator.
- 6) Explain 3 level architecture of DBMS.

3. Explain different joins supported in SQL with example. **10**

OR

Draw ER diagram banking course administration for college (student, test, library, labs etc). Write following queries. **10**

- 1) Determine names and phone number of students belonging to CSE dept., semester 3.
- 2) For each class, find number of students belonging to class.

4. Explain advantages of DBMS over conventional file system. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**

- 1) Discuss force, no force, steal and no steal policies in buffer management.
- 2) Explain timestamp based protocol in short.
- 3) Define transaction. Explain its state diagram.

Set Q



- 4) Explain how update, commit abort record generated in log file.
- 5) Explain cascaded rollback with example.
- 6) Write a note on shadow paging.

6. Explain insertion and deletion in B + tree. **10**

OR

What are types of locks ? Explain 2PL in detail. **10**

7. Explain types of failure. What is stable storage ? How stable storage is approximated using RAID ? **10**



Seat No.	
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Set

R

**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) In _____ indexing, search keys are distributed uniformly across bucket.
A) Ordered indices B) Hash indices C) B + tree D) All
- 2) Whenever transaction performs reading on data item, _____ is updated in timestamp mechanism.
A) readTimestamp B) writeTimestamp
C) Both (A) and (B) D) None
- 3) In growing phase
A) Locks are granted and released B) Locks are neither granted nor released
C) Locks are granted but not released D) Locks are released but not granted
- 4) _____ locks are applied on parent when descendant of node is locked in shared mode.
A) Shared B) Exclusive
C) Intention shared D) Intention exclusive
- 5) _____ is not concurrency control mechanism.
A) Lock based protocol B) Timestamp based protocol
C) Log based mechanism D) Validation based protocol
- 6) _____ operation is used to write buffer block to disk.
A) input(Bx) B) output(Bx) C) read(X) D) write(X)
- 7) _____ index file generates large volume of indexing information.
A) Sparse B) Dense
C) Both (A) and (B) D) None
- 8) Undo is applied to transaction when
A) Commit record present in log B) No commit record present in log
C) Abort record present in log D) No abort record present in log
- 9) _____ is not type of failure.
A) Transaction failure B) System crash
C) Disk failure D) None



- 10) _____ storage doesn't lose data after any type of failure occurrence.
- A) Hard disk
 - B) Stable storage
 - C) Volatile storage
 - D) All
- 11) Union operation in SQL on relation A and B generates
- A) Tuples in A and B with common tuples displayed twice
 - B) Tuples in A and B with common tuples displayed once
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- 12) Following is anomaly in bad database design
- A) Redundancy
 - B) Excess NULL values
 - C) Both (A) and (B)
 - D) None
- 13) Tuple relational calculus is
- A) Non procedural language
 - B) Procedural language
 - C) Both (A) and (B)
 - D) None
- 14) To delete a particular column in a relation, the command used is
- A) UPDATE
 - B) DROP
 - C) ALTER
 - D) DELETE
- 15) _____ is a virtual table that draws its data from the result of an SQL SELECT statement.
- A) View
 - B) Synonym
 - C) Sequence
 - D) Transaction
- 16) 4NF avoids
- A) Composite attribute
 - B) Derived attribute
 - C) Transitive dependency
 - D) Partial dependency
- 17) Configuring users of database, assigning privileges to them is task of
- A) Naïve user
 - B) Programmer
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 - D) System administrator
- 18) $Branch = \{brname, city, asset\}$
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 Output of above query is
- A) Average asset in all cities
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 - D) Average asset in branches where average asset > 200000
- 19) Naïve user operates at _____ level of DBMS architecture.
- A) Physical
 - B) Logical
 - C) View
 - D) None
- 20) To extract columns in relation _____ operation is used in relational algebra.
- A) Select
 - B) Project
 - C) Set difference
 - D) Union



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- 1) Explain in short any 5 operations in relational algebra along with notation.
- 2) Explain 1NF and 2NF with example.
- 3) Explain DDL and DML.
- 4) What is SQL ? Explain distinct, group by clause in SQL.
- 5) List and explain task of Database administrator.
- 6) Explain 3 level architecture of DBMS.

3. Explain different joins supported in SQL with example. **10**

OR

Draw ER diagram banking course administration for college (student, test, library, labs etc). Write following queries. **10**

- 1) Determine names and phone number of students belonging to CSE dept., semester 3.
- 2) For each class, find number of students belonging to class.

4. Explain advantages of DBMS over conventional file system. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**

- 1) Discuss force, no force, steal and no steal policies in buffer management.
- 2) Explain timestamp based protocol in short.
- 3) Define transaction. Explain its state diagram.

Set R



- 4) Explain how update, commit abort record generated in log file.
- 5) Explain cascaded rollback with example.
- 6) Write a note on shadow paging.

6. Explain insertion and deletion in B + tree. **10**

OR

What are types of locks ? Explain 2PL in detail. **10**

7. Explain types of failure. What is stable storage ? How stable storage is approximated using RAID ? **10**



Seat No.	
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Set

S

**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) INF avoids
 - A) Composite attribute
 - B) Derived attribute
 - C) Transitive dependency
 - D) Partial dependency
- 2) Configuring users of database, assigning privileges to them is task of
 - A) Naïve user
 - B) Programmer
 - C) Database administrator
 - D) System administrator
- 3) Branch = {brname, city, asset}
Select brname, avg(asset) from branch group by(city) having avg(asset) > 200000
Output of above query is
 - A) Average asset in all cities
 - B) Average asset in all branches
 - C) Average asset in cities where average asset > 200000
 - D) Average asset in branches where average asset > 200000
- 4) Naïve user operates at _____ level of DBMS architecture.
 - A) Physical
 - B) Logical
 - C) View
 - D) None
- 5) To extract columns in relation _____ operation is used in relational algebra.
 - A) Select
 - B) Project
 - C) Set difference
 - D) Union
- 6) In _____ indexing, search keys are distributed uniformly across bucket.
 - A) Ordered indices
 - B) Hash indices
 - C) B + tree
 - D) All
- 7) Whenever transaction performs reading on data item, _____ is updated in timestamp mechanism.
 - A) readTimestamp
 - B) writeTimestamp
 - C) Both (A) and (B)
 - D) None
- 8) In growing phase
 - A) Locks are granted and released
 - B) Locks are neither granted nor released
 - C) Locks are granted but not released
 - D) Locks are released but not granted



- 9) _____ locks are applied on parent when descendant of node is locked in shared mode.
A) Shared B) Exclusive
C) Intention shared D) Intention exclusive
- 10) _____ is not concurrency control mechanism.
A) Lock based protocol B) Timestamp based protocol
C) Log based mechanism D) Validation based protocol
- 11) _____ operation is used to write buffer block to disk.
A) input(Bx) B) output(Bx) C) read(X) D) write(X)
- 12) _____ index file generates large volume of indexing information.
A) Sparse B) Dense
C) Both (A) and (B) D) None
- 13) Undo is applied to transaction when
A) Commit record present in log B) No commit record present in log
C) Abort record present in log D) No abort record present in log
- 14) _____ is not type of failure.
A) Transaction failure B) System crash
C) Disk failure D) None
- 15) _____ storage doesn't loose data after any type of failure occurrence.
A) Hard disk B) Stable storage
C) Volatile storage D) All
- 16) Union operation in SQL on relation A and B generates
A) Tuples in A and B with common tuples displayed twice
B) Tuples in A and B with common tuples displayed once
C) Tuples in A that doesn't belong to B
D) Only tuples belonging to both A and B
- 17) Following is anomaly in bad database design
A) Redundancy B) Excess NULL values
C) Both (A) and (B) D) None
- 18) Tuple relational calculus is
A) Non procedural language B) Procedural language
C) Both (A) and (B) D) None
- 19) To delete a particular column in a relation, the command used is
A) UPDATE B) DROP
C) ALTER D) DELETE
- 20) _____ is a virtual table that draws its data from the result of an SQL SELECT statement.
A) View B) Synonym
C) Sequence D) Transaction



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
DATABASE ENGINEERING**

Day and Date : Monday, 21-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**

- 1) Explain in short any 5 operations in relational algebra along with notation.
- 2) Explain 1NF and 2NF with example.
- 3) Explain DDL and DML.
- 4) What is SQL ? Explain distinct, group by clause in SQL.
- 5) List and explain task of Database administrator.
- 6) Explain 3 level architecture of DBMS.

3. Explain different joins supported in SQL with example. **10**

OR

Draw ER diagram banking course administration for college (student, test, library, labs etc). Write following queries. **10**

- 1) Determine names and phone number of students belonging to CSE dept., semester 3.
- 2) For each class, find number of students belonging to class.

4. Explain advantages of DBMS over conventional file system. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**

- 1) Discuss force, no force, steal and no steal policies in buffer management.
- 2) Explain timestamp based protocol in short.
- 3) Define transaction. Explain its state diagram.

Set S



- 4) Explain how update, commit abort record generated in log file.
- 5) Explain cascaded rollback with example.
- 6) Write a note on shadow paging.

6. Explain insertion and deletion in B + tree. **10**

OR

What are types of locks ? Explain 2PL in detail. **10**

7. Explain types of failure. What is stable storage ? How stable storage is approximated using RAID ? **10**



Seat No.	
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Set	P
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T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

- Instructions** : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(1×20=20)**
- 1) "Certain variables might be used before being defined" is an example of
a) Structure editor b) Pretty printers c) Static checker d) Interpreter
 - 2) Output of compiler is
a) Source program b) Reloadable machine code
c) Target assembly program d) Absolute machine code
 - 3) What is the reason behind the division of compiling into lexical analysis and parsing ?
a) Simple design b) Efficiency c) Portability d) All of above
 - 4) Which of the following is not the correct approach to the implementation of a lexical analyzer ?
a) Lexical analyzer generator such as Lex compiler
b) Lexical analyzer in a conventional system programming language
c) Lexical analyzer generator such as YACC
d) Lexical analyzer in assembly language
 - 5) Which of the following is not example of top-down parser ?
a) Recursive descent parser b) Predictive parsing
c) Shift-reduce parser d) Non recursive predictive parsing
 - 6) Which of the following is context free grammar ?
a) $L = \{a^n b^m c^n d^m | n, m \geq 1\}$ b) $L = \{w c w | w \text{ is in } \{a, b\}^*\}$
c) $L = \{a^n b^n c^m d^m | n, m \geq 1\}$ d) $L = \{a^n b^n c^n | n, m \geq 1\}$
 - 7) If there is production $A \rightarrow \alpha B \beta$ then everything in _____ is placed in FOLLOW(B).
a) FIRST(β) b) FIRST(β) except ϵ c) FIRST (α) d) FIRST(α) except ϵ



- 8) A parse tree showing the value of attributes at each node
a) Annotated parse tree b) Syntax tree
c) Semantic tree d) All of the above
- 9) A syntax directed definition is said to be _____ if dependency graph contains cycle.
a) DAG b) Circular c) Non-circular d) None of the above
- 10) An SDD without side effects is called
a) Context free grammar b) Operator grammar
c) Attribute grammar d) Both a) and c)
- 11) Which field is not present in activation record ?
a) Saved machine status b) Register allocation
c) Optional control link d) Temporaries
- 12) Which of the following are storage allocation strategies ?
a) Static allocation b) Stack allocation
c) Heap allocation d) All
- 13) Which of the following are the function preserving transformations ?
a) Common sub expression elimination b) Constant folding
c) Copy propagation d) All
- 14) Which of the following is/are loop optimization techniques ?
a) Code motion b) Induction variable elimination
c) Reduction in strength d) All
- 15) What is the cost of the following instructions ?
MOV b, R0
ADD c, R0
MOV R0, a
a) 6 b) 5 c) 4 d) 0
- 16) Which of the following rules determine the set of leaders ?
a) The first statement
b) Any statement that is the target of a condition goto
c) Any statement that is the target of a uncondition goto
d) All
- 17) Which of the following is/are not the peephole optimization ?
a) Redundent instruction elimination b) Flow of control optimization
c) Use of machine idioms d) Dead code elimination
- 18) Which of the following is/are three address statement ?
a) Copy statement b) Indexed assignments c) Conditional jumps d) All
- 19) In backpatching, which of the following functions is/are used ?
a) Makelist b) Merge c) Both a) and b) d) None of above
- 20) Which of the following is not structure preserving transformation ?
a) Dead code elimination b) Common subexpression elimination
c) Use of machine idioms d) Renaming of temporary variables



Seat No.	
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**T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION**

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

2. Attempt **any four** : **(5×4=20)**
- a) List and explain compiler construction tools.
 - b) How to remove embedding actions from translation scheme ? Explain with example.
 - c) Compute FIRST and FOLLOW for the grammar $S \rightarrow iEtSS'|a$, $S' \rightarrow eS|_\epsilon$, $E \rightarrow b$.
 - d) Write a short note on Conflicts in shift-reduce parser.
 - e) What is transition diagram ? Draw the transition diagram for relation operators, identifiers, keywords and white spaces.

3. Explain non-recursive predictive parsing algorithm with the help of following example :

$E \rightarrow E+T|T$

$T \rightarrow T*F|F$

$F \rightarrow (E)|id.$

10

OR

Write short note : Bottom-up evaluation of inherited definition.

4. Give three general approaches to the implementation of a lexical analyzer. Why buffering techniques are used ? Explain both buffering technique with algorithm and suitable example. **10**

5. Attempt **any four** : **(5×4=20)**
- a) Explain transformation on basic blocks.
 - b) Explain with the example following terms : unreachable code and flow of control optimization.
 - c) Write the syntax directed translation of case statement.
 - d) Explain activation trees and activation record with example.
 - e) Explain code motion and strength reduction.

Set P



6. Explain static, stack and heap storage allocation strategies. **10**

OR

Write a short note on the following :

a) Basic block with algorithm and example.

b) Flow graphs.

7. Write and explain syntax directed definition for flow of control statement. **10**



SLR-EP – 183

Seat No.	
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Set	Q
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**T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION**

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

- Instructions** : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(1×20=20)**

- 1) Which of the following rules determine the set of leaders ?
 - a) The first statement
 - b) Any statement that is the target of a condition goto
 - c) Any statement that is the target of a uncondition goto
 - d) All
- 2) Which of the following is/are not the peephole optimization ?
 - a) Redundent instruction elimination
 - b) Flow of control optimization
 - c) Use of machine idioms
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- 3) Which of the following is/are three address statement ?
 - a) Copy statement
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 - c) Conditional jumps
 - d) All
- 4) In backpatching, which of the following functions is/are used ?
 - a) Makelist
 - b) Merge
 - c) Both a) and b)
 - d) None of above
- 5) Which of the following is not structure preserving transformation ?
 - a) Dead code elimination
 - b) Common subexpression elimination
 - c) Use of machine idioms
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 - d) Interpreter
- 7) Output of compiler is
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 - b) Reloadable machine code
 - c) Target assembly program
 - d) Absolute machine code
- 8) What is the reason behind the division of compiling into lexical analysis and parsing ?
 - a) Simple design
 - b) Efficiency
 - c) Portability
 - d) All of above

P.T.O.



- 9) Which of the following is not the correct approach to the implementation of a lexical analyzer ?
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 - Lexical analyzer in a conventional system programming language
 - Lexical analyzer generator such as YACC
 - Lexical analyzer in assembly language
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- $L = \{a^n b^m c^n d^m | n, m \geq 1\}$
 - $L = \{wcw | w \text{ is in } \{a, b\}^*\}$
 - $L = \{a^n b^n c^m d^m | n, m \geq 1\}$
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- 12) If there is production $A \rightarrow \alpha B \beta$ then everything in _____ is placed in FOLLOW(B).
- FIRST(β)
 - FIRST(β) except ϵ
 - FIRST(α)
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- 13) A parse tree showing the value of attributes at each node
- Annotated parse tree
 - Syntax tree
 - Semantic tree
 - All of the above
- 14) A syntax directed definition is said to be _____ if dependency graph contains cycle.
- DAG
 - Circular
 - Non-circular
 - None of the above
- 15) An SDD without side effects is called
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 - Operator grammar
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- 16) Which field is not present in activation record ?
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- 20) What is the cost of the following instructions ?
- MOV b, R0
ADD c, R0
MOV R0, a
- 6
 - 5
 - 4
 - 0



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**T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION**

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

2. Attempt **any four** : **(5×4=20)**
- a) List and explain compiler construction tools.
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Set Q



6. Explain static, stack and heap storage allocation strategies. **10**

OR

Write a short note on the following :

a) Basic block with algorithm and example.

b) Flow graphs.

7. Write and explain syntax directed definition for flow of control statement. **10**



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**T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION**

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

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2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(1×20=20)**

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- 8) Which of the following is/are three address statement ?
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**T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION**

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

2. Attempt **any four** : **(5×4=20)**
- a) List and explain compiler construction tools.
 - b) How to remove embedding actions from translation scheme ? Explain with example.
 - c) Compute FIRST and FOLLOW for the grammar $S \rightarrow iEtSS'|a$, $S' \rightarrow eS|_\epsilon$, $E \rightarrow b$.
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3. Explain non-recursive predictive parsing algorithm with the help of following example :

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OR

Write short note : Bottom-up evaluation of inherited definition.

4. Give three general approaches to the implementation of a lexical analyzer. Why buffering techniques are used ? Explain both buffering technique with algorithm and suitable example. **10**

5. Attempt **any four** : **(5×4=20)**
- a) Explain transformation on basic blocks.
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 - c) Write the syntax directed translation of case statement.
 - d) Explain activation trees and activation record with example.
 - e) Explain code motion and strength reduction.

Set R



6. Explain static, stack and heap storage allocation strategies. **10**

OR

Write a short note on the following :

a) Basic block with algorithm and example.

b) Flow graphs.

7. Write and explain syntax directed definition for flow of control statement. **10**



Seat No.	
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Set	S
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T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

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 - d) All

P.T.O.



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**T.E. (C.S.E.) (Part – II) Examination, 2016
COMPILER CONSTRUCTION**

Day and Date : Tuesday, 22-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

2. Attempt **any four** : **(5×4=20)**
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4. Give three general approaches to the implementation of a lexical analyzer. Why buffering techniques are used ? Explain both buffering technique with algorithm and suitable example. **10**

5. Attempt **any four** : **(5×4=20)**
- a) Explain transformation on basic blocks.
 - b) Explain with the example following terms : unreachable code and flow of control optimization.
 - c) Write the syntax directed translation of case statement.
 - d) Explain activation trees and activation record with example.
 - e) Explain code motion and strength reduction.

Set S



6. Explain static, stack and heap storage allocation strategies. **10**

OR

Write a short note on the following :

a) Basic block with algorithm and example.

b) Flow graphs.

7. Write and explain syntax directed definition for flow of control statement. **10**



Seat No.	
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Set	P
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T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=10)

- 1) Which of the following have lowest priority according to processor execution levels ?
A) s/w interrupts B) m/c errors C) clock D) disk
- 2) The in-core representation of the inode differs from the disk copy as a result of
A) A change to the file data B) A change to the data inode
C) Both A) and B) D) None of the above
- 3) When process switch from one mode to another mode it is called as
A) Context switch B) Change in mode
C) Both A) and B) D) None of the above
- 4) Kernel organizes the buffers into separate queues, based as a function of
A) Logical device number B) Block no.
C) Both A) and B) D) None of the above
- 5) A process may increase or decrease the size of its data region by using the _____ system call.
A) call B) lseek C) growreg D) brk
- 6) _____ algorithm is used for allocation of incore inode.
A) ialloc B) iget C) bmap D) iput
- 7) A _____ file type field indicates that disk inode is not free.
A) Non-zero B) Zero C) Negative D) Positive
- 8) To open named pipe process uses _____ system call.
A) pipe B) fopen C) creat D) open



- 9) When system enters in inconsistent state _____ system call is used to check inconsistency and repair the system.
A) ioctl B) kill C) fsck D) setpgrp
- 10) Buffer Header identifies
A) file B) buffer C) buffer cache D) block
- 11) The _____ is a Kernel process that swaps out memory pages that are no longer part of the working set of a process.
A) table entry B) page swapper C) page stealer D) B) and C) both
- 12) When a process executes a system call it leaves the state _____ and enters the state _____
A) Asleep in memory, swapped B) Kernel Running, Zombie
C) Kernel, Preempted D) User Running, Kernel running
- 13) Which system call deal with global system time \n ?
A) times B) stime C) alarm D) all
- 14) _____ user ID identifies the user who is responsible for running process. \n
A) Real B) Effective
C) Both A) and B) D) None
- 15) The _____ bit used in the fork system call indicates that the Kernel must create a new copy of the page when the disk block descriptor contains the logical process modifies its contents.
A) zero B) flag C) copy on read D) copy on write
- 16) _____ gives a measure of how much time the system is executing in user mode versus Kernel mode.
A) Time system call B) Accounting and Statistics
C) Profiling D) All
- 17) Algorithm Xalloc is used to _____
A) Allocate text region B) Allocate disk block
C) Allocate data region D) Allocate inode
- 18) The swap device is a _____ in a configurable section of a disk. \n
A) storing device B) block device
C) cache D) buffer
- 19) System is _____ if all process are sleeping, awaiting the occurrence of the event. \n
A) executing in Kernel mode B) executing in Kernel and user mode
C) executing in user mode D) idle
- 20) The data structure which describes the state of process
A) Process table entry B) Uarea
C) Both A) and B) D) File table entry



Seat No.	
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**T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM**

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(4×5=20)**
- 1) How Kernel maintains processor execution level to prevent occurrence of interrupts during critical activity ?
 - 2) Which system call is used for creation of special files explain in detail ?
 - 3) Why Unix is called as multiprogramming ? Give an example and explain.
 - 4) Suppose Kernel does a delayed write of a block. What happens when another process takes that block from its hash queue or free list ?
 - 5) Write short note on *lseek* system call.
3. Explain Kernel stack and User stack in detail with example. **10**
4. A) Explain in detail how Kernel read and write the disk block. **10**
- OR
- B) Explain an algorithm for conversion of path name to an inode. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Describe system calls for time.
 - 2) Explain protection fault Handler.
 - 3) What is terminal driver ? List functions of line discipline.
 - 4) Describe an algorithm for booting the system.
 - 5) Which process is called as swapper process in UNIX ? In which cases Kernel swaps out the process from memory ?
6. Describe the major data structures supported by Kernel for demand paging. **10**
7. A) What is region ? List fields in region table entry. List operations along with algorithm name which are used to manipulate region. Explain any one operation in detail. **10**
- OR
- B) Describe user-level, register-level and system-level context of a process in detail. **10**



Seat No.	
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Set	Q
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T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=10)

- 1) _____ gives a measure of how much time the system is executing in user mode versus Kernel mode.
A) Time system call
B) Accounting and Statistics
C) Profiling
D) All
- 2) Algorithm Xalloc is used to _____
A) Allocate text region
B) Allocate disk block
C) Allocate data region
D) Allocate inode
- 3) The swap device is a _____ in a configurable section of a disk. \n
A) storing device
B) block device
C) cache
D) buffer
- 4) System is _____ if all process are sleeping, awaiting the occurrence of the event. \n
A) executing in Kernel mode
B) executing in Kernel and user mode
C) executing in user mode
D) idle
- 5) The data structure which describes the state of process
A) Process table entry
B) Uarea
C) Both A) and B)
D) File table entry
- 6) Which of the following have lowest priority according to processor execution levels ?
A) s/w interrupts B) m/c errors C) clock D) disk
- 7) The in-core representation of the inode differs from the disk copy as a result of
A) A change to the file data
B) A change to the data inode
C) Both A) and B)
D) None of the above

P.T.O.



- 8) When process switch from one mode to another mode it is called as
 - A) Context switch
 - B) Change in mode
 - C) Both A) and B)
 - D) None of the above
- 9) Kernel organizes the buffers into separate queues, based as a function of
 - A) Logical device number
 - B) Block no.
 - C) Both A) and B)
 - D) None of the above
- 10) A process may increase or decrease the size of its data region by using the _____ system call.
 - A) call
 - B) lseek
 - C) growreg
 - D) brk
- 11) _____ algorithm is used for allocation of incore inode.
 - A) ialloc
 - B) iget
 - C) bmap
 - D) iput
- 12) A _____ file type field indicates that disk inode is not free.
 - A) Non-zero
 - B) Zero
 - C) Negative
 - D) Positive
- 13) To open named pipe process uses _____ system call.
 - A) pipe
 - B) fopen
 - C) creat
 - D) open
- 14) When system enters in inconsistent state _____ system call is used to check inconsistency and repair the system.
 - A) ioctl
 - B) kill
 - C) fsck
 - D) setpgrp
- 15) Buffer Header identifies
 - A) file
 - B) buffer
 - C) buffer cache
 - D) block
- 16) The _____ is a Kernel process that swaps out memory pages that are no longer part of the working set of a process.
 - A) table entry
 - B) page swapper
 - C) page stealer
 - D) B) and C) both
- 17) When a process executes a system call it leaves the state _____ and enters the state _____.
 - A) Asleep in memory, swapped
 - B) Kernel Running, Zombie
 - C) Kernel, Preempted
 - D) User Running, Kernel running
- 18) Which system call deal with global system time \n ?
 - A) times
 - B) stime
 - C) alarm
 - D) all
- 19) _____ user ID identifies the user who is responsible for running process. \n
 - A) Real
 - B) Effective
 - C) Both A) and B)
 - D) None
- 20) The _____ bit used in the fork system call indicates that the Kernel must create a new copy of the page when the disk block descriptor contains the logical process modifies its contents.
 - A) zero
 - B) flag
 - C) copy on read
 - D) copy on write



Seat No.	
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**T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM**

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(4×5=20)**
- 1) How Kernel maintains processor execution level to prevent occurrence of interrupts during critical activity ?
 - 2) Which system call is used for creation of special files explain in detail ?
 - 3) Why Unix is called as multiprogramming ? Give an example and explain.
 - 4) Suppose Kernel does a delayed write of a block. What happens when another process takes that block from its hash queue or free list ?
 - 5) Write short note on *lseek* system call.
3. Explain Kernel stack and User stack in detail with example. **10**
4. A) Explain in detail how Kernel read and write the disk block. **10**
- OR
- B) Explain an algorithm for conversion of path name to an inode. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Describe system calls for time.
 - 2) Explain protection fault Handler.
 - 3) What is terminal driver ? List functions of line discipline.
 - 4) Describe an algorithm for booting the system.
 - 5) Which process is called as swapper process in UNIX ? In which cases Kernel swaps out the process from memory ?
6. Describe the major data structures supported by Kernel for demand paging. **10**
7. A) What is region ? List fields in region table entry. List operations along with algorithm name which are used to manipulate region. Explain any one operation in detail. **10**
- OR
- B) Describe user-level, register-level and system-level context of a process in detail. **10**



Seat No.	
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Set	R
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**T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM**

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=10)**

- 1) The _____ is a Kernel process that swaps out memory pages that are no longer part of the working set of a process.
A) table entry B) page swapper C) page stealer D) B) and C) both
- 2) When a process executes a system call it leaves the state _____ and enters the state _____.
A) Asleep in memory, swapped B) Kernel Running, Zombie
C) Kernel, Preempted D) User Running, Kernel running
- 3) Which system call deal with global system time \n ?
A) times B) stime C) alarm D) all
- 4) _____ user ID identifies the user who is responsible for running process. \n
A) Real B) Effective
C) Both A) and B) D) None
- 5) The _____ bit used in the fork system call indicates that the Kernel must create a new copy of the page when the disk block descriptor contains the logical process modifies its contents.
A) zero B) flag C) copy on read D) copy on write
- 6) _____ gives a measure of how much time the system is executing in user mode versus Kernel mode.
A) Time system call B) Accounting and Statistics
C) Profiling D) All
- 7) Algorithm Xalloc is used to _____.
A) Allocate text region B) Allocate disk block
C) Allocate data region D) Allocate inode

P.T.O.



- 8) The swap device is a _____ in a configurable section of a disk. \n
A) storing device B) block device
C) cache D) buffer
- 9) System is _____ if all process are sleeping, awaiting the occurrence of the event. \n
A) executing in Kernel mode B) executing in Kernel and user mode
C) executing in user mode D) idle
- 10) The data structure which describes the state of process
A) Process table entry B) Uarea
C) Both A) and B) D) File table entry
- 11) Which of the following have lowest priority according to processor execution levels ?
A) s/w interrupts B) m/c errors C) clock D) disk
- 12) The in-core representation of the inode differs from the disk copy as a result of
A) A change to the file data B) A change to the data inode
C) Both A) and B) D) None of the above
- 13) When process switch from one mode to another mode it is called as
A) Context switch B) Change in mode
C) Both A) and B) D) None of the above
- 14) Kernel organizes the buffers into separate queues, based as a function of
A) Logical device number B) Block no.
C) Both A) and B) D) None of the above
- 15) A process may increase or decrease the size of its data region by using the _____ system call.
A) call B) lseek C) growreg D) brk
- 16) _____ algorithm is used for allocation of incore inode.
A) ialloc B) iget C) bmap D) iput
- 17) A _____ file type field indicates that disk inode is not free.
A) Non-zero B) Zero C) Negative D) Positive
- 18) To open named pipe process uses _____ system call.
A) pipe B) fopen C) creat D) open
- 19) When system enters in inconsistent state _____ system call is used to check inconsistency and repair the system.
A) ioctl B) kill C) fsck D) setpgrp
- 20) Buffer Header identifies
A) file B) buffer C) buffer cache D) block
-



Seat No.	
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**T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM**

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(4×5=20)**
- 1) How Kernel maintains processor execution level to prevent occurrence of interrupts during critical activity ?
 - 2) Which system call is used for creation of special files explain in detail ?
 - 3) Why Unix is called as multiprogramming ? Give an example and explain.
 - 4) Suppose Kernel does a delayed write of a block. What happens when another process takes that block from its hash queue or free list ?
 - 5) Write short note on *lseek* system call.
3. Explain Kernel stack and User stack in detail with example. **10**
4. A) Explain in detail how Kernel read and write the disk block. **10**
- OR
- B) Explain an algorithm for conversion of path name to an inode. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Describe system calls for time.
 - 2) Explain protection fault Handler.
 - 3) What is terminal driver ? List functions of line discipline.
 - 4) Describe an algorithm for booting the system.
 - 5) Which process is called as swapper process in UNIX ? In which cases Kernel swaps out the process from memory ?
6. Describe the major data structures supported by Kernel for demand paging. **10**
7. A) What is region ? List fields in region table entry. List operations along with algorithm name which are used to manipulate region. Explain any one operation in detail. **10**
- OR
- B) Describe user-level, register-level and system-level context of a process in detail. **10**



Seat No.	
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Set	S
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T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=10)

- 1) _____ algorithm is used for allocation of incore inode.
A) ialloc B) iget C) bmap D) iput
- 2) A _____ file type field indicates that disk inode is not free.
A) Non-zero B) Zero C) Negative D) Positive
- 3) To open named pipe process uses _____ system call.
A) pipe B) fopen C) creat D) open
- 4) When system enters in inconsistent state _____ system call is used to check inconsistency and repair the system.
A) iocfl B) kill C) fsck D) setpgrp
- 5) Buffer Header identifies
A) file B) buffer C) buffer cache D) block
- 6) The _____ is a Kernel process that swaps out memory pages that are no longer part of the working set of a process.
A) table entry B) page swapper C) page stealer D) B) and C) both
- 7) When a process executes a system call it leaves the state _____ and enters the state _____
A) Asleep in memory, swapped B) Kernel Running, Zombie
C) Kernel, Preempted D) User Running, Kernel running
- 8) Which system call deal with global system time \n ?
A) times B) stime C) alarm D) all
- 9) _____ user ID identifies the user who is responsible for running process. \n
A) Real B) Effective
C) Both A) and B) D) None

P.T.O.



- 10) The _____ bit used in the fork system call indicates that the Kernel must create a new copy of the page when the disk block descriptor contains the logical process modifies its contents.
A) zero B) flag C) copy on read D) copy on write
- 11) _____ gives a measure of how much time the system is executing in user mode versus Kernel mode.
A) Time system call B) Accounting and Statistics
C) Profiling D) All
- 12) Algorithm Xalloc is used to _____
A) Allocate text region B) Allocate disk block
C) Allocate data region D) Allocate inode
- 13) The swap device is a _____ in a configurable section of a disk. \n
A) storing device B) block device
C) cache D) buffer
- 14) System is _____ if all process are sleeping, awaiting the occurrence of the event. \n
A) executing in Kernel mode B) executing in Kernel and user mode
C) executing in user mode D) idle
- 15) The data structure which describes the state of process
A) Process table entry B) Uarea
C) Both A) and B) D) File table entry
- 16) Which of the following have lowest priority according to processor execution levels ?
A) s/w interrupts B) m/c errors C) clock D) disk
- 17) The in-core representation of the inode differs from the disk copy as a result of
A) A change to the file data B) A change to the data inode
C) Both A) and B) D) None of the above
- 18) When process switch from one mode to another mode it is called as
A) Context switch B) Change in mode
C) Both A) and B) D) None of the above
- 19) Kernel organizes the buffers into separate queues, based as a function of
A) Logical device number B) Block no.
C) Both A) and B) D) None of the above
- 20) A process may increase or decrease the size of its data region by using the _____ system call.
A) call B) lseek C) growreg D) brk
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Seat No.	
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**T.E. (Computer Sci. and Engg.) (Part – II) Examination, 2016
UNIX OPERATING SYSTEM**

Day and Date : Wednesday, 23-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(4×5=20)**
- 1) How Kernel maintains processor execution level to prevent occurrence of interrupts during critical activity ?
 - 2) Which system call is used for creation of special files explain in detail ?
 - 3) Why Unix is called as multiprogramming ? Give an example and explain.
 - 4) Suppose Kernel does a delayed write of a block. What happens when another process takes that block from its hash queue or free list ?
 - 5) Write short note on *lseek* system call.
3. Explain Kernel stack and User stack in detail with example. **10**
4. A) Explain in detail how Kernel read and write the disk block. **10**
- OR
- B) Explain an algorithm for conversion of path name to an inode. **10**

SECTION – II

5. Answer **any four** : **(4×5=20)**
- 1) Describe system calls for time.
 - 2) Explain protection fault Handler.
 - 3) What is terminal driver ? List functions of line discipline.
 - 4) Describe an algorithm for booting the system.
 - 5) Which process is called as swapper process in UNIX ? In which cases Kernel swaps out the process from memory ?
6. Describe the major data structures supported by Kernel for demand paging. **10**
7. A) What is region ? List fields in region table entry. List operations along with algorithm name which are used to manipulate region. Explain any one operation in detail. **10**
- OR
- B) Describe user-level, register-level and system-level context of a process in detail. **10**



SLR-EP – 185

Seat No.	
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Set	P
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**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) **All** questions are **compulsory**.
 - 4) Figure to **right** indicates **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) The goal of the requirement activity is to document the _____ in software requirement specification document.
a) requirements b) design c) rules d) all
- 2) The Configuration Controller (CC) is responsible for _____ of the CM.
a) Producing b) Implementation
c) Requirement d) None of these
- 3) The simplest process model is
a) Water fall model b) Prototype model
c) Spiral Model d) None of these
- 4) Classes and objects are building blocks of an
a) OOM b) OOD c) OOA d) None of these
- 5) MAO stands for
a) Most Abstract Output b) Most Abstract Output data element
c) Most Abstract Origin d) None of these
- 6) COCOMO stands for
a) Cost Constructive Model b) Cost Control Mode
c) Cost Control Model d) None of the above
- 7) Checklists are usually at two types activity checklist and _____
a) Review ckecklist b) Detect checklist
c) Process checklist d) All of the above

P.T.O.



- 8) Requirement elicitation means
- a) Gathering of requirement
 - b) Capturing of requirement
 - c) Understanding of requirement
 - d) All of the above
- 9) _____ is a very powerful concepts that is used in all engineering discipline.
- a) Software
 - b) Abstraction
 - c) Both a) and b)
 - d) None of these
- 10) The design of a system is _____ if a system is built precisely according to the design.
- a) Correct
 - b) Wrong
 - c) Both a) and b)
 - d) None of these
- 11) The state and services of a object together define its _____
- a) Action
 - b) Behaviour
 - c) Properties
 - d) None of these
- 12) Unit testing is another approach for verifying the _____
- a) Code
 - b) Program
 - c) Both a) and b)
 - d) None of these
- 13) Risk management aims to _____ and then take action to minimize their effect on the project.
- a) Identify cost and estimation
 - b) Identify risks
 - c) Identify plan
 - d) None of these
- 14) CMM is technique to
- a) Test the software
 - b) Develop the Software
 - c) Improve software process
 - d) All of the above
- 15) SEPG means _____
- a) Senior Engineers Project Group
 - b) Software Engineering People Group
 - c) Software Engineering Process Group
 - d) None of these
- 16) _____ is a condition that causes system to fail.
- a) Error
 - b) Fault
 - c) Code
 - d) None of these
- 17) LOC stands for
- a) Line Of Compiler
 - b) Line Of code
 - c) Line Of Composite
 - d) None Of these
- 18) _____ is one of the maturity level in CMM model.
- a) Reliability
 - b) Defined
 - c) Adjusted
 - d) All
- 19) Agile development method describes _____ ways.
- a) Iterative
 - b) Incremental
 - c) Both a) and b)
 - d) None of these
- 20) The first level of testing is called as _____
- a) Unit testing
 - b) System testing
 - c) Integration testing
 - d) All



Seat No.	
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**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

Instructions : 1) **All questions are compulsory.**
2) **Figure to right indicates full marks.**

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) Explain software development process.
 - b) Software Configuration Management.
 - c) Draw a design notation for OOD.
 - d) What is SRS ? List and explain feature of good SRS.
 - e) Explain in structural design methodology.
3. Attempt **any one** : **10**
- a) Explain design principles used in function oriented design.
 - b) Which is different effort estimation techniques used in software engineering ?
4. Write a short note on the following : **(2×5=10)**
- a) COCOMO Model.
 - b) Cohesion and Coupling.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain in detail black box testing.
 - b) Explain in detail about test case specifications in testing process.
 - c) Explain agile project management.



- d) Explain in detail project monitoring and control.
- e) Write note on concepts in configuration management.

6. Attempt **any one** : **10**

a) Explain white box testing in detail.

OR

b) Explain CMM project management process in detail.

7. Attempt the following questions : **10**

- i) Write a short note on Milestone analysis.
 - ii) Risk Assessment.
-



SLR-EP – 185

Seat No.	
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Set

Q

**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) **All** questions are **compulsory**.
 - 4) Figure to **right** indicates **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) _____ is a condition that causes system to fail.
a) Error b) Fault c) Code d) None of these
- 2) LOC stands for
a) Line Of Compiler b) Line Of code
c) Line Of Composite d) None Of these
- 3) _____ is one of the maturity level in CMM model.
a) Reliability b) Defined c) Adjusted d) All
- 4) Agile development method describes _____ ways.
a) Iterative b) Incremental c) Both a) and b) d) None of these
- 5) The first level of testing is called as _____
a) Unit testing b) System testing
c) Integration testing d) All
- 6) The goal of the requirement activity is to document the _____ in software requirement specification document.
a) requirements b) design c) rules d) all
- 7) The Configuration Controller (CC) is responsible for _____ of the CM.
a) Producing b) Implementation
c) Requirement d) None of these
- 8) The simplest process model is
a) Water fall model b) Prototype model
c) Spiral Model d) None of these

P.T.O.



- 9) Classes and objects are building blocks of an
a) OOM b) OOD c) OOA d) None of these
- 10) MAO stands for
a) Most Abstract Output b) Most Abstract Output data element
c) Most Abstract Origin d) None of these
- 11) COCOMO stands for
a) Cost Constructive Model b) Cost Control Mode
c) Cost Control Model d) None of the above
- 12) Checklists are usually at two types activity checklist and _____
a) Review ckecklist b) Detect checklist
c) Process checklist d) All of the above
- 13) Requirement elicitation means
a) Gathering of requirement b) Capturing of requirement
c) Understanding of requirement d) All of the above
- 14) _____ is a very powerful concepts that is used in all engineering discipline.
a) Software b) Abstraction
c) Both a) and b) d) None of these
- 15) The design of a system is _____ if a system is built precisely according to the design.
a) Correct b) Wrong
c) Both a) and b) d) None of these
- 16) The state and services of a object together define its _____
a) Action b) Behaviour c) Properties d) None of these
- 17) Unit testing is another approach for verifying the _____
a) Code b) Program
c) Both a) and b) d) None of these
- 18) Risk management aims to _____ and then take action to minimize their effect on the project.
a) Identify cost and estimation b) Identify risks
c) Identify plan d) None of these
- 19) CMM is technique to
a) Test the software b) Develop the Software
c) Improve software process d) All of the above
- 20) SEPG means _____
a) Senior Engineers Project Group
b) Software Engineering People Group
c) Software Engineering Process Group
d) None of these
-



Seat No.	
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**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

Instructions : 1) *All questions are compulsory.*
2) *Figure to right indicates full marks.*

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) Explain software development process.
 - b) Software Configuration Management.
 - c) Draw a design notation for OOD.
 - d) What is SRS ? List and explain feature of good SRS.
 - e) Explain in structural design methodology.
3. Attempt **any one** : **10**
- a) Explain design principles used in function oriented design.
 - b) Which is different effort estimation techniques used in software engineering ?
4. Write a short note on the following : **(2×5=10)**
- a) COCOMO Model.
 - b) Cohesion and Coupling.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain in detail black box testing.
 - b) Explain in detail about test case specifications in testing process.
 - c) Explain agile project management.

Set Q



- d) Explain in detail project monitoring and control.
- e) Write note on concepts in configuration management.

6. Attempt **any one** : **10**

a) Explain white box testing in detail.

OR

b) Explain CMM project management process in detail.

7. Attempt the following questions : **10**

- i) Write a short note on Milestone analysis.
 - ii) Risk Assessment.
-



SLR-EP – 185

Seat No.	
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Set R

**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) **All** questions are **compulsory**.
 - 4) Figure to **right** indicates **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) The state and services of an object together define its _____
a) Action b) Behaviour c) Properties d) None of these
- 2) Unit testing is another approach for verifying the _____
a) Code b) Program
c) Both a) and b) d) None of these
- 3) Risk management aims to _____ and then take action to minimize their effect on the project.
a) Identify cost and estimation b) Identify risks
c) Identify plan d) None of these
- 4) CMM is a technique to _____
a) Test the software b) Develop the Software
c) Improve software process d) All of the above
- 5) SEPG means _____
a) Senior Engineers Project Group
b) Software Engineering People Group
c) Software Engineering Process Group
d) None of these
- 6) _____ is a condition that causes a system to fail.
a) Error b) Fault c) Code d) None of these
- 7) LOC stands for _____
a) Line Of Compiler b) Line Of code
c) Line Of Composite d) None Of these

P.T.O.



- 8) _____ is one of the maturity level in CMM model.
a) Reliability b) Defined c) Adjusted d) All
- 9) Agile development method describes _____ ways.
a) Iterative b) Incremental c) Both a) and b) d) None of these
- 10) The first level of testing is called as _____
a) Unit testing b) System testing
c) Integration testing d) All
- 11) The goal of the requirement activity is to document the _____ in software requirement specification document.
a) requirements b) design c) rules d) all
- 12) The Configuration Controller (CC) is responsible for _____ of the CM.
a) Producing b) Implementation
c) Requirement d) None of these
- 13) The simplest process model is
a) Water fall model b) Prototype model
c) Spiral Model d) None of these
- 14) Classes and objects are building blocks of an
a) OOM b) OOD c) OOA d) None of these
- 15) MAO stands for
a) Most Abstract Output b) Most Abstract Output data element
c) Most Abstract Origin d) None of these
- 16) COCOMO stands for
a) Cost Constructive Model b) Cost Control Mode
c) Cost Control Model d) None of the above
- 17) Checklists are usually at two types activity checklist and _____
a) Review ckecklist b) Detect checklist
c) Process checklist d) All of the above
- 18) Requirement elicitation means
a) Gathering of requirement b) Capturing of requirement
c) Understanding of requirement d) All of the above
- 19) _____ is a very powerful concepts that is used in all engineering discipline.
a) Software b) Abstraction
c) Both a) and b) d) None of these
- 20) The design of a system is _____ if a system is built precisely according to the design.
a) Correct b) Wrong
c) Both a) and b) d) None of these
-



Seat No.	
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**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

Instructions : 1) **All questions are compulsory.**
2) **Figure to right indicates full marks.**

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) Explain software development process.
 - b) Software Configuration Management.
 - c) Draw a design notation for OOD.
 - d) What is SRS ? List and explain feature of good SRS.
 - e) Explain in structural design methodology.
3. Attempt **any one** : **10**
- a) Explain design principles used in function oriented design.
 - b) Which is different effort estimation techniques used in software engineering ?
4. Write a short note on the following : **(2×5=10)**
- a) COCOMO Model.
 - b) Cohesion and Coupling.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain in detail black box testing.
 - b) Explain in detail about test case specifications in testing process.
 - c) Explain agile project management.

Set R



- d) Explain in detail project monitoring and control.
- e) Write note on concepts in configuration management.

6. Attempt **any one** : **10**

a) Explain white box testing in detail.

OR

b) Explain CMM project management process in detail.

7. Attempt the following questions : **10**

- i) Write a short note on Milestone analysis.
 - ii) Risk Assessment.
-



SLR-EP – 185

Seat No.	
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Set	S
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**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) **All** questions are **compulsory**.
 - 4) Figure to **right** indicates **full** marks.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) COCOMO stands for
 - a) Cost Constructive Model
 - b) Cost Control Mode
 - c) Cost Control Model
 - d) None of the above
- 2) Checklists are usually at two types activity checklist and _____
 - a) Review ckecklist
 - b) Detect checklist
 - c) Process checklist
 - d) All of the above
- 3) Requirement elicitation means
 - a) Gathering of requirement
 - b) Capturing of requirement
 - c) Understanding of requirement
 - d) All of the above
- 4) _____ is a very powerful concepts that is used in all engineering discipline.
 - a) Software
 - b) Abstraction
 - c) Both a) and b)
 - d) None of these
- 5) The design of a system is _____ if a system is built precisely according to the design.
 - a) Correct
 - b) Wrong
 - c) Both a) and b)
 - d) None of these
- 6) The state and services of a object together define its _____
 - a) Action
 - b) Behaviour
 - c) Properties
 - d) None of these
- 7) Unit testing is another approach for verifying the _____
 - a) Code
 - b) Program
 - c) Both a) and b)
 - d) None of these

P.T.O.



- 8) Risk management aims to _____ and then take action to minimize their effect on the project.
- a) Identify cost and estimation b) Identify risks
c) Identify plan d) None of these
- 9) CMM is technique to
- a) Test the software b) Develop the Software
c) Improve software process d) All of the above
- 10) SEPG means _____
- a) Senior Engineers Project Group
b) Software Engineering People Group
c) Software Engineering Process Group
d) None of these
- 11) _____ is a condition that causes system to fail.
- a) Error b) Fault c) Code d) None of these
- 12) LOC stands for
- a) Line Of Compiler b) Line Of code
c) Line Of Composite d) None Of these
- 13) _____ is one of the maturity level in CMM model.
- a) Reliability b) Defined c) Adjusted d) All
- 14) Agile development method describes _____ ways.
- a) Iterative b) Incremental c) Both a) and b) d) None of these
- 15) The first level of testing is called as _____
- a) Unit testing b) System testing
c) Integration testing d) All
- 16) The goal of the requirement activity is to document the _____ in software requirement specification document.
- a) requirements b) design c) rules d) all
- 17) The Configuration Controller (CC) is responsible for _____ of the CM.
- a) Producing b) Implementation
c) Requirement d) None of these
- 18) The simplest process model is
- a) Water fall model b) Prototype model
c) Spiral Model d) None of these
- 19) Classes and objects are building blocks of an
- a) OOM b) OOD c) OOA d) None of these
- 20) MAO stands for
- a) Most Abstract Output b) Most Abstract Output data element
c) Most Abstract Origin d) None of these
-



Seat No.	
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**T.E. (Computer Science & Engineering) (Part – II) Examination, 2016
SOFTWARE ENGINEERING**

Day and Date : Thursday, 24-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

Instructions : 1) *All questions are compulsory.*
2) *Figure to right indicates full marks.*

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) Explain software development process.
 - b) Software Configuration Management.
 - c) Draw a design notation for OOD.
 - d) What is SRS ? List and explain feature of good SRS.
 - e) Explain in structural design methodology.
3. Attempt **any one** : **10**
- a) Explain design principles used in function oriented design.
 - b) Which is different effort estimation techniques used in software engineering ?
4. Write a short note on the following : **(2×5=10)**
- a) COCOMO Model.
 - b) Cohesion and Coupling.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain in detail black box testing.
 - b) Explain in detail about test case specifications in testing process.
 - c) Explain agile project management.

Set S



- d) Explain in detail project monitoring and control.
- e) Write note on concepts in configuration management.

6. Attempt **any one** : **10**

a) Explain white box testing in detail.

OR

b) Explain CMM project management process in detail.

7. Attempt the following questions : **10**

- i) Write a short note on Milestone analysis.
 - ii) Risk Assessment.
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Seat No.	
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Set	P
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Objective Questions.

(20×1=20)

- 1) _____ invention and marketing of the telephone in 1876.
 - a) Alexander Graham Bell's
 - b) Philip Reis
 - c) Joseph Henry
 - d) Michael Faraday
- 2) NMT stands for
 - a) North-Indian Mobile Telephone
 - b) Norway Mobile Telephone
 - c) Nordic Mobile Telephone
 - d) None of above
- 3) AMPS stands for
 - a) Advanced Mobile Phone System
 - b) Add on Mobile Telephone Socket
 - c) Advanced Mobile Phone Socket
 - d) Advance Mobile Phone System
- 4) Frequency modulation ranges between
 - a) 5.9 MHz and 26.1 MHz
 - b) 87.5 MHz and 108 MHz
 - c) 148.5 kHz and 283.5 kHz
 - d) 174 and 230 MHZ
- 5) ITU-R has split the world into _____ regions.
 - a) Four
 - b) Three
 - c) Six
 - d) Two
- 6) CSMA/CD stands for
 - a) Carrier Sense Multiple Access with Collision Detection
 - b) Collision Sense Multiple Account with Collision Detection
 - c) Control Sense Multiple Access with Direct Control
 - d) Collision Sense Multiple Access with Collision Detection



- 7) Duplex channel established in frequency division multiplexing is called as
 - a) Time division duplex
 - b) Frequency division duplex
 - c) Space division duplex
 - d) None of above
- 8) Demand assigned multiple access is also called as
 - a) Aloha
 - b) P-persistent CSMA
 - c) Reservation Aloha
 - d) EY-NMPA
- 9) In IEEE 802.11, the stations and the AP within the same radio coverage form
 - a) Extended service set
 - b) Distribution system services
 - c) Basic service set
 - d) Additional service set
- 10) Mobile Station (MS) is identified via
 - a) SIM
 - b) PIN
 - c) IMEI
 - d) TMSI
- 11) _____ is the subnet the Mobile Node belongs to with respect to its IP address.
 - a) Foreign network
 - b) Home agent
 - c) Home network
 - d) Foreign agent
- 12) For agent advertisement _____ messages according to RFC 1256 are used.
 - a) Mobility binding
 - b) IP in IP
 - c) ICMP
 - d) None of above
- 13) _____ packets are used for registration requests.
 - a) TCP
 - b) IP
 - c) UDP
 - d) ID
- 14) _____ is the mechanism of taking a packet consisting of packet header and data and putting it into the data part of a new packet.
 - a) Encapsulation
 - b) Extension
 - c) Tunneling
 - d) Identification
- 15) Following is not the type of encapsulation
 - a) IP in IP
 - b) Minimal
 - c) Generic routing
 - d) Optimization
- 16) Your device's screen must be at least _____ in physical diagonal size.
 - a) 3.5"
 - b) 4.0"
 - c) 2.5"
 - d) 3.0"
- 17) The common tools used during app development and testing are
 - a) adb, ddms, monkey
 - b) CDD, CTS
 - c) ADT, apk
 - d) AOSP, ADB
- 18) Device must have at least _____ for storing the kernel and user space in android system.
 - a) 512 MB
 - b) 256 MB
 - c) 128 MB
 - d) 1 GB
- 19) Wi-Fi stands for
 - a) Wired fidelity
 - b) Wireless fidelity
 - c) Wireless fiber
 - d) Wired fiber
- 20) An associated BS collects the information gathered by the sensors on a _____ basis.
 - a) data-centric
 - b) data-collection
 - c) data-owner
 - d) none of these



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- 1) Write a short note on DSSS.
 - 2) Explain Slotted Aloha.
 - 3) Explain Near and Far terminal.
 - 4) Explain 3G mobile system.
 - 5) Write a short note on IEEE 802.11 working group.
3. Explain with neat diagram localization and calling of GSM system **10**
4. Explain with neat diagram CDMA with example. **10**

OR

Explain IEEE 802.15.1 Bluetooth architecture with neat diagram. **10**

SECTION – II

5. Attempt **any four** : **20**
- 1) Write a short note on Agent Advertisement in mobile IP.
 - 2) Explain advantage and disadvantage of Indirect TCP (I-TCP).
 - 3) Write a short note on Mobile TCP.
 - 4) Explain four main component of Android application.
 - 5) Write a short note on NFC devices.
6. Explain with neat diagram Entities and terminologies to understand Mobile IP. Explain how IP packet deliver to mobile node in mobile IP. **10**
7. Explain compliance definition document of Android system. Explain software and hardware compatibility of Android system. **10**

OR

Explain with neat diagram function NFC architecture. **10**

Set P



Seat No.	
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Set	Q
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Objective Questions.

(20×1=20)

- 1) Your device's screen must be at least _____ in physical diagonal size.
a) 3.5" b) 4.0" c) 2.5" d) 3.0"
- 2) The common tools used during app development and testing are
a) adb, ddms, monkey b) CDD, CTS
c) ADT, apk d) AOSP, ADB
- 3) Device must have at least _____ for storing the kernel and user space in android system.
a) 512 MB b) 256 MB c) 128 MB d) 1 GB
- 4) Wi-Fi stands for
a) Wired fidelity b) Wireless fidelity
c) Wireless fiber d) Wired fiber
- 5) An associated BS collects the information gathered by the sensors on a _____ basis.
a) data-centric b) data-collection
c) data-owner d) none of these
- 6) _____ invention and marketing of the telephone in 1876.
a) Alexander Graham Bell's b) Philip Reis
c) Joseph Henry d) Michael Faraday
- 7) NMT stands for
a) North-Indian Mobile Telephone b) Norway Mobile Telephone
c) Nordic Mobile Telephone d) None of above

P.T.O.



- 8) AMPS stands for
a) Advanced Mobile Phone System b) Add on Mobile Telephone Socket
c) Advanced Mobile Phone Socket d) Advance Mobile Phone System
- 9) Frequency modulation ranges between
a) 5.9 MHz and 26.1 MHz b) 87.5 MHz and 108 MHz
c) 148.5 kHz and 283.5 kHz d) 174 and 230 MHz
- 10) ITU-R has split the world into _____ regions.
a) Four b) Three c) Six d) Two
- 11) CSMA/CD stands for
a) Carrier Sense Multiple Access with Collision Detection
b) Collision Sense Multiple Account with Collision Detection
c) Control Sense Multiple Access with Direct Control
d) Collision Sense Multiple Access with Collision Detection
- 12) Duplex channel established in frequency division multiplexing is called as
a) Time division duplex b) Frequency division duplex
c) Space division duplex d) None of above
- 13) Demand assigned multiple access is also called as
a) Aloha b) P-persistent CSMA
c) Reservation Aloha d) EY-NMPA
- 14) In IEEE 802.11, the stations and the AP within the same radio coverage form
a) Extended service set b) Distribution system services
c) Basic service set d) Additional service set
- 15) Mobile Station (MS) is identified via
a) SIM b) PIN c) IMEI d) TMSI
- 16) _____ is the subnet the Mobile Node belongs to with respect to its IP address.
a) Foreign network b) Home agent c) Home network d) Foreign agent
- 17) For agent advertisement _____ messages according to RFC 1256 are used.
a) Mobility binding b) IP in IP c) ICMP d) None of above
- 18) _____ packets are used for registration requests.
a) TCP b) IP c) UDP d) ID
- 19) _____ is the mechanism of taking a packet consisting of packet header and data and putting it into the data part of a new packet.
a) Encapsulation b) Extension c) Tunneling d) Identification
- 20) Following is not the type of encapsulation
a) IP in IP b) Minimal c) Generic routing d) Optimization



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- 1) Write a short note on DSSS.
 - 2) Explain Slotted Aloha.
 - 3) Explain Near and Far terminal.
 - 4) Explain 3G mobile system.
 - 5) Write a short note on IEEE 802.11 working group.
3. Explain with neat diagram localization and calling of GSM system **10**
4. Explain with neat diagram CDMA with example. **10**

OR

Explain IEEE 802.15.1 Bluetooth architecture with neat diagram. **10**

SECTION – II

5. Attempt **any four** : **20**
- 1) Write a short note on Agent Advertisement in mobile IP.
 - 2) Explain advantage and disadvantage of Indirect TCP (I-TCP).
 - 3) Write a short note on Mobile TCP.
 - 4) Explain four main component of Android application.
 - 5) Write a short note on NFC devices.
6. Explain with neat diagram Entities and terminologies to understand Mobile IP. Explain how IP packet deliver to mobile node in mobile IP. **10**
7. Explain compliance definition document of Android system. Explain software and hardware compatibility of Android system. **10**

OR

Explain with neat diagram function NFC architecture. **10**

Set Q



Seat No.	
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Set	R
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Objective Questions.

(20×1=20)

- 1) _____ is the subnet the Mobile Node belongs to with respect to its IP address.
a) Foreign network b) Home agent c) Home network d) Foreign agent
- 2) For agent advertisement _____ messages according to RFC 1256 are used.
a) Mobility binding b) IP in IP c) ICMP d) None of above
- 3) _____ packets are used for registration requests.
a) TCP b) IP c) UDP d) ID
- 4) _____ is the mechanism of taking a packet consisting of packet header and data and putting it into the data part of a new packet.
a) Encapsulation b) Extension c) Tunneling d) Identification
- 5) Following is not the type of encapsulation
a) IP in IP b) Minimal c) Generic routing d) Optimization
- 6) Your device's screen must be at least _____ in physical diagonal size.
a) 3.5" b) 4.0" c) 2.5" d) 3.0"
- 7) The common tools used during app development and testing are
a) adb, ddms, monkey b) CDD, CTS
c) ADT, apk d) AOSP, ADB
- 8) Device must have at least _____ for storing the kernel and user space in android system.
a) 512 MB b) 256 MB c) 128 MB d) 1 GB



- 9) Wi-Fi stands for
a) Wired fidelity
b) Wireless fidelity
c) Wireless fiber
d) Wired fiber
- 10) An associated BS collects the information gathered by the sensors on a _____ basis.
a) data-centric
b) data-collection
c) data-owner
d) none of these
- 11) _____ invention and marketing of the telephone in 1876.
a) Alexander Graham Bell's
b) Philip Reis
c) Joseph Henry
d) Michael Faraday
- 12) NMT stands for
a) North-Indian Mobile Telephone
b) Norway Mobile Telephone
c) Nordic Mobile Telephone
d) None of above
- 13) AMPS stands for
a) Advanced Mobile Phone System
b) Add on Mobile Telephone Socket
c) Advanced Mobile Phone Socket
d) Advance Mobile Phone System
- 14) Frequency modulation ranges between
a) 5.9 MHz and 26.1 MHz
b) 87.5 MHz and 108 MHz
c) 148.5 kHz and 283.5 kHz
d) 174 and 230 MHz
- 15) ITU-R has split the world into _____ regions.
a) Four
b) Three
c) Six
d) Two
- 16) CSMA/CD stands for
a) Carrier Sense Multiple Access with Collision Detection
b) Collision Sense Multiple Account with Collision Detection
c) Control Sense Multiple Access with Direct Control
d) Collision Sense Multiple Access with Collision Detection
- 17) Duplex channel established in frequency division multiplexing is called as
a) Time division duplex
b) Frequency division duplex
c) Space division duplex
d) None of above
- 18) Demand assigned multiple access is also called as
a) Aloha
b) P-persistent CSMA
c) Reservation Aloha
d) EY-NMPA
- 19) In IEEE 802.11, the stations and the AP within the same radio coverage form
a) Extended service set
b) Distribution system services
c) Basic service set
d) Additional service set
- 20) Mobile Station (MS) is identified via
a) SIM
b) PIN
c) IMEI
d) TMSI
-



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- 1) Write a short note on DSSS.
 - 2) Explain Slotted Aloha.
 - 3) Explain Near and Far terminal.
 - 4) Explain 3G mobile system.
 - 5) Write a short note on IEEE 802.11 working group.
3. Explain with neat diagram localization and calling of GSM system **10**
4. Explain with neat diagram CDMA with example. **10**

OR

Explain IEEE 802.15.1 Bluetooth architecture with neat diagram. **10**

SECTION – II

5. Attempt **any four** : **20**
- 1) Write a short note on Agent Advertisement in mobile IP.
 - 2) Explain advantage and disadvantage of Indirect TCP (I-TCP).
 - 3) Write a short note on Mobile TCP.
 - 4) Explain four main component of Android application.
 - 5) Write a short note on NFC devices.
6. Explain with neat diagram Entities and terminologies to understand Mobile IP. Explain how IP packet deliver to mobile node in mobile IP. **10**
7. Explain compliance definition document of Android system. Explain software and hardware compatibility of Android system. **10**

OR

Explain with neat diagram function NFC architecture. **10**

Set R



Seat No.	
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Set	S
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Objective Questions.

(20×1=20)

- 1) CSMA/CD stands for
 - a) Carrier Sense Multiple Access with Collision Detection
 - b) Collision Sense Multiple Account with Collision Detection
 - c) Control Sense Multiple Access with Direct Control
 - d) Collision Sense Multiple Access with Collision Detection
- 2) Duplex channel established in frequency division multiplexing is called as
 - a) Time division duplex
 - b) Frequency division duplex
 - c) Space division duplex
 - d) None of above
- 3) Demand assigned multiple access is also called as
 - a) Aloha
 - b) P-persistent CSMA
 - c) Reservation Aloha
 - d) EY-NMPA
- 4) In IEEE 802.11, the stations and the AP within the same radio coverage form
 - a) Extended service set
 - b) Distribution system services
 - c) Basic service set
 - d) Additional service set
- 5) Mobile Station (MS) is identified via
 - a) SIM
 - b) PIN
 - c) IMEI
 - d) TMSI
- 6) _____ is the subnet the Mobile Node belongs to with respect to its IP address.
 - a) Foreign network
 - b) Home agent
 - c) Home network
 - d) Foreign agent



- 7) For agent advertisement _____ messages according to RFC 1256 are used.
a) Mobility binding b) IP in IP c) ICMP d) None of above
- 8) _____ packets are used for registration requests.
a) TCP b) IP c) UDP d) ID
- 9) _____ is the mechanism of taking a packet consisting of packet header and data and putting it into the data part of a new packet.
a) Encapsulation b) Extension c) Tunneling d) Identification
- 10) Following is not the type of encapsulation
a) IP in IP b) Minimal c) Generic routing d) Optimization
- 11) Your device's screen must be at least _____ in physical diagonal size.
a) 3.5" b) 4.0" c) 2.5" d) 3.0"
- 12) The common tools used during app development and testing are
a) adb, ddms, monkey b) CDD, CTS
c) ADT, apk d) AOSP, ADB
- 13) Device must have at least _____ for storing the kernel and user space in android system.
a) 512 MB b) 256 MB c) 128 MB d) 1 GB
- 14) Wi-Fi stands for
a) Wired fidelity b) Wireless fidelity
c) Wireless fiber d) Wired fiber
- 15) An associated BS collects the information gathered by the sensors on a _____ basis.
a) data-centric b) data-collection
c) data-owner d) none of these
- 16) _____ invention and marketing of the telephone in 1876.
a) Alexander Graham Bell's b) Philip Reis
c) Joseph Henry d) Michael Faraday
- 17) NMT stands for
a) North-Indian Mobile Telephone b) Norway Mobile Telephone
c) Nordic Mobile Telephone d) None of above
- 18) AMPS stands for
a) Advanced Mobile Phone System b) Add on Mobile Telephone Socket
c) Advanced Mobile Phone Socket d) Advance Mobile Phone System
- 19) Frequency modulation ranges between
a) 5.9 MHz and 26.1 MHz b) 87.5 MHz and 108 MHz
c) 148.5 kHz and 283.5 kHz d) 174 and 230 MHz
- 20) ITU-R has split the world into _____ regions.
a) Four b) Three c) Six d) Two



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
MOBILE COMPUTING**

Day and Date : Friday, 25-11-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **20**
- 1) Write a short note on DSSS.
 - 2) Explain Slotted Aloha.
 - 3) Explain Near and Far terminal.
 - 4) Explain 3G mobile system.
 - 5) Write a short note on IEEE 802.11 working group.
3. Explain with neat diagram localization and calling of GSM system **10**
4. Explain with neat diagram CDMA with example. **10**

OR

Explain IEEE 802.15.1 Bluetooth architecture with neat diagram. **10**

SECTION – II

5. Attempt **any four** : **20**
- 1) Write a short note on Agent Advertisement in mobile IP.
 - 2) Explain advantage and disadvantage of Indirect TCP (I-TCP).
 - 3) Write a short note on Mobile TCP.
 - 4) Explain four main component of Android application.
 - 5) Write a short note on NFC devices.
6. Explain with neat diagram Entities and terminologies to understand Mobile IP. Explain how IP packet deliver to mobile node in mobile IP. **10**
7. Explain compliance definition document of Android system. Explain software and hardware compatibility of Android system. **10**

OR

Explain with neat diagram function NFC architecture. **10**

Set S



SLR-EP – 187 (c)

Seat No.	
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Set	P
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T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND SIMULATION

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Max. Marks : 50

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in Answer Book Page No. 3. Each question carries one mark.
2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer : **(10×1=10)**
- 1) Simulation always involves building a mathematical representation of a problem or process.
 - a) True
 - b) False
 - 2) Which of the following are advantages of simulation ?
 - a) Simulation allows “what-if?” type of questions
 - b) Simulation can usually be performed by hand or using a small calculator
 - c) Simulation does not interfere with the real-world system
 - d) a) and c) only
 - 3) The first step in simulation is to
 - a) Set up possible courses of action for testing
 - b) Define the problem
 - c) Construct a numerical model
 - d) Validate the model

P.T.O.



- 4) Simulation should be thought of as a technique for
- a) Increasing one's understanding of a problem
 - b) Obtaining a relatively inexpensive solution to a problem
 - c) Obtaining an optimal solution to a problem
 - d) Providing quick and dirty answers to complex problems
- 5) Network simulator (NS2) consists of key languages.
- a) C++
 - b) OTcl
 - c) Both C++ and OTcl
 - d) JAVA
- 6) Correct to declare and initialize the variable in OTcl is
- a) Set x=1;
 - b) Set x:1
 - c) Set x<-1
 - d) Set x1
- 7) The syntax for run OTcl script, type
- a) ns ex-tcl.tcl
 - b) tcl ex-tcl.tcl
 - c) both a) and b)
 - d) ex-tcl.tcl
- 8) _____ is a not simulation language.
- a) Simula
 - b) Simscript
 - c) GPSS
 - d) All the above
- 9) In discrete system changes are
- a) Predominantly continuous
 - b) Depend on the system
 - c) Predominantly discrete
 - d) None of the above
- 10) Create a topology the syntax for creating 5 nodes
#create nodes
- a) Set n5 [\$ns node]
 - b) Set n4 [\$ns 5]
 - c) Set node [\$n 5]
 - d) N5 node [\$n5]
-



Seat No.	
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**T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND
SIMULATION**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

2. Attempt **any four (each 10 marks)** : **(4×10=40)**
- 1) Write short note on NS2. Advantages and disadvantages of simulation.
 - 2) Write OTcl code for following :
 Scenario for star topologies
 - 3) Explain steps in simulation study, with flow chart.
 - 4) What is query monitor ? Types of query monitor with an example.
 - 5) Explain in detail basic architecture of Network Simulator (NS2).
-



SLR-EP – 187 (c)

Seat No.	
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Set	Q
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T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND SIMULATION

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Max. Marks : 50

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in Answer Book Page No. 3. Each question carries one mark.
2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer :

(10×1=10)

- 1) In discrete system changes are
 - a) Predominantly continuous
 - b) Depend on the system
 - c) Predominantly discrete
 - d) None of the above
- 2) Create a topology the syntax for creating 5 nodes
#create nodes
 - a) Set n5 [\$ns node]
 - b) Set n4 [\$ns 5]
 - c) Set node [\$n 5]
 - d) N5 node [\$n5]
- 3) The syntax for run OTcl script, type
 - a) ns ex-tcl.tcl
 - b) tcl ex-tcl.tcl
 - c) both a) and b)
 - d) ex-tcl.tcl
- 4) _____ is a not simulation language.
 - a) Simula
 - b) Simscript
 - c) GPSS
 - d) All the above
- 5) Simulation always involves building a mathematical representation of a problem or process.
 - a) True
 - b) False

P.T.O.



- 6) Which of the following are advantages of simulation ?
- a) Simulation allows “what-if?” type of questions
 - b) Simulation can usually be performed by hand or using a small calculator
 - c) Simulation does not interfere with the real-world system
 - d) a) and c) only
- 7) The first step in simulation is to
- a) Set up possible courses of action for testing
 - b) Define the problem
 - c) Construct a numerical model
 - d) Validate the model
- 8) Simulation should be thought of as a technique for
- a) Increasing one’s understanding of a problem
 - b) Obtaining a relatively inexpensive solution to a problem
 - c) Obtaining an optimal solution to a problem
 - d) Providing quick and dirty answers to complex problems
- 9) Network simulator (NS2) consists of key languages.
- a) C++
 - b) OTcl
 - c) Both C++ and OTcl
 - d) JAVA
- 10) Correct to declare and initialize the variable in OTcl is
- a) Set x=1;
 - b) Set x:1
 - c) Set x<-1
 - d) Set x1
-



Seat No.	
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**T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND
SIMULATION**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

2. Attempt **any four (each 10 marks)** : **(4×10=40)**
- 1) Write short note on NS2. Advantages and disadvantages of simulation.
 - 2) Write OTcl code for following :
 Scenario for star topologies
 - 3) Explain steps in simulation study, with flow chart.
 - 4) What is query monitor ? Types of query monitor with an example.
 - 5) Explain in detail basic architecture of Network Simulator (NS2).
-



SLR-EP – 187 (c)

Seat No.	
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Set	R
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T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND SIMULATION

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Max. Marks : 50

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in Answer Book Page No. 3. Each question carries one mark.
2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer :

(10×1=10)

- 1) Network simulator (NS2) consists of key languages.
 - a) C++
 - b) OTcl
 - c) Both C++ and OTcl
 - d) JAVA
- 2) Correct to declare and initialize the variable in OTcl is
 - a) Set x=1;
 - b) Set x:1
 - c) Set x<-1
 - d) Set x1
- 3) In discrete system changes are
 - a) Predominantly continuous
 - b) Depend on the system
 - c) Predominantly discrete
 - d) None of the above
- 4) Create a topology the syntax for creating 5 nodes
#create nodes
 - a) Set n5 [\$ns node]
 - b) Set n4 [\$ns 5]
 - c) Set node [\$n 5]
 - d) N5 node [\$n5]

P.T.O.



- 5) The first step in simulation is to
 - a) Set up possible courses of action for testing
 - b) Define the problem
 - c) Construct a numerical model
 - d) Validate the model
 - 6) Simulation should be thought of as a technique for
 - a) Increasing one's understanding of a problem
 - b) Obtaining a relatively inexpensive solution to a problem
 - c) Obtaining an optimal solution to a problem
 - d) Providing quick and dirty answers to complex problems
 - 7) Simulation always involves building a mathematical representation of a problem or process.
 - a) True
 - b) False
 - 8) Which of the following are advantages of simulation ?
 - a) Simulation allows "what-if?" type of questions
 - b) Simulation can usually be performed by hand or using a small calculator
 - c) Simulation does not interfere with the real-world system
 - d) a) and c) only
 - 9) The syntax for run OTcl script, type
 - a) ns ex-tcl.tcl
 - b) tcl ex-tcl.tcl
 - c) both a) and b)
 - d) ex-tcl.tcl
 - 10) _____ is a not simulation language.
 - a) Simula
 - b) Simscript
 - c) GPSS
 - d) All the above
-



Seat No.	
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**T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND
SIMULATION**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

2. Attempt **any four (each 10 marks)** : **(4×10=40)**
- 1) Write short note on NS2. Advantages and disadvantages of simulation.
 - 2) Write OTcl code for following :
 Scenario for star topologies
 - 3) Explain steps in simulation study, with flow chart.
 - 4) What is query monitor ? Types of query monitor with an example.
 - 5) Explain in detail basic architecture of Network Simulator (NS2).
-



SLR-EP – 187 (c)

Seat No.	
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Set	S
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T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND SIMULATION

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Max. Marks : 50

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in Answer Book Page No. 3. Each question carries one mark.
2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer :

(10×1=10)

- 1) The first step in simulation is to
 - a) Set up possible courses of action for testing
 - b) Define the problem
 - c) Construct a numerical model
 - d) Validate the model
- 2) Simulation should be thought of as a technique for
 - a) Increasing one's understanding of a problem
 - b) Obtaining a relatively inexpensive solution to a problem
 - c) Obtaining an optimal solution to a problem
 - d) Providing quick and dirty answers to complex problems
- 3) Network simulator (NS2) consists of key languages.
 - a) C++
 - b) OTcl
 - c) Both C++ and OTcl
 - d) JAVA
- 4) Correct to declare and initialize the variable in OTcl is
 - a) Set x=1;
 - b) Set x:1
 - c) Set x<-1
 - d) Set x1

P.T.O.



- 5) The syntax for run OTcl script, type
- a) ns ex-tcl.tcl
 - b) tcl ex-tcl.tcl
 - c) both a) and b)
 - d) ex-tcl.tcl
- 6) _____ is a not simulation language.
- a) Simula
 - b) Simscript
 - c) GPSS
 - d) All the above
- 7) In discrete system changes are
- a) Predominantly continuous
 - b) Depend on the system
 - c) Predominantly discrete
 - d) None of the above
- 8) Create a topology the syntax for creating 5 nodes
#create nodes
- a) Set n5 [\$ns node]
 - b) Set n4 [\$ns 5]
 - c) Set node [\$n 5]
 - d) N5 node [\$n5]
- 9) Simulation always involves building a mathematical representation of a problem or process.
- a) True
 - b) False
- 10) Which of the following are advantages of simulation ?
- a) Simulation allows “what-if?” type of questions
 - b) Simulation can usually be performed by hand or using a small calculator
 - c) Simulation does not interfere with the real-world system
 - d) a) and c) only
-



Seat No.	
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**T.E. (C.S.E.) (Part – II) Examination, 2016
Self-Learning (HSS/Technical) – COMPUTER MODELING AND
SIMULATION**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

2. Attempt **any four (each 10 marks)** : **(4×10=40)**
- 1) Write short note on NS2. Advantages and disadvantages of simulation.
 - 2) Write OTcl code for following :
 Scenario for star topologies
 - 3) Explain steps in simulation study, with flow chart.
 - 4) What is query monitor ? Types of query monitor with an example.
 - 5) Explain in detail basic architecture of Network Simulator (NS2).
-



SLR-EP – 187 (a)

Seat No.	
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Set	P
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T.E. (CSE) (Part – II) Examination, 2016

SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)

Day and Date : Saturday, 26-11-2016

Max. Marks : 50

Time : 10.00 a.m. to 12.00 noon

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in Answer book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct alternative :

(10×1=10)

- 1) Which of the following is true regarding VLANs ?
 - A) You must have at least two VLANs defined in every Cisco switched network.
 - B) All VLANs are configured at the fastest switch and by default, propagate this information to all other switches.
 - C) You should not have more than 10 switches in the same VTP domain.
 - D) VTP is used to send VLAN information to switches in a configured VTP domain.
- 2) Where is a hub specified in the OSI model ?
 - A) Session layer
 - B) Physical layer
 - C) Data link layer
 - D) Application layer
- 3) Size of IP address is _____
 - A) 32 bit
 - B) 48 bit
 - C) 64 bit
 - D) 80 bit
- 4) An application-level protocol in which a few manager stations control a set of agents is called
 - A) HTML
 - B) TCP
 - C) SNMP
 - D) SNMP/IP

P.T.O.



- 5) NIC stand for
- A) Network Interface Card
 - B) National Interface Code
 - C) Network International Card
 - D) Network International Code
- 6) Switch is a _____ layer device.
- A) Session layer
 - B) Physical layer
 - C) Data link layer
 - D) All
- 7) The process of converting plain text into cipher text is called as _____
- A) Description
 - B) Encryption
 - C) Cryptography
 - D) None of these
- 8) _____ management is the set of functions that detect, isolate and correct malfunctions in a network.
- A) Fault
 - B) Network
 - C) Error
 - D) Device
- 9) ASN is _____
- A) Abstract Syntax Notation
 - B) Asynchronous Network
 - C) Asymmetric Node
 - D) Abstract Syntax Network
- 10) PORT number of HTTP is _____
- A) 20
 - B) 24
 - C) 26
 - D) 25
-



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
SELF LEARNING (HSS/ Technical) (Network Setup and Management Tools)**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

Attempt **any four** :

(10×4=40)

2. Explain network management architecture.
3. What is ASN 1 ? Explain in detail.
4. What is fault ? Explain how fault management works.
5. Write a note on host and user authentication.
6. Write a note on :
 - 1) Hub.
 - 2) Switches.

OR

Write a note on :

- 1) VLAN.
 - 2) Features of NIC.
-



SLR-EP – 187 (a)

Seat No.	
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Set	Q
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T.E. (CSE) (Part – II) Examination, 2016

SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)

Day and Date : Saturday, 26-11-2016

Max. Marks : 50

Time : 10.00 a.m. to 12.00 noon

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in Answer book

Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct alternative :

(10×1=10)

1) ASN is _____

A) Abstract Syntax Notation

B) Asynchronous Network

C) Asymmetric Node

D) Abstract Syntax Network

2) PORT number of HTTP is _____

A) 20

B) 24

C) 26

D) 25

3) The process of converting plain text into cipher text is called as _____

A) Description

B) Encryption

C) Cryptography

D) None of these

4) _____ management is the set of functions that detect, isolate and correct malfunctions in a network.

A) Fault

B) Network

C) Error

D) Device

P.T.O.



- 5) Which of the following is true regarding VLANs ?
- A) You must have at least two VLANs defined in every Cisco switched network.
 - B) All VLANs are configured at the fastest switch and by default, propagate this information to all other switches.
 - C) You should not have more than 10 switches in the same VTP domain.
 - D) VTP is used to send VLAN information to switches in a configured VTP domain.
- 6) Where is a hub specified in the OSI model ?
- A) Session layer
 - B) Physical layer
 - C) Data link layer
 - D) Application layer
- 7) Size of IP address is _____
- A) 32 bit
 - B) 48 bit
 - C) 64 bit
 - D) 80 bit
- 8) An application-level protocol in which a few manager stations control a set of agents is called
- A) HTML
 - B) TCP
 - C) SNMP
 - D) SNMP/IP
- 9) NIC stand for
- A) Network Interface Card
 - B) National Interface Code
 - C) Network International Card
 - D) Network International Code
- 10) Switch is a _____ layer device.
- A) Session layer
 - B) Physical layer
 - C) Data link layer
 - D) All
-



Seat No.	
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T.E. (CSE) (Part – II) Examination, 2016

SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)

Day and Date : Saturday, 26-11-2016

Marks : 40

Time : 10.00 a.m. to 12.00 noon

Attempt **any four** :

(10×4=40)

2. Explain network management architecture.
3. What is ASN 1 ? Explain in detail.
4. What is fault ? Explain how fault management works.
5. Write a note on host and user authentication.
6. Write a note on :
 - 1) Hub.
 - 2) Switches.

OR

Write a note on :

- 1) VLAN.
 - 2) Features of NIC.
-



SLR-EP – 187 (a)

Seat No.	
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T.E. (CSE) (Part – II) Examination, 2016

SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)

Day and Date : Saturday, 26-11-2016

Max. Marks : 50

Time : 10.00 a.m. to 12.00 noon

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in Answer book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct alternative :

(10×1=10)

1) NIC stand for

- | | |
|-------------------------------|-------------------------------|
| A) Network Interface Card | B) National Interface Code |
| C) Network International Card | D) Network International Code |

2) Switch is a _____ layer device.

- | | |
|--------------------|-------------------|
| A) Session layer | B) Physical layer |
| C) Data link layer | D) All |

3) ASN is _____

- | | |
|-----------------------------|----------------------------|
| A) Abstract Syntax Notation | B) Asynchronous Network |
| C) Asymmetric Node | D) Abstract Syntax Network |

4) PORT number of HTTP is _____

- | | | | |
|-------|-------|-------|-------|
| A) 20 | B) 24 | C) 26 | D) 25 |
|-------|-------|-------|-------|

5) Size of IP address is _____

- | | |
|-----------|-----------|
| A) 32 bit | B) 48 bit |
| C) 64 bit | D) 80 bit |

P.T.O.



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

Attempt **any four** :

(10×4=40)

2. Explain network management architecture.
3. What is ASN 1 ? Explain in detail.
4. What is fault ? Explain how fault management works.
5. Write a note on host and user authentication.
6. Write a note on :
 - 1) Hub.
 - 2) Switches.

OR

Write a note on :

- 1) VLAN.
 - 2) Features of NIC.
-



SLR-EP – 187 (a)

Seat No.	
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T.E. (CSE) (Part – II) Examination, 2016

SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)

Day and Date : Saturday, 26-11-2016

Max. Marks : 50

Time : 10.00 a.m. to 12.00 noon

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in Answer book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct alternative :

(10×1=10)

- 1) Size of IP address is _____
 - A) 32 bit
 - B) 48 bit
 - C) 64 bit
 - D) 80 bit
- 2) An application-level protocol in which a few manager stations control a set of agents is called
 - A) HTML
 - B) TCP
 - C) SNMP
 - D) SNMP/IP
- 3) NIC stand for
 - A) Network Interface Card
 - B) National Interface Code
 - C) Network International Card
 - D) Network International Code
- 4) Switch is a _____ layer device.
 - A) Session layer
 - B) Physical layer
 - C) Data link layer
 - D) All
- 5) The process of converting plain text into cipher text is called as _____
 - A) Description
 - B) Encryption
 - C) Cryptography
 - D) None of these

P.T.O.



Seat No.	
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**T.E. (CSE) (Part – II) Examination, 2016
SELF LEARNING (HSS/Technical) (Network Setup and Management Tools)**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 noon

Marks : 40

Attempt **any four** :

(10×4=40)

2. Explain network management architecture.
3. What is ASN 1 ? Explain in detail.
4. What is fault ? Explain how fault management works.
5. Write a note on host and user authentication.
6. Write a note on :
 - 1) Hub.
 - 2) Switches.

OR

Write a note on :

- 1) VLAN.
 - 2) Features of NIC.
-



SLR-EP – 187(b)

Seat No.	
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**T.E. (Computer Science and Engineering) (Part – II) Examination, 2016
SOFTWARE LICENSING AND PRACTICES (Self Learning)
(HSS/Technical)**

Day and Date : Saturday, 26-11-2016
Time : 10.00 a.m. to 12.00 Noon

Max. Marks : 50

Instruction : All questions are compulsory.

1. Answer **any five** of the following. **(5×6=30 Marks)**
- 1) What are issues pertaining to Copyrights and Patents ?
 - 2) Differentiate between Copyright and Patent.
 - 3) Briefly explain the Academic Free License.
 - 4) Write a short note on Creative Commons Licenses.
 - 5) What are possible negative effects of Open Source and Free Software Licensing.
 - 6) Define the following terms with respect of Open Source and Free Software Licensing.
 - a) Attribution
 - b) Share Alike
2. Answer **any two** of the following. **(2×10=20 Marks)**
- 1) Briefly discuss Legal impacts of Open Source and Free Software Licensing giving relevant examples highlighting the impacts.
 - 2) What are Non Open Sources Licenses ? How they differ from Open Source Licensing ? Briefly explain Microsoft shared source initiate.
 - 3) Compare between Proprietary and Non Proprietary Licenses. Exemplify each difference with proper example.
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Seat No.	
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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

(20×1=20)

1. Choose the correct answer :

- 1) What is Artificial intelligence ?
 - a) Putting your intelligence into Computer
 - b) Programming with your own intelligence
 - c) Making a Machine intelligent
 - d) Putting more memory into computer
 - e) None of the above
- 2) Which is not the commonly used programming language for AI ?
 - a) PROLOG
 - b) Java
 - c) LISP
 - d) Perl
 - e) Java script
- 3) What is state space ?
 - a) The whole problem
 - b) Your definition to a problem
 - c) Problem you design
 - d) Representing your problem with variable and parameter
 - e) A space where you know the solution
- 4) A production rule consists of
 - a) A set of rule
 - b) A sequence of steps
 - c) Both a) and b)
 - d) Arbitrary representation to problem
 - e) Directly getting solution
- 5) Which search method takes less memory ?
 - a) Depth-First search
 - b) Breadth-First search
 - c) Both a) and b)
 - d) Linear search
 - e) Optimal search
- 6) A heuristic is a way of trying
 - a) To discover something or an idea embedded in a program
 - b) To search and measure how far a node in a search tree seems to be from a goal
 - c) To compare two nodes in a search tree to see if one is better than the other
 - d) Only a) and b)
 - e) Only a), b) and c)
- 7) A* algorithm is based on
 - a) Breadth-First-Search
 - b) Depth-First-Search
 - c) Best-First-Search
 - d) Hill climbing
 - e) Bulkworld problem
- 8) Which is the best way to go for Game playing problem ?
 - a) Linear approach
 - b) Heuristic approach
 - c) Random approach
 - d) Optimal approach
 - e) Stratified approach

P.T.O.



- 9) How do you represent “All dogs have tails” ?
- a) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$ b) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$ c) $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
d) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$ e) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 10) Which is not a property of representation of knowledge ?
- a) Representational verification
b) Representational Adequacy
c) Inferential Adequacy
d) Inferential efficiency
e) Acquisitional efficiency
- 11) What are you predicating by the logic : $\forall x: \bullet y : \text{loyalto}(x, y)$?
- a) Everyone is loyal to someone
b) Everyone is loyal to all
c) Everyone is not loyal to someone
d) Everyone is loyal
e) Everyone is not loyal
- 12) Which is not Familiar Connectives in First Order Logic ?
- a) and b) iff c) or
d) not e) either a) or b)
- 13) Which is not a type of First Order Logic (FOL) Sentence ?
- a) Atomic sentences b) Complex sentences c) Quantified sentence
d) Quality sentence e) Simple sentence
- 14) Which is not a Goal-based agent ?
- a) Inference b) Search c) Planning
d) Conclusion e) Dynamic search
- 15) A plan that describe how to take actions in levels of increasing refinement and specificity is
- a) Problem solving b) Planning c) Non-hierarchical plan
d) Hierarchical plan e) Inheritance
- 16) Partial order planning involves
- a) Searching over the space of possible plans
b) Searching over possible situations
c) Searching the whole problem at once
d) Searching the best
e) Searching the goal
- 17) Uncertainty arises in the wumpus world because the agent’s sensors give only
- a) Full and global information b) Partial and global information
c) Partial and local information d) Full and local information
e) Global information only
- 18) A Hybrid Bayesian network contains
- a) Both discrete and continuous variables b) Only discrete variables
c) Both discrete and discontinuous variable d) Continuous variable only
e) None of the above
- 19) Which is not a desirable property of a logical rule-based system ?
- a) Locality b) Attachment c) Detachment
d) Truth-Functionality e) Global attribute
- 20) How is Fuzzy Logic different from conventional control methods ?
- a) IF and THEN Approach b) FOR Approach c) WHILE Approach
d) DO approach e) Else If approach



Seat No.	
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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- 1) What are the properties of knowledge and explain ?
 - 2) What are things to build a system to solve a particular problem ?
 - 3) With an example explain decomposable problem.
 - 4) With an example explain AND – OR graphs.
 - 5) Explain the mappings between facts and representations.
 - 6) What are the properties that a good system for the representation of knowledge in a particular domain should possess and explain briefly ?
3. Solve **any one** : **(1×10=10)**
- 1) With an example illustrate the differences between ignorable, recoverable and irrecoverable classes of problem.
 - 2) Explain A* Algorithm.
4. Explain Inferential Knowledge and procedural knowledge. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Represent the following facts in predicate logic :
Marcus was a man.
Marcus was a Pompein.
All Pompein were Romans.
Caesar was a ruler.
All Romans were either loyal to Caesar or hated him.
Everyone is loyal to someone.
 - 2) Explain the unification Algorithm.
 - 3) Explain the minimalist reasoning.
 - 4) Write a note on certainty factors and rule based system.
 - 5) Explain the semantic networks.
6. Attempt **any two** : **(2×10=20)**
- 1) Explain the restaurant script with important components.
 - 2) Explain Dempster shafer theory.
 - 3) Explain forward versus backward reasoning.



Seat No.	
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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Partial order planning involves
 - a) Searching over the space of possible plans
 - b) Searching over possible situations
 - c) Searching the whole problem at once
 - d) Searching the best
 - e) Searching the goal
- 2) Uncertainty arises in the wumpus world because the agent's sensors give only
 - a) Full and global information
 - b) Partial and global information
 - c) Partial and local information
 - d) Full and local information
 - e) Global information only
- 3) A Hybrid Bayesian network contains
 - a) Both discrete and continuous variables
 - b) Only discrete variables
 - c) Both discrete and discontinuous variable
 - d) Continuous variable only
 - e) None of the above
- 4) Which is not a desirable property of a logical rule-based system ?
 - a) Locality
 - b) Attachment
 - c) Detachment
 - d) Truth-Functionality
 - e) Global attribute
- 5) How is Fuzzy Logic different from conventional control methods ?
 - a) IF and THEN Approach
 - b) FOR Approach
 - c) WHILE Approach
 - d) DO approach
 - e) Else If approach
- 6) What is Artificial intelligence ?
 - a) Putting your intelligence into Computer
 - b) Programming with your own intelligence
 - c) Making a Machine intelligent
 - d) Putting more memory into computer
 - e) None of the above
- 7) Which is not the commonly used programming language for AI ?
 - a) PROLOG
 - b) Java
 - c) LISP
 - d) Perl
 - e) Java script
- 8) What is state space ?
 - a) The whole problem
 - b) Your definition to a problem
 - c) Problem you design
 - d) Representing your problem with variable and parameter
 - e) A space where you know the solution

P.T.O.



- 9) A production rule consists of
- A set of rule
 - A sequence of steps
 - Both a) and b)
 - Arbitrary representation to problem
 - Directly getting solution
- 10) Which search method takes less memory ?
- Depth-First search
 - Breadth-First search
 - Both a) and b)
 - Linear search
 - Optimal search
- 11) A heuristic is a way of trying
- To discover something or an idea embedded in a program
 - To search and measure how far a node in a search tree seems to be from a goal
 - To compare two nodes in a search tree to see if one is better than the other
 - Only a) and b)
 - Only a), b) and c)
- 12) A* algorithm is based on
- Breadth-First-Search
 - Depth-First-Search
 - Best-First-Search
 - Hill climbing
 - Bulkworld problem
- 13) Which is the best way to go for Game playing problem ?
- Linear approach
 - Heuristic approach
 - Random approach
 - Optimal approach
 - Stratified approach
- 14) How do you represent “All dogs have tails” ?
- $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
 - $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 - $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 15) Which is not a property of representation of knowledge ?
- Representational verification
 - Representational Adequacy
 - Inferential Adequacy
 - Inferential efficiency
 - Acquisitional efficiency
- 16) What are you predicating by the logic : $\forall x: \bullet y : \text{loyalto}(x, y)$?
- Everyone is loyal to someone
 - Everyone is loyal to all
 - Everyone is not loyal to someone
 - Everyone is loyal
 - Everyone is not loyal
- 17) Which is not Familiar Connectives in First Order Logic ?
- and
 - iff
 - or
 - not
 - either a) or b)
- 18) Which is not a type of First Order Logic (FOL) Sentence ?
- Atomic sentences
 - Complex sentences
 - Quantified sentence
 - Quality sentence
 - Simple sentence
- 19) Which is not a Goal-based agent ?
- Inference
 - Search
 - Planning
 - Conclusion
 - Dynamic search
- 20) A plan that describe how to take actions in levels of increasing refinement and specificity is
- Problem solving
 - Planning
 - Non-hierarchical plan
 - Hierarchical plan
 - Inheritance



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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- 1) What are the properties of knowledge and explain ?
 - 2) What are things to build a system to solve a particular problem ?
 - 3) With an example explain decomposable problem.
 - 4) With an example explain AND – OR graphs.
 - 5) Explain the mappings between facts and representations.
 - 6) What are the properties that a good system for the representation of knowledge in a particular domain should possess and explain briefly ?
3. Solve **any one** : **(1×10=10)**
- 1) With an example illustrate the differences between ignorable, recoverable and irrecoverable classes of problem.
 - 2) Explain A* Algorithm.
4. Explain Inferential Knowledge and procedural knowledge. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Represent the following facts in predicate logic :
Marcus was a man.
Marcus was a Pompein.
All Pompein were Romans.
Caesar was a ruler.
All Romans were either loyal to Caesar or hated him.
Everyone is loyal to someone.
 - 2) Explain the unification Algorithm.
 - 3) Explain the minimalist reasoning.
 - 4) Write a note on certainty factors and rule based system.
 - 5) Explain the semantic networks.
6. Attempt **any two** : **(2×10=20)**
- 1) Explain the restaurant script with important components.
 - 2) Explain Dempster shafer theory.
 - 3) Explain forward versus backward reasoning.



Seat No.	
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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) What are you predicating by the logic : $\forall x: \bullet y : \text{loyalto}(x, y)$?
 - a) Everyone is loyal to someone
 - b) Everyone is loyal to all
 - c) Everyone is not loyal to someone
 - d) Everyone is loyal
 - e) Everyone is not loyal
- 2) Which is not Familiar Connectives in First Order Logic ?
 - a) and
 - b) iff
 - c) or
 - d) not
 - e) either a) or b)
- 3) Which is not a type of First Order Logic (FOL) Sentence ?
 - a) Atomic sentences
 - b) Complex sentences
 - c) Quantified sentence
 - d) Quality sentence
 - e) Simple sentence
- 4) Which is not a Goal-based agent ?
 - a) Inference
 - b) Search
 - c) Planning
 - d) Conclusion
 - e) Dynamic search
- 5) A plan that describe how to take actions in levels of increasing refinement and specificity is
 - a) Problem solving
 - b) Planning
 - c) Non-hierarchical plan
 - d) Hierarchical plan
 - e) Inheritance
- 6) Partial order planning involves
 - a) Searching over the space of possible plans
 - b) Searching over possible situations
 - c) Searching the whole problem at once
 - d) Searching the best
 - e) Searching the goal
- 7) Uncertainty arises in the wumpus world because the agent's sensors give only
 - a) Full and global information
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 - c) Partial and local information
 - d) Full and local information
 - e) Global information only
- 8) A Hybrid Bayesian network contains
 - a) Both discrete and continuous variables
 - b) Only discrete variables
 - c) Both discrete and discontinuous variable
 - d) Continuous variable only
 - e) None of the above



- 9) Which is not a desirable property of a logical rule-based system ?
 a) Locality b) Attachment c) Detachment
 d) Truth-Functionality e) Global attribute
- 10) How is Fuzzy Logic different from conventional control methods ?
 a) IF and THEN Approach b) FOR Approach c) WHILE Approach
 d) DO approach e) Else If approach
- 11) What is Artificial intelligence ?
 a) Putting your intelligence into Computer
 b) Programming with your own intelligence
 c) Making a Machine intelligent
 d) Putting more memory into computer
 e) None of the above
- 12) Which is not the commonly used programming language for AI ?
 a) PROLOG b) Java c) LISP
 d) Perl e) Java script
- 13) What is state space ?
 a) The whole problem
 b) Your definition to a problem
 c) Problem you design
 d) Representing your problem with variable and parameter
 e) A space where you know the solution
- 14) A production rule consists of
 a) A set of rule b) A sequence of steps
 c) Both a) and b) d) Arbitrary representation to problem
 e) Directly getting solution
- 15) Which search method takes less memory ?
 a) Depth-First search b) Breadth-First search c) Both a) and b)
 d) Linear search e) Optimal search
- 16) A heuristic is a way of trying
 a) To discover something or an idea embedded in a program
 b) To search and measure how far a node in a search tree seems to be from a goal
 c) To compare two nodes in a search tree to see if one is better than the other
 d) Only a) and b)
 e) Only a), b) and c)
- 17) A* algorithm is based on
 a) Breadth-First-Search b) Depth-First-Search c) Best-First-Search
 d) Hill climbing e) Bulkworld problem
- 18) Which is the best way to go for Game playing problem ?
 a) Linear approach b) Heuristic approach c) Random approach
 d) Optimal approach e) Stratified approach
- 19) How do you represent "All dogs have tails" ?
 a) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$ b) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$ c) $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 d) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$ e) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 20) Which is not a property of representation of knowledge ?
 a) Representational verification
 b) Representational Adequacy
 c) Inferential Adequacy
 d) Inferential efficiency
 e) Acquisitional efficiency



Seat No.	
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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- 1) What are the properties of knowledge and explain ?
 - 2) What are things to build a system to solve a particular problem ?
 - 3) With an example explain decomposable problem.
 - 4) With an example explain AND – OR graphs.
 - 5) Explain the mappings between facts and representations.
 - 6) What are the properties that a good system for the representation of knowledge in a particular domain should possess and explain briefly ?
3. Solve **any one** : **(1×10=10)**
- 1) With an example illustrate the differences between ignorable, recoverable and irrecoverable classes of problem.
 - 2) Explain A* Algorithm.
4. Explain Inferential Knowledge and procedural knowledge. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Represent the following facts in predicate logic :
Marcus was a man.
Marcus was a Pompein.
All Pompein were Romans.
Caesar was a ruler.
All Romans were either loyal to Caesar or hated him.
Everyone is loyal to someone.
 - 2) Explain the unification Algorithm.
 - 3) Explain the minimalist reasoning.
 - 4) Write a note on certainty factors and rule based system.
 - 5) Explain the semantic networks.
6. Attempt **any two** : **(2×10=20)**
- 1) Explain the restaurant script with important components.
 - 2) Explain Dempster shafer theory.
 - 3) Explain forward versus backward reasoning.



Seat No.	
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T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A heuristic is a way of trying
 - a) To discover something or an idea embedded in a program
 - b) To search and measure how far a node in a search tree seems to be from a goal
 - c) To compare two nodes in a search tree to see if one is better than the other
 - d) Only a) and b)
 - e) Only a), b) and c)
- 2) A* algorithm is based on
 - a) Breadth-First-Search
 - b) Depth-First-Search
 - c) Best-First-Search
 - d) Hill climbing
 - e) Bulkworld problem
- 3) Which is the best way to go for Game playing problem ?
 - a) Linear approach
 - b) Heuristic approach
 - c) Random approach
 - d) Optimal approach
 - e) Stratified approach
- 4) How do you represent "All dogs have tails" ?
 - a) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - b) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
 - c) $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 - d) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - e) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 5) Which is not a property of representation of knowledge ?
 - a) Representational verification
 - b) Representational Adequacy
 - c) Inferential Adequacy
 - d) Inferential efficiency
 - e) Acquisitional efficiency
- 6) What are you predicating by the logic : $\forall x: \bullet y : \text{loyalto}(x, y)$?
 - a) Everyone is loyal to someone
 - b) Everyone is loyal to all
 - c) Everyone is not loyal to someone
 - d) Everyone is loyal
 - e) Everyone is not loyal
- 7) Which is not Familiar Connectives in First Order Logic ?
 - a) and
 - b) iff
 - c) or
 - d) not
 - e) either a) or b)
- 8) Which is not a type of First Order Logic (FOL) Sentence ?
 - a) Atomic sentences
 - b) Complex sentences
 - c) Quantified sentence
 - d) Quality sentence
 - e) Simple sentence

P.T.O.



- 9) Which is not a Goal-based agent ?
a) Inference b) Search c) Planning
d) Conclusion e) Dynamic search
- 10) A plan that describe how to take actions in levels of increasing refinement and specificity is
a) Problem solving b) Planning c) Non-hierarchical plan
d) Hierarchical plan e) Inheritance
- 11) Partial order planning involves
a) Searching over the space of possible plans
b) Searching over possible situations
c) Searching the whole problem at once
d) Searching the best
e) Searching the goal
- 12) Uncertainty arises in the wumpus world because the agent's sensors give only
a) Full and global information b) Partial and global information
c) Partial and local information d) Full and local information
e) Global information only
- 13) A Hybrid Bayesian network contains
a) Both discrete and continuous variables b) Only discrete variables
c) Both discrete and discontinuous variable d) Continuous variable only
e) None of the above
- 14) Which is not a desirable property of a logical rule-based system ?
a) Locality b) Attachment c) Detachment
d) Truth-Functionality e) Global attribute
- 15) How is Fuzzy Logic different from conventional control methods ?
a) IF and THEN Approach b) FOR Approach c) WHILE Approach
d) DO approach e) Else If approach
- 16) What is Artificial intelligence ?
a) Putting your intelligence into Computer
b) Programming with your own intelligence
c) Making a Machine intelligent
d) Putting more memory into computer
e) None of the above
- 17) Which is not the commonly used programming language for AI ?
a) PROLOG b) Java c) LISP
d) Perl e) Java script
- 18) What is state space ?
a) The whole problem
b) Your definition to a problem
c) Problem you design
d) Representing your problem with variable and parameter
e) A space where you know the solution
- 19) A production rule consists of
a) A set of rule b) A sequence of steps
c) Both a) and b) d) Arbitrary representation to problem
e) Directly getting solution
- 20) Which search method takes less memory ?
a) Depth-First search b) Breadth-First search c) Both a) and b)
d) Linear search e) Optimal search
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Seat No.	
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**T.E. (CSE) (Part – II) (Old) Examination, 2016
ARTIFICIAL INTELLIGENCE**

Day and Date : Saturday, 10-12-2016
Time : 10.00 a.m. to 1.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- 1) What are the properties of knowledge and explain ?
 - 2) What are things to build a system to solve a particular problem ?
 - 3) With an example explain decomposable problem.
 - 4) With an example explain AND – OR graphs.
 - 5) Explain the mappings between facts and representations.
 - 6) What are the properties that a good system for the representation of knowledge in a particular domain should possess and explain briefly ?
3. Solve **any one** : **(1×10=10)**
- 1) With an example illustrate the differences between ignorable, recoverable and irrecoverable classes of problem.
 - 2) Explain A* Algorithm.
4. Explain Inferential Knowledge and procedural knowledge. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Represent the following facts in predicate logic :
Marcus was a man.
Marcus was a Pompein.
All Pompein were Romans.
Caesar was a ruler.
All Romans were either loyal to Caesar or hated him.
Everyone is loyal to someone.
 - 2) Explain the unification Algorithm.
 - 3) Explain the minimalist reasoning.
 - 4) Write a note on certainty factors and rule based system.
 - 5) Explain the semantic networks.
6. Attempt **any two** : **(2×10=20)**
- 1) Explain the restaurant script with important components.
 - 2) Explain Dempster shafer theory.
 - 3) Explain forward versus backward reasoning.



SLR-EP –189

Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Vector processor is categorized as
 - a) SISD
 - b) SIMD
 - c) MISD
 - d) MIMD
- 2) RAW hazard between two instructions i and j occurs when
 - a) instruction j attempts to read some object that is being modified by instruction i
 - b) instruction i and j read the same data
 - c) instruction i and j writes in the same memory
 - d) instruction i and j writes in the register
- 3) True dependence means
 - a) WAR
 - b) WAW
 - c) RAW
 - d) RAR
- 4) Thread synchronization is required because
 - a) all threads of a process share the same address space
 - b) all threads of a process share the same global variables
 - c) all threads of a process can share the same files
 - d) all of these
- 5) The hazards arise from the pipelining of branches and other instructions that changes the PC are
 - a) control hazards
 - b) data hazards
 - c) structural hazards
 - d) none
- 6) Termination of the process terminates
 - a) first thread of the process
 - b) first two threads of the process
 - c) all threads within the process
 - d) no thread within the process
- 7) In static resolution methods, of reducing branch penalties, the problem of resolution is done by
 - a) loader
 - b) linker
 - c) compiler
 - d) operating system
- 8) Vector processor typically consists of
 - a) an ordinary pipelined scalar unit
 - b) a vector unit
 - c) both a) and b)
 - d) none of these

P.T.O.



- 9) Register renaming is method to resolve
a) RAW b) WAW c) RAR d) None
- 10) What is the correct sequence, of , stages of instruction execution in pipelined environment ?
a) IF ID EX MEM WB b) ID IF EX WB MEM
c) IF ID WB EX MEM d) IF ID EX WB MEM
- 11) Data Flow Computer is not suitable for
a) LSI b) MSI c) VLSI d) None of these
- 12) Iterative Computations are represented by
a) Control flow graph b) Cyclic DFG c) Acyclic DFG d) None of these
- 13) _____ is a special operator which has one output arc and transmits its input value unchanged.
a) Decider b) Merge c) Identity d) F-gate
- 14) _____ and _____ are examples of Data flow languages.
a) DI, VAL b) ID, VLA c) ID, AVL d) ID, VAL
- 15) SIMD Architecture is based on _____ and Steven Ungers Paper.
a) Cellular Network b) Cellular Automata
c) Cellular Graph d) None of above
- 16) First SIMD Machine built using Long range connections and Crossbar Network is
a) MasPar b) MPP c) CLIP4 d) Illiac – IV
- 17) _____ is a fundamental problem of Scalable Computers.
a) Remote Load b) Interconnection Network
c) Processor Design d) All of above
- 18) Which among following is an example of NUMA Machines ?
a) KSR – 1 b) DDM c) Cray T3D d) DASH
- 19) Peak Performance of CM5 is
a) 64 MFLOPS b) 100 MFLOPS c) 128 MFLOPS d) 90 MFLOPS
- 20) A system with few data element per PE is
a) Fine-Grained b) Coarse-Grained
c) Middle Grained d) None of these
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) What is static branch prediction? Explain any one method.
 - b) Explain 2 bit saturating counter method used for predicting branch outcome.
 - c) Explain the concept of concurrent and parallel execution.
 - d) Discuss the notion of process and thread. Also explain process spawning.
 - e) What is vector processing ? How it is different than the simple pipelining ?
3. Attempt **any one** :
- a) Draw and explain basic vector architecture. **10**
 - b) What are the steps involved in scheduling the process ? Explain the two aspects of scheduling policy– pre-emption rule and selection rule. **10**
4. What is Branch Target Buffer (BTB) ? Draw flowchart for its functioning and explain. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain Trees and Graphs along with Advantages of Quad Tree.
 - b) Explain Problems of Scalable Computers.
 - c) Explain Distributed Memory MIMD architecture along with its advantages and disadvantages.
 - d) Draw and explain structure of MPP Processing element.
 - e) What are the various Operator types for Constructing Data Flow Graphs ?



6. Explain MPP System with suitable diagram. **10**

OR

List and explain classes of distributed shared Memory. **10**

7. Explain coarse-grained SIMD architecture and its overview along with its advantages and disadvantages. **10**



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**

- 1) First SIMD Machine built using Long range connections and Crossbar Network is
a) MasPar b) MPP c) CLIP4 d) Illiac – IV
- 2) _____ is a fundamental problem of Scalable Computers.
a) Remote Load b) Interconnection Network
c) Processor Design d) All of above
- 3) Which among following is an example of NUMA Machines ?
a) KSR – 1 b) DDM c) Cray T3D d) DASH
- 4) Peak Performance of CM5 is
a) 64 MFLOPS b) 100 MFLOPS c) 128 MFLOPS d) 90 MFLOPS
- 5) A system with few data element per PE is
a) Fine-Grained b) Coarse-Grained
c) Middle Grained d) None of these
- 6) Vector processor is categorized as
a) SISD b) SIMD c) MISD d) MIMD
- 7) RAW hazard between two instructions i and j occurs when
a) instruction j attempts to read some object that is being modified by instruction i
b) instruction i and j read the same data
c) instruction i and j writes in the same memory
d) instruction i and j writes in the register
- 8) True dependence means
a) WAR b) WAW c) RAW d) RAR
- 9) Thread synchronization is required because
a) all threads of a process share the same address space
b) all threads of a process share the same global variables
c) all threads of a process can share the same files
d) all of these



- 10) The hazards arise from the pipelining of branches and other instructions that changes the PC are
- a) control hazards
 - b) data hazards
 - c) structural hazards
 - d) none
- 11) Termination of the process terminates
- a) first thread of the process
 - b) first two threads of the process
 - c) all threads within the process
 - d) no thread within the process
- 12) In static resolution methods, of reducing branch penalties, the problem of resolution is done by
- a) loader
 - b) linker
 - c) compiler
 - d) operating system
- 13) Vector processor typically consists of
- a) an ordinary pipelined scalar unit
 - b) a vector unit
 - c) both a) and b)
 - d) none of these
- 14) Register renaming is method to resolve
- a) RAW
 - b) WAW
 - c) RAR
 - d) None
- 15) What is the correct sequence, of , stages of instruction execution in pipelined environment ?
- a) IF ID EX MEM WB
 - b) ID IF EX WB MEM
 - c) IF ID WB EX MEM
 - d) IF ID EX WB MEM
- 16) Data Flow Computer is not suitable for
- a) LSI
 - b) MSI
 - c) VLSI
 - d) None of these
- 17) Iterative Computations are represented by
- a) Control flow graph
 - b) Cyclic DFG
 - c) Acyclic DFG
 - d) None of these
- 18) _____ is a special operator which has one output arc and transmits its input value unchanged.
- a) Decider
 - b) Merge
 - c) Identity
 - d) F-gate
- 19) _____ and _____ are examples of Data flow languages.
- a) DI, VAL
 - b) ID, VLA
 - c) ID, AVL
 - d) ID, VAL
- 20) SIMD Architecture is based on _____ and Steven Ungers Paper.
- a) Cellular Network
 - b) Cellular Automata
 - c) Cellular Graph
 - d) None of above
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) What is static branch prediction? Explain any one method.
 - b) Explain 2 bit saturating counter method used for predicting branch outcome.
 - c) Explain the concept of concurrent and parallel execution.
 - d) Discuss the notion of process and thread. Also explain process spawning.
 - e) What is vector processing ? How it is different than the simple pipelining ?
3. Attempt **any one** :
- a) Draw and explain basic vector architecture. **10**
 - b) What are the steps involved in scheduling the process ? Explain the two aspects of scheduling policy– pre-emption rule and selection rule. **10**
4. What is Branch Target Buffer (BTB) ? Draw flowchart for its functioning and explain. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain Trees and Graphs along with Advantages of Quad Tree.
 - b) Explain Problems of Scalable Computers.
 - c) Explain Distributed Memory MIMD architecture along with its advantages and disadvantages.
 - d) Draw and explain structure of MPP Processing element.
 - e) What are the various Operator types for Constructing Data Flow Graphs ?



6. Explain MPP System with suitable diagram. **10**

OR

List and explain classes of distributed shared Memory. **10**

7. Explain coarse-grained SIMD architecture and its overview along with its advantages and disadvantages. **10**



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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Data Flow Computer is not suitable for
a) LSI b) MSI c) VLSI d) None of these
- 2) Iterative Computations are represented by
a) Control flow graph b) Cyclic DFG c) Acyclic DFG d) None of these
- 3) _____ is a special operator which has one output arc and transmits its input value unchanged.
a) Decider b) Merge c) Identity d) F-gate
- 4) _____ and _____ are examples of Data flow languages.
a) DI, VAL b) ID, VLA c) ID, AVL d) ID, VAL
- 5) SIMD Architecture is based on _____ and Steven Ungers Paper.
a) Cellular Network b) Cellular Automata
c) Cellular Graph d) None of above
- 6) First SIMD Machine built using Long range connections and Crossbar Network is
a) MasPar b) MPP c) CLIP4 d) Illiac – IV
- 7) _____ is a fundamental problem of Scalable Computers.
a) Remote Load b) Interconnection Network
c) Processor Design d) All of above
- 8) Which among following is an example of NUMA Machines ?
a) KSR – 1 b) DDM c) Cray T3D d) DASH
- 9) Peak Performance of CM5 is
a) 64 MFLOPS b) 100 MFLOPS c) 128 MFLOPS d) 90 MFLOPS
- 10) A system with few data element per PE is
a) Fine-Grained b) Coarse-Grained
c) Middle Grained d) None of these
- 11) Vector processor is categorized as
a) SISD b) SIMD c) MISD d) MIMD



- 12) RAW hazard between two instructions i and j occurs when
- a) instruction j attempts to read some object that is being modified by instruction i
 - b) instruction i and j read the same data
 - c) instruction i and j writes in the same memory
 - d) instruction i and j writes in the register
- 13) True dependence means
- a) WAR
 - b) WAW
 - c) RAW
 - d) RAR
- 14) Thread synchronization is required because
- a) all threads of a process share the same address space
 - b) all threads of a process share the same global variables
 - c) all threads of a process can share the same files
 - d) all of these
- 15) The hazards arise from the pipelining of branches and other instructions that changes the PC are
- a) control hazards
 - b) data hazards
 - c) structural hazards
 - d) none
- 16) Termination of the process terminates
- a) first thread of the process
 - b) first two threads of the process
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- 17) In static resolution methods, of reducing branch penalties, the problem of resolution is done by
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- 18) Vector processor typically consists of
- a) an ordinary pipelined scalar unit
 - b) a vector unit
 - c) both a) and b)
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- 19) Register renaming is method to resolve
- a) RAW
 - b) WAW
 - c) RAR
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- 20) What is the correct sequence, of , stages of instruction execution in pipelined environment ?
- a) IF ID EX MEM WB
 - b) ID IF EX WB MEM
 - c) IF ID WB EX MEM
 - d) IF ID EX WB MEM
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) What is static branch prediction? Explain any one method.
 - b) Explain 2 bit saturating counter method used for predicting branch outcome.
 - c) Explain the concept of concurrent and parallel execution.
 - d) Discuss the notion of process and thread. Also explain process spawning.
 - e) What is vector processing ? How it is different than the simple pipelining ?
3. Attempt **any one** :
- a) Draw and explain basic vector architecture. **10**
 - b) What are the steps involved in scheduling the process ? Explain the two aspects of scheduling policy– pre-emption rule and selection rule. **10**
4. What is Branch Target Buffer (BTB) ? Draw flowchart for its functioning and explain. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain Trees and Graphs along with Advantages of Quad Tree.
 - b) Explain Problems of Scalable Computers.
 - c) Explain Distributed Memory MIMD architecture along with its advantages and disadvantages.
 - d) Draw and explain structure of MPP Processing element.
 - e) What are the various Operator types for Constructing Data Flow Graphs ?



6. Explain MPP System with suitable diagram. **10**

OR

List and explain classes of distributed shared Memory. **10**

7. Explain coarse-grained SIMD architecture and its overview along with its advantages and disadvantages. **10**



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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**
- 1) Termination of the process terminates
 - a) first thread of the process
 - b) first two threads of the process
 - c) all threads within the process
 - d) no thread within the process
 - 2) In static resolution methods, of reducing branch penalties, the problem of resolution is done by
 - a) loader
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 - c) compiler
 - d) operating system
 - 3) Vector processor typically consists of
 - a) an ordinary pipelined scalar unit
 - b) a vector unit
 - c) both a) and b)
 - d) none of these
 - 4) Register renaming is method to resolve
 - a) RAW
 - b) WAW
 - c) RAR
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 - 5) What is the correct sequence, of, stages of instruction execution in pipelined environment ?
 - a) IF ID EX MEM WB
 - b) ID IF EX WB MEM
 - c) IF ID WB EX MEM
 - d) IF ID EX WB MEM
 - 6) Data Flow Computer is not suitable for
 - a) LSI
 - b) MSI
 - c) VLSI
 - d) None of these
 - 7) Iterative Computations are represented by
 - a) Control flow graph
 - b) Cyclic DFG
 - c) Acyclic DFG
 - d) None of these
 - 8) _____ is a special operator which has one output arc and transmits its input value unchanged.
 - a) Decider
 - b) Merge
 - c) Identity
 - d) F-gate
 - 9) _____ and _____ are examples of Data flow languages.
 - a) DI, VAL
 - b) ID, VLA
 - c) ID, AVL
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 - 10) SIMD Architecture is based on _____ and Steven Ungers Paper.
 - a) Cellular Network
 - b) Cellular Automata
 - c) Cellular Graph
 - d) None of above



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 - a) MasPar
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 - 12) _____ is a fundamental problem of Scalable Computers.
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 - b) Interconnection Network
 - c) Processor Design
 - d) All of above
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 - d) DASH
 - 14) Peak Performance of CM5 is
 - a) 64 MFLOPS
 - b) 100 MFLOPS
 - c) 128 MFLOPS
 - d) 90 MFLOPS
 - 15) A system with few data element per PE is
 - a) Fine-Grained
 - b) Coarse-Grained
 - c) Middle Grained
 - d) None of these
 - 16) Vector processor is categorized as
 - a) SISD
 - b) SIMD
 - c) MISD
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 - 17) RAW hazard between two instructions i and j occurs when
 - a) instruction j attempts to read some object that is being modified by instruction i
 - b) instruction i and j read the same data
 - c) instruction i and j writes in the same memory
 - d) instruction i and j writes in the register
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 - a) all threads of a process share the same address space
 - b) all threads of a process share the same global variables
 - c) all threads of a process can share the same files
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 - 20) The hazards arise from the pipelining of branches and other instructions that changes the PC are
 - a) control hazards
 - b) data hazards
 - c) structural hazards
 - d) none
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
ADVANCED COMPUTER ARCHITECTURE**

Day and Date : Tuesday, 29-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- a) What is static branch prediction? Explain any one method.
 - b) Explain 2 bit saturating counter method used for predicting branch outcome.
 - c) Explain the concept of concurrent and parallel execution.
 - d) Discuss the notion of process and thread. Also explain process spawning.
 - e) What is vector processing ? How it is different than the simple pipelining ?
3. Attempt **any one** :
- a) Draw and explain basic vector architecture. **10**
 - b) What are the steps involved in scheduling the process ? Explain the two aspects of scheduling policy– pre-emption rule and selection rule. **10**
4. What is Branch Target Buffer (BTB) ? Draw flowchart for its functioning and explain. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- a) Explain Trees and Graphs along with Advantages of Quad Tree.
 - b) Explain Problems of Scalable Computers.
 - c) Explain Distributed Memory MIMD architecture along with its advantages and disadvantages.
 - d) Draw and explain structure of MPP Processing element.
 - e) What are the various Operator types for Constructing Data Flow Graphs ?



6. Explain MPP System with suitable diagram. **10**

OR

List and explain classes of distributed shared Memory. **10**

7. Explain coarse-grained SIMD architecture and its overview along with its advantages and disadvantages. **10**



- 7) In _____ deadlock handling strategy, a process has to acquire all the needed resources simultaneously before it begins execution or by preempting a process that holds the needed resource.
- a) Deadlock prevention b) Deadlock avoidance
c) Deadlock detection and recovery d) All the above
- 8) A clock is said to be perfect if
- a) $dC/dt > 1$ b) $dC/dt < 1$ c) $dC/dt = 1$ d) $dC/dt = 0$
- 9) Happened before relation is
- a) Transitive b) Reflexive c) Commutative d) All of these
- 10) _____ semantics is used for converting non idempotent routines to idempotent.
- a) At least once b) Exactly once c) Last one d) All of the above
- 11) In VMTP protocol, the maximum size of segment data is _____
- a) 32k bytes b) 16k bytes c) 512 bytes d) 256 bytes
- 12) _____ is not possible in distributed file system.
- a) File replication b) Migration c) Client interface d) Remote access
- 13) _____ mechanism allows forming a single hierarchically structured namespace in building distributed file system.
- a) Mounting b) Caching
c) Hints d) Bulk Data Transfer
- 14) The Richart-Agarwala algorithm requires _____ messages per critical section execution for n number of sites.
- a) $2n$ b) $2(n - 1)$ c) $2n + 1$ d) $n - 1$
- 15) In _____ algorithm used for implementation of distributed shared memory, a concept of gap-sequencer is used.
- a) Read-replication algorithm b) Full-replication algorithm
c) Central server algorithm d) Migration algorithm
- 16) A _____ policy of load distribution algorithm is based on threshold.
- a) Transfer policy b) Selection policy
c) Location policy d) Information policy
- 17) _____ layer of grid consists of authentication protocols.
- a) Fabric b) Connectivity c) Resource d) Collective
- 18) Gnutella is a
- a) Information grid b) Resource grid
c) Computational grid d) Service grid
- 19) _____ encrypts a Private-address and stores the corresponding PublicAddress in the routing table of the packet switch.
- a) flip_unicast b) flip_multicast c) flip_Init d) flip_register
- 20) The major components of a service-oriented cycle are
- a) Discover b) Interact c) Advertise d) All



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
DISTRIBUTED SYSTEMS**

Day and Date : Thursday, 1-12-2016
Time : 3.00 p.m. to 6.00 p.m

Marks : 80

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

SECTION – I

2. Answer **any four** questions : **(4×5=20)**
- a) With diagram list four important features of workstation server model of distributed computing system.
 - b) List five important comparisons of monolithic and microkernel model.
 - c) What is non idempotent routine ? How are these routines handled by IPC Protocol ?
 - d) Give five important features of VMTP (Versatile Message Transfer Protocol) used for distributed systems.
 - e) With example, explain Bully election algorithm.
3. Answer **any one** question : **(1×10=10)**
- a) Explain with diagram the structure of RPC and the binding server approach used for binding client to server in RPC.
 - b) Illustrate with diagram the implementation of logical clocks using :
 - i) Counter
 - ii) Physical clock.
4. What are mult Datagram messages ? Explain the working to blast protocol used for transmission of these messages. **10**

SECTION – II

5. Answer **any four** questions : **(4×5=20)**
- a) Illustrate with example, the non-token based distributed algorithm used for implementation of mutual exclusion.
 - b) What is distributed file system ? Explain the two important goals of a distributed file system.

Set P



- c) What is memory coherence ? Explain write-invalidate and write-update protocols.
 - d) State the requirements for load distribution.
 - e) With diagram, explain Grid Protocol architecture and its layers.
6. Answer **any one** question : **(1×10=10)**
- a) Explain different mechanisms for building distributed file systems.
 - b) What are different control organizations for distributed deadlock detection ? Explain each in detail.
7. Explain the components of a load distribution algorithm. **10**
-



- 9) In _____ model, the ratio of the number of processors to the number of users is normally greater than one.
- a) Minicomputer model b) Processor pool model
c) Workstation model d) All the above
- 10) _____ semantics is used with file systems built using file transfer model.
- a) UNIX File Semantics b) Session Semantics
c) Immutable Shared-file Semantics d) Transaction-like Semantics
- 11) In distributed mutual exclusion, _____ algorithm use timestamps of messages for solving conflicts between simultaneous requests for the critical section.
- a) Token-based b) Non-token based
c) Both d) None
- 12) In _____ deadlock handling strategy, a process has to acquire all the needed resources simultaneously before it begins execution or by preempting a process that holds the needed resource.
- a) Deadlock prevention b) Deadlock avoidance
c) Deadlock detection and recovery d) All the above
- 13) A clock is said to be perfect if
- a) $dC/dt > 1$ b) $dC/dt < 1$ c) $dC/dt = 1$ d) $dC/dt = 0$
- 14) Happened before relation is
- a) Transitive b) Reflexive c) Commutative d) All of these
- 15) _____ semantics is used for converting non idempotent routines to idempotent.
- a) At least once b) Exactly once c) Last one d) All of the above
- 16) In VMTP protocol, the maximum size of segment data is _____
- a) 32k bytes b) 16k bytes c) 512 bytes d) 256 bytes
- 17) _____ is not possible in distributed file system.
- a) File replication b) Migration c) Client interface d) Remote access
- 18) _____ mechanism allows forming a single hierarchically structured namespace in building distributed file system.
- a) Mounting b) Caching
c) Hints d) Bulk Data Transfer
- 19) The Richart-Agarwala algorithm requires _____ messages per critical section execution for n number of sites.
- a) $2n$ b) $2(n - 1)$ c) $2n + 1$ d) $n - 1$
- 20) In _____ algorithm used for implementation of distributed shared memory, a concept of gap-sequencer is used.
- a) Read-replication algorithm b) Full-replication algorithm
c) Central server algorithm d) Migration algorithm



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
DISTRIBUTED SYSTEMS**

Day and Date : Thursday, 1-12-2016
Time : 3.00 p.m. to 6.00 p.m

Marks : 80

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

SECTION – I

2. Answer **any four** questions : **(4×5=20)**
- a) With diagram list four important features of workstation server model of distributed computing system.
 - b) List five important comparisons of monolithic and microkernel model.
 - c) What is non idempotent routine ? How are these routines handled by IPC Protocol ?
 - d) Give five important features of VMTP (Versatile Message Transfer Protocol) used for distributed systems.
 - e) With example, explain Bully election algorithm.
3. Answer **any one** question : **(1×10=10)**
- a) Explain with diagram the structure of RPC and the binding server approach used for binding client to server in RPC.
 - b) Illustrate with diagram the implementation of logical clocks using :
 - i) Counter
 - ii) Physical clock.
4. What are multidatagram messages ? Explain the working to blast protocol used for transmission of these messages. **10**

SECTION – II

5. Answer **any four** questions : **(4×5=20)**
- a) Illustrate with example, the non-token based distributed algorithm used for implementation of mutual exclusion.
 - b) What is distributed file system ? Explain the two important goals of a distributed file system.

Set Q



- c) What is memory coherence ? Explain write-invalidate and write-update protocols.
 - d) State the requirements for load distribution.
 - e) With diagram, explain Grid Protocol architecture and its layers.
6. Answer **any one** question : **(1×10=10)**
- a) Explain different mechanisms for building distributed file systems.
 - b) What are different control organizations for distributed deadlock detection ? Explain each in detail.
7. Explain the components of a load distribution algorithm. **10**
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Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
DISTRIBUTED SYSTEMS**

Day and Date : Thursday, 1-12-2016
Time : 3.00 p.m. to 6.00 p.m

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) **Figures to the right indicate full marks.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) In VMTP protocol, the maximum size of segment data is _____
a) 32k bytes b) 16k bytes c) 512 bytes d) 256 bytes
- 2) _____ is not possible in distributed file system.
a) File replication b) Migration c) Client interface d) Remote access
- 3) _____ mechanism allows forming a single hierarchically structured namespace in building distributed file system.
a) Mounting b) Caching
c) Hints d) Bulk Data Transfer
- 4) The Richart-Agarwala algorithm requires _____ messages per critical section execution for n number of sites.
a) 2n b) 2(n – 1) c) 2n + 1 d) n – 1
- 5) In _____ algorithm used for implementation of distributed shared memory, a concept of gap-sequencer is used.
a) Read-replication algorithm b) Full-replication algorithm
c) Central server algorithm d) Migration algorithm
- 6) A _____ policy of load distribution algorithm is based on threshold.
a) Transfer policy b) Selection policy
c) Location policy d) Information policy
- 7) _____ layer of grid consists of authentication protocols.
a) Fabric b) Connectivity c) Resource d) Collective
- 8) Gnutella is a
a) Information grid b) Resource grid
c) Computational grid d) Service grid

P.T.O.



- 9) _____ encrypts a Private-address and stores the corresponding PublicAddress in the routing table of the packet switch.
a) flip_unicast b) flip_multicast c) flip_Init d) flip_register
- 10) The major components of a service-oriented cycle are
a) Discover b) Interact c) Advertise d) All
- 11) Which of the following is not the component of DCE ?
a) RPC b) DTS
c) Security services d) None of the above
- 12) Which of the following is a guideline to design better scalable distributed systems ?
a) Avoid centralized entities b) Avoid centralized algorithms
c) Both a and b d) Neither a nor b
- 13) Which of the following is not the feature of distributed system ?
a) It is a collection of processors
b) Processors communicate with one another through high-speed buses
c) Processing must be done within defined constraint or system will fail
d) Each processor has its own local memory
- 14) In _____ model, the ratio of the number of processors to the number of users is normally greater than one.
a) Minicomputer model b) Processor pool model
c) Workstation model d) All the above
- 15) _____ semantics is used with file systems built using file transfer model.
a) UNIX File Semantics b) Session Semantics
c) Immutable Shared-file Semantics d) Transaction-like Semantics
- 16) In distributed mutual exclusion, _____ algorithm use timestamps of messages for solving conflicts between simultaneous requests for the critical section.
a) Token-based b) Non-token based
c) Both d) None
- 17) In _____ deadlock handling strategy, a process has to acquire all the needed resources simultaneously before it begins execution or by preempting a process that holds the needed resource.
a) Deadlock prevention b) Deadlock avoidance
c) Deadlock detection and recovery d) All the above
- 18) A clock is said to be perfect if
a) $dC/dt > 1$ b) $dC/dt < 1$ c) $dC/dt = 1$ d) $dC/dt = 0$
- 19) Happened before relation is
a) Transitive b) Reflexive c) Commutative d) All of these
- 20) _____ semantics is used for converting non idempotent routines to idempotent.
a) At least once b) Exactly once c) Last one d) All of the above



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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
DISTRIBUTED SYSTEMS**

Day and Date : Thursday, 1-12-2016
Time : 3.00 p.m. to 6.00 p.m

Marks : 80

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

SECTION – I

2. Answer **any four** questions : **(4×5=20)**
- a) With diagram list four important features of workstation server model of distributed computing system.
 - b) List five important comparisons of monolithic and microkernel model.
 - c) What is non idempotent routine ? How are these routines handled by IPC Protocol ?
 - d) Give five important features of VMTP (Versatile Message Transfer Protocol) used for distributed systems.
 - e) With example, explain Bully election algorithm.
3. Answer **any one** question : **(1×10=10)**
- a) Explain with diagram the structure of RPC and the binding server approach used for binding client to server in RPC.
 - b) Illustrate with diagram the implementation of logical clocks using :
 - i) Counter
 - ii) Physical clock.
4. What are mult Datagram messages ? Explain the working to blast protocol used for transmission of these messages. **10**

SECTION – II

5. Answer **any four** questions : **(4×5=20)**
- a) Illustrate with example, the non-token based distributed algorithm used for implementation of mutual exclusion.
 - b) What is distributed file system ? Explain the two important goals of a distributed file system.

Set R



- c) What is memory coherence ? Explain write-invalidate and write-update protocols.
 - d) State the requirements for load distribution.
 - e) With diagram, explain Grid Protocol architecture and its layers.
6. Answer **any one** question : **(1×10=10)**
- a) Explain different mechanisms for building distributed file systems.
 - b) What are different control organizations for distributed deadlock detection ? Explain each in detail.
7. Explain the components of a load distribution algorithm. **10**
-



- 9) The Richart-Agarwala algorithm requires _____ messages per critical section execution for n number of sites.
a) $2n$ b) $2(n - 1)$ c) $2n + 1$ d) $n - 1$
- 10) In _____ algorithm used for implementation of distributed shared memory, a concept of gap-sequencer is used.
a) Read-replication algorithm b) Full-replication algorithm
c) Central server algorithm d) Migration algorithm
- 11) A _____ policy of load distribution algorithm is based on threshold.
a) Transfer policy b) Selection policy
c) Location policy d) Information policy
- 12) _____ layer of grid consists of authentication protocols.
a) Fabric b) Connectivity c) Resource d) Collective
- 13) Gnutella is a
a) Information grid b) Resource grid
c) Computational grid d) Service grid
- 14) _____ encrypts a Private-address and stores the corresponding PublicAddress in the routing table of the packet switch.
a) flip_unicast b) flip_multicast c) flip_Init d) flip_register
- 15) The major components of a service-oriented cycle are
a) Discover b) Interact c) Advertise d) All
- 16) Which of the following is not the component of DCE ?
a) RPC b) DTS
c) Security services d) None of the above
- 17) Which of the following is a guideline to design better scalable distributed systems ?
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- 18) Which of the following is not the feature of distributed system ?
a) It is a collection of processors
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c) Processing must be done within defined constraint or system will fail
d) Each processor has its own local memory
- 19) In _____ model, the ratio of the number of processors to the number of users is normally greater than one.
a) Minicomputer model b) Processor pool model
c) Workstation model d) All the above
- 20) _____ semantics is used with file systems built using file transfer model.
a) UNIX File Semantics b) Session Semantics
c) Immutable Shared-file Semantics d) Transaction-like Semantics



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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
DISTRIBUTED SYSTEMS**

Day and Date : Thursday, 1-12-2016
Time : 3.00 p.m. to 6.00 p.m

Marks : 80

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

SECTION – I

2. Answer **any four** questions : **(4×5=20)**
- a) With diagram list four important features of workstation server model of distributed computing system.
 - b) List five important comparisons of monolithic and microkernel model.
 - c) What is non idempotent routine ? How are these routines handled by IPC Protocol ?
 - d) Give five important features of VMTP (Versatile Message Transfer Protocol) used for distributed systems.
 - e) With example, explain Bully election algorithm.
3. Answer **any one** question : **(1×10=10)**
- a) Explain with diagram the structure of RPC and the binding server approach used for binding client to server in RPC.
 - b) Illustrate with diagram the implementation of logical clocks using :
 - i) Counter
 - ii) Physical clock.
4. What are mult Datagram messages ? Explain the working to blast protocol used for transmission of these messages. **10**

SECTION – II

5. Answer **any four** questions : **(4×5=20)**
- a) Illustrate with example, the non-token based distributed algorithm used for implementation of mutual exclusion.
 - b) What is distributed file system ? Explain the two important goals of a distributed file system.

Set S



- c) What is memory coherence ? Explain write-invalidate and write-update protocols.
 - d) State the requirements for load distribution.
 - e) With diagram, explain Grid Protocol architecture and its layers.
6. Answer **any one** question : **(1×10=10)**
- a) Explain different mechanisms for building distributed file systems.
 - b) What are different control organizations for distributed deadlock detection ? Explain each in detail.
7. Explain the components of a load distribution algorithm. **10**
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Seat No.	
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Set	P
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

(20×1=20)

- 1) _____ process is not a process of transaction server.
a) Server b) Lock manager c) Log writer d) Recovery
- 2) Which of the following is a form of data transparency ?
a) Fragmentation b) Replication c) Location d) All the above
- 3) In majority protocol, _____ messages are required for handling lock requests.
a) $n/2$ b) $2(n/2 + 1)$ c) $n - 1$ d) None of the above
- 4) In vertical fragmentation, the relation is partitioned
a) Key wise b) Row wise c) Attribute wise d) None
- 5) Range partitioning is best suited for
a) Point queries b) Range queries
c) Both a) and b) d) None
- 6) Read and write quorum must satisfy the condition
a) $Q_r + Q_w = S$ b) $Q_r + Q_w > S$ c) $2 * Q_w > S$ d) Both b) and c)
- 7) If there are M partitions of relation r and N partitions of relation s, then asymmetric fragment and replicate join requires _____ processors.
a) $M = 1$ b) N c) $M \times N$ d) M
- 8) The operation of changing dimensions used in cross tabulation is called
a) Slicing b) Pivoting c) Dicing d) All the above
- 9) A table containing multidimensional data is called as
a) Super table b) Sub table c) Fact table d) None

P.T.O.



- 10) Cube operation generates _____ groups for N attributes.
a) N^2 b) $N - 1$ c) $\log N$ d) 2^N
- 11) The process of transforming a 1NF relation into a nested relation is called
a) Nesting b) Unnesting c) Reference d) Multiset
- 12) Most NoSQL databases support automatic _____, meaning that you get high availability and disaster recovery.
a) Processing b) Scalability
c) Replication d) All of the mentioned
- 13) _____ can best be described as a programming model used to develop Hadoop-based applications that can process massive amounts of data.
a) MapReduce b) Mahout c) Oozie d) All of the mentioned
- 14) Which of the following is the most important consideration while designing the schema for MongoDB ?
a) The schema should match the data access and query patterns
b) The schema should be kept in 3NF similar to SQL schemas
c) The schema should focus on creating possible embedded documents
d) The schema should contain maximum indexes
- 15) MongoDB provides high _____ with replica sets.
a) Performance b) Availability
c) Scalability d) None of the mentioned
- 16) _____ takes a query evaluation plan, executes that plan and returns the answers to the query.
a) Optimizer b) Parser and translator
c) Query execution Engine d) Data
- 17) _____ is an unordered collection, where an element may occur multiple times.
a) Array b) Multiset c) Create type d) Structure type
- 18) _____ has the world's largest Hadoop cluster.
a) Apple b) Datamatics
c) Facebook d) None of the mentioned
- 19) MongoDB has been adopted as _____ software by a number of major websites and services.
a) Frontend b) Backend
c) Proprietary d) All of the mentioned
- 20) The term _____ refer to a join of the form $r \bowtie r.A = s.B$ where A and B are the attributes of relations r and s respectively.
a) semi join b) nested join c) hash join d) equi join



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(5×4=20)**
- a) Explain two types of fragmentation with example.
 - b) Explain two cases of fragment and replicate join with diagram.
 - c) What is data mining ? Explain knowledge discovery from data.
 - d) Draw the diagram of system architecture and explain its components.
 - i) Transaction manager
 - ii) Transaction coordinator.
 - e) What is data warehouse ? Explain its architecture with diagram.
3. Answer **any one** : **10**
- a) Explain data servers and its various issues.
 - b) Explain four architectural models of parallel system with diagram.
4. Explain the working of 2PC protocol and handling of site failure in it. **10**

SECTION – II

5. Answer the following questions : **(5×4=20)**
- 1) Explain structure type with example in object based databases.
 - 2) Differentiate between SQL and NoSQL.
 - 3) Write in short Hadoop component's developer name and component description.
 - 4) Explain External Sort-Merge Algorithm in detail.
 - 5) What is evaluation plan ? Write the steps in cost-based query optimization.
6. How object identity and reference types are applied in object based databases ? Explain in detail. **10**
7. What is big data ? Explain the need of big data and list the features of big data. **10**

OR

What are the assumptions of Hash-join algorithm ? Write the pseudo code of Hash join algorithm to compute the natural join of relations r and s.



- 8) In majority protocol, _____ messages are required for handling lock requests.
a) $n/2$ b) $2(n/2 + 1)$ c) $n - 1$ d) None of the above
- 9) In vertical fragmentation, the relation is partitioned
a) Key wise b) Row wise c) Attribute wise d) None
- 10) Range partitioning is best suited for
a) Point queries b) Range queries
c) Both a) and b) d) None
- 11) Read and write quorum must satisfy the condition
a) $Q_r + Q_w = S$ b) $Q_r + Q_w > S$ c) $2 * Q_w > S$ d) Both b) and c)
- 12) If there are M partitions of relation r and N partitions of relation s, then asymmetric fragment and replicate join requires _____ processors.
a) $M = 1$ b) N c) $M \times N$ d) M
- 13) The operation of changing dimensions used in cross tabulation is called
a) Slicing b) Pivoting c) Dicing d) All the above
- 14) A table containing multidimensional data is called as
a) Super table b) Sub table c) Fact table d) None
- 15) Cube operation generates _____ groups for N attributes.
a) N^2 b) $N - 1$ c) $\log N$ d) 2^N
- 16) The process of transforming a 1NF relation into a nested relation is called
a) Nesting b) Unnesting c) Reference d) Multiset
- 17) Most NoSQL databases support automatic _____, meaning that you get high availability and disaster recovery.
a) Processing b) Scalability
c) Replication d) All of the mentioned
- 18) _____ can best be described as a programming model used to develop Hadoop-based applications that can process massive amounts of data.
a) MapReduce b) Mahout c) Oozie d) All of the mentioned
- 19) Which of the following is the most important consideration while designing the schema for MongoDB ?
a) The schema should match the data access and query patterns
b) The schema should be kept in 3NF similar to SQL schemas
c) The schema should focus on creating possible embedded documents
d) The schema should contain maximum indexes
- 20) MongoDB provides high _____ with replica sets.
a) Performance b) Availability
c) Scalability d) None of the mentioned



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(5×4=20)**
- a) Explain two types of fragmentation with example.
 - b) Explain two cases of fragment and replicate join with diagram.
 - c) What is data mining ? Explain knowledge discovery from data.
 - d) Draw the diagram of system architecture and explain its components.
 - i) Transaction manager
 - ii) Transaction coordinator.
 - e) What is data warehouse ? Explain its architecture with diagram.
3. Answer **any one** : **10**
- a) Explain data servers and its various issues.
 - b) Explain four architectural models of parallel system with diagram.
4. Explain the working of 2PC protocol and handling of site failure in it. **10**

SECTION – II

5. Answer the following questions : **(5×4=20)**
- 1) Explain structure type with example in object based databases.
 - 2) Differentiate between SQL and NoSQL.
 - 3) Write in short Hadoop component's developer name and component description.
 - 4) Explain External Sort-Merge Algorithm in detail.
 - 5) What is evaluation plan ? Write the steps in cost-based query optimization.
6. How object identity and reference types are applied in object based databases ? Explain in detail. **10**
7. What is big data ? Explain the need of big data and list the features of big data. **10**

OR

What are the assumptions of Hash-join algorithm ? Write the pseudo code of Hash join algorithm to compute the natural join of relations r and s.



SLR-EP – 191

Seat No.	
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Set	R
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

(20×1=20)

- 1) The process of transforming a 1NF relation into a nested relation is called
 - a) Nesting
 - b) Unnesting
 - c) Reference
 - d) Multiset
- 2) Most NoSQL databases support automatic _____, meaning that you get high availability and disaster recovery.
 - a) Processing
 - b) Scalability
 - c) Replication
 - d) All of the mentioned
- 3) _____ can best be described as a programming model used to develop Hadoop-based applications that can process massive amounts of data.
 - a) MapReduce
 - b) Mahout
 - c) Oozie
 - d) All of the mentioned
- 4) Which of the following is the most important consideration while designing the schema for MongoDB ?
 - a) The schema should match the data access and query patterns
 - b) The schema should be kept in 3NF similar to SQL schemas
 - c) The schema should focus on creating possible embedded documents
 - d) The schema should contain maximum indexes
- 5) MongoDB provides high _____ with replica sets.
 - a) Performance
 - b) Availability
 - c) Scalability
 - d) None of the mentioned
- 6) _____ takes a query evaluation plan, executes that plan and returns the answers to the query.
 - a) Optimizer
 - b) Parser and translator
 - c) Query execution Engine
 - d) Data

P.T.O.



- 7) _____ is an unordered collection, where an element may occur multiple times.
a) Array b) Multiset c) Create type d) Structure type
- 8) _____ has the world's largest Hadoop cluster.
a) Apple b) Datamatics
c) Facebook d) None of the mentioned
- 9) MongoDB has been adopted as _____ software by a number of major websites and services.
a) Frontend b) Backend
c) Proprietary d) All of the mentioned
- 10) The term _____ refer to a join of the form $r \bowtie r.A = s.B$ where A and B are the attributes of relations r and s respectively.
a) semi join b) nested join c) hash join d) equi join
- 11) _____ process is not a process of transaction server.
a) Server b) Lock manager c) Log writer d) Recovery
- 12) Which of the following is a form of data transparency ?
a) Fragmentation b) Replication c) Location d) All the above
- 13) In majority protocol, _____ messages are required for handling lock requests.
a) $n/2$ b) $2(n/2 + 1)$ c) $n - 1$ d) None of the above
- 14) In vertical fragmentation, the relation is partitioned
a) Key wise b) Row wise c) Attribute wise d) None
- 15) Range partitioning is best suited for
a) Point queries b) Range queries
c) Both a) and b) d) None
- 16) Read and write quorum must satisfy the condition
a) $Q_r + Q_w = S$ b) $Q_r + Q_w > S$ c) $2 * Q_w > S$ d) Both b) and c)
- 17) If there are M partitions of relation r and N partitions of relation s, then asymmetric fragment and replicate join requires _____ processors.
a) $M = 1$ b) N c) $M \times N$ d) M
- 18) The operation of changing dimensions used in cross tabulation is called
a) Slicing b) Pivoting c) Dicing d) All the above
- 19) A table containing multidimensional data is called as
a) Super table b) Sub table c) Fact table d) None
- 20) Cube operation generates _____ groups for N attributes.
a) N^2 b) $N - 1$ c) $\log N$ d) 2^N



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(5×4=20)**
- a) Explain two types of fragmentation with example.
 - b) Explain two cases of fragment and replicate join with diagram.
 - c) What is data mining ? Explain knowledge discovery from data.
 - d) Draw the diagram of system architecture and explain its components.
 - i) Transaction manager
 - ii) Transaction coordinator.
 - e) What is data warehouse ? Explain its architecture with diagram.
3. Answer **any one** : **10**
- a) Explain data servers and its various issues.
 - b) Explain four architectural models of parallel system with diagram.
4. Explain the working of 2PC protocol and handling of site failure in it. **10**

SECTION – II

5. Answer the following questions : **(5×4=20)**
- 1) Explain structure type with example in object based databases.
 - 2) Differentiate between SQL and NoSQL.
 - 3) Write in short Hadoop component's developer name and component description.
 - 4) Explain External Sort-Merge Algorithm in detail.
 - 5) What is evaluation plan ? Write the steps in cost-based query optimization.
6. How object identity and reference types are applied in object based databases ? Explain in detail. **10**
7. What is big data ? Explain the need of big data and list the features of big data. **10**

OR

What are the assumptions of Hash-join algorithm ? Write the pseudo code of Hash join algorithm to compute the natural join of relations r and s.



Seat No.	
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Set	S
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

(20×1=20)

- 1) Read and write quorum must satisfy the condition
a) $Q_r + Q_w = S$ b) $Q_r + Q_w > S$ c) $2 * Q_w > S$ d) Both b) and c)
- 2) If there are M partitions of relation r and N partitions of relation s, then asymmetric fragment and replicate join requires _____ processors.
a) $M = 1$ b) N c) $M \times N$ d) M
- 3) The operation of changing dimensions used in cross tabulation is called
a) Slicing b) Pivoting c) Dicing d) All the above
- 4) A table containing multidimensional data is called as
a) Super table b) Sub table c) Fact table d) None
- 5) Cube operation generates _____ groups for N attributes.
a) N^2 b) $N - 1$ c) $\log N$ d) 2^N
- 6) The process of transforming a 1NF relation into a nested relation is called
a) Nesting b) Unnesting c) Reference d) Multiset
- 7) Most NoSQL databases support automatic _____, meaning that you get high availability and disaster recovery.
a) Processing b) Scalability
c) Replication d) All of the mentioned
- 8) _____ can best be described as a programming model used to develop Hadoop-based applications that can process massive amounts of data.
a) MapReduce b) Mahout c) Oozie d) All of the mentioned



- 9) Which of the following is the most important consideration while designing the schema for MongoDB ?
- The schema should match the data access and query patterns
 - The schema should be kept in 3NF similar to SQL schemas
 - The schema should focus on creating possible embedded documents
 - The schema should contain maximum indexes
- 10) MongoDB provides high _____ with replica sets.
- Performance
 - Availability
 - Scalability
 - None of the mentioned
- 11) _____ takes a query evaluation plan, executes that plan and returns the answers to the query.
- Optimizer
 - Parser and translator
 - Query execution Engine
 - Data
- 12) _____ is an unordered collection, where an element may occur multiple times.
- Array
 - Multiset
 - Create type
 - Structure type
- 13) _____ has the world's largest Hadoop cluster.
- Apple
 - Datamatics
 - Facebook
 - None of the mentioned
- 14) MongoDB has been adopted as _____ software by a number of major websites and services.
- Frontend
 - Backend
 - Proprietary
 - All of the mentioned
- 15) The term _____ refer to a join of the form $r \bowtie r.A = s.B$ where A and B are the attributes of relations r and s respectively.
- semi join
 - nested join
 - hash join
 - equi join
- 16) _____ process is not a process of transaction server.
- Server
 - Lock manager
 - Log writer
 - Recovery
- 17) Which of the following is a form of data transparency ?
- Fragmentation
 - Replication
 - Location
 - All the above
- 18) In majority protocol, _____ messages are required for handling lock requests.
- $n/2$
 - $2(n/2 + 1)$
 - $n - 1$
 - None of the above
- 19) In vertical fragmentation, the relation is partitioned
- Key wise
 - Row wise
 - Attribute wise
 - None
- 20) Range partitioning is best suited for
- Point queries
 - Range queries
 - Both a) and b)
 - None



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
MODERN DATABASE SYSTEMS**

Day and Date : Saturday, 3-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** : **(5×4=20)**
- a) Explain two types of fragmentation with example.
 - b) Explain two cases of fragment and replicate join with diagram.
 - c) What is data mining ? Explain knowledge discovery from data.
 - d) Draw the diagram of system architecture and explain its components.
 - i) Transaction manager
 - ii) Transaction coordinator.
 - e) What is data warehouse ? Explain its architecture with diagram.
3. Answer **any one** : **10**
- a) Explain data servers and its various issues.
 - b) Explain four architectural models of parallel system with diagram.
4. Explain the working of 2PC protocol and handling of site failure in it. **10**

SECTION – II

5. Answer the following questions : **(5×4=20)**
- 1) Explain structure type with example in object based databases.
 - 2) Differentiate between SQL and NoSQL.
 - 3) Write in short Hadoop component's developer name and component description.
 - 4) Explain External Sort-Merge Algorithm in detail.
 - 5) What is evaluation plan ? Write the steps in cost-based query optimization.
6. How object identity and reference types are applied in object based databases ? Explain in detail. **10**
7. What is big data ? Explain the need of big data and list the features of big data. **10**

OR

What are the assumptions of Hash-join algorithm ? Write the pseudo code of Hash join algorithm to compute the natural join of relations r and s.



SLR-EP – 194

Seat No.	
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Set **P**

**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct the alternatives :

(20×1=20)

- 1) The read and write quorum must satisfy the condition
a) $Q_r + Q_w = S$ b) $Q_r + Q_w < S$ c) $Q_r + Q_w > S$ d) $Q_r = Q_w$
- 2) Today's General purpose computer systems provide
a) Coarse-Granularity Parallelism b) Fine-Granularity Parallelism
c) Both a) and b) d) Neither a) nor b)
- 3) In path expressions, for object references, the symbol used is
a) * b) . c) → d) :
- 4) In _____ Parallelism, transaction throughput is increased.
a) Inter query b) Intra query
c) Intra operation d) All of the above
- 5) OMG stands for
a) Operational Management Group
b) Objective Management Group
c) Operational Manipulation Group
d) Object Management Group
- 6) The operation of changing dimensions used in a cross-tab is called
a) Slicing b) Dicing c) Pivoting d) Roll up
- 7) The selection operation distributes over _____ operation.
a) Union b) Set difference
c) Intersection d) All the above
- 8) Some of the columns of a relation are at different sites in which of the following ?
a) Horizontal fragmentation
b) Horizontal and vertical fragmentation
c) Vertical fragmentation
d) Data replication

P.T.O.



- 9) Parallel Execution of multiple individual operations within a given query is called _____ parallelism.
a) Interoperation b) Interquery c) Intraoperation d) Intraquery
- 10) The task of correcting and preprocessing the data is called
a) Data warehousing b) Data cleaning
c) Data mining d) None of these
- 11) The task of deduplication is called as
a) Householding b) Merge-purge
c) View-maintenance d) Redundancy
- 12) TPC – D Benchmark is used
a) To test the performance of the core database system
b) To test the performance of the database systems on decision-support queries
c) To simulate a typical bank application
d) To concentrate on order-entry environment
- 13) Tables containing multidimensional data are called
a) Super Tables b) Fact Tables c) Star Tables d) Sub Tables
- 14) _____ is a measure of fraction of population of how often the consequent is true when antecedent is true.
a) Support b) Population c) Confidence d) None of these
- 15) In data warehousing ETL stands for
a) Emerging, Translation, Loading b) Extract, Transformation, Legacy
c) Extract, Transform, Load d) None of the above
- 16) For n relations, there are _____ different join orders.
a) 2^n b) $(2(n - 1))/(n - 1)!$
c) $2n$ d) $2(n - 1)$
- 17) _____ are standardized sets of tasks that help to characterize the performance of database systems.
a) Legacy systems b) Benchmarks
c) Bottlenecks d) Materialized views
- 18) Bayesian and support vector machine are two types of
a) Classification algorithms
b) Hierarchical clustering algorithms
c) Association rule mining algorithms
d) Collaborative filtering algorithms
- 19) Which architecture of workflow management system has one scheduler instantiated for each workflow ?
a) Centralised Architecture b) Fully distributed architecture
c) Partially distributed architecture d) None of the above
- 20) A homogeneous distributed database is which of the following ?
a) The same DBMS is used at each location and data are not distributed across all nodes
b) The same DBMS is used at each location and data are distributed across all nodes
c) A different DBMS is used at each location and data are not distributed across all nodes
d) A different DBMS is used at each location and data are distributed across all nodes



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

II. Attempt **any four** : (4×5=20)

- 1) Explain the features of parallel systems.
- 2) Explain parallel external-sort merge algorithm.
- 3) A car-rental company maintains a vehicle database for all the vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer, model, date of purchase and color. Special data are included for certain types of vehicles.
 - Trucks : cargo capacity
 - Sports cars : horsepower, renter age requirement
 - Vans : number of passengers
 - Construct an SQL : 1999 schema definition for this databse. Use inheritance where appropriate.
- 4) Write the steps is semi join operation.
- 5) Describe the benefits and drawbacks of pipelined parallelism.

III. Answer **any one** : 10

- 1) Explain 3 partitioning techniques and compare them.
- 2) What is the objective of 2-phase commit protocol ? Explain its working and its ability to handle failure of participating site.

IV. Explain two approaches for Distributed Data storage along with their advantages and disadvantages. 10

SECTION – II

V. Answer **any 4** : (4×5=20)

- 1) Write the queries for the operations.
 - a) cube
 - b) roll up
 - c) rank() and dense rank ()
 - d) ntile()
 - e) windowing
- 2) Explain three architectural approaches to workflow management system.
- 3) Explain nested-loop join and its cost analysis.

Set P



- 4) List five important features of main-memory databases.
- 5) Explain the following search algorithms with their cost estimates.
A2(Primary index, Equality on key)
A3(Primary index, Equality on nonkey)

VI. Answer **any one** :

10

- 1) What are Decision Support Systems ? Explain several issues of Decision Support Systems.
- 2) Explain real time transaction systems with its key properties.

VII. Draw the architecture of data warehouse and explain the data warehouse schema's.

10



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

II. Attempt **any four** : (4×5=20)

- 1) Explain the features of parallel systems.
- 2) Explain parallel external-sort merge algorithm.
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 - Trucks : cargo capacity
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 - Construct an SQL : 1999 schema definition for this databse. Use inheritance where appropriate.
- 4) Write the steps is semi join operation.
- 5) Describe the benefits and drawbacks of pipelined parallelism.

III. Answer **any one** : 10

- 1) Explain 3 partitioning techniques and compare them.
- 2) What is the objective of 2-phase commit protocol ? Explain its working and its ability to handle failure of participating site.

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SECTION – II

V. Answer **any 4** : (4×5=20)

- 1) Write the queries for the operations.
 - a) cube
 - b) roll up
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 - d) ntile()
 - e) windowing
- 2) Explain three architectural approaches to workflow management system.
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Set Q



- 4) List five important features of main-memory databases.
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A3(Primary index, Equality on nonkey)

VI. Answer **any one** :

10

- 1) What are Decision Support Systems ? Explain several issues of Decision Support Systems.
- 2) Explain real time transaction systems with its key properties.

VII. Draw the architecture of data warehouse and explain the data warehouse schema's.

10



Seat No.	
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Set

R

**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct the alternatives :

(20×1=20)

- 1) The task of deduplication is called as
 - a) Householding
 - b) Merge-purge
 - c) View-maintenance
 - d) Redundancy
- 2) TPC – D Benchmark is used
 - a) To test the performance of the core database system
 - b) To test the performance of the database systems on decision-support queries
 - c) To simulate a typical bank application
 - d) To concentrate on order-entry environment
- 3) Tables containing multidimensional data are called
 - a) Super Tables
 - b) Fact Tables
 - c) Star Tables
 - d) Sub Tables
- 4) _____ is a measure of fraction of population of how often the consequent is true when antecedent is true.
 - a) Support
 - b) Population
 - c) Confidence
 - d) None of these
- 5) In data warehousing ETL stands for
 - a) Emerging, Translation, Loading
 - b) Extract, Transformation, Legacy
 - c) Extract, Transform, Load
 - d) None of the above
- 6) For n relations, there are _____ different join orders.
 - a) 2^n
 - b) $(2(n - 1))!/(n - 1)!$
 - c) $2n$
 - d) $2(n - 1)$
- 7) _____ are standardized sets of tasks that help to characterize the performance of database systems.
 - a) Legacy systems
 - b) Benchmarks
 - c) Bottlenecks
 - d) Materialized views
- 8) Bayesian and support vector machine are two types of
 - a) Classification algorithms
 - b) Hierarchical clustering algorithms
 - c) Association rule mining algorithms
 - d) Collaborative filtering algorithms

P.T.O.



- 9) Which architecture of workflow management system has one scheduler instantiated for each workflow ?
- a) Centralised Architecture b) Fully distributed architecture
c) Partially distributed architecture d) None of the above
- 10) A homogeneous distributed database is which of the following ?
- a) The same DBMS is used at each location and data are not distributed across all nodes
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- 12) Today's General purpose computer systems provide
- a) Coarse-Granularity Parallelism b) Fine-Granularity Parallelism
c) Both a) and b) d) Neither a) nor b)
- 13) In path expressions, for object references, the symbol used is
- a) * b) . c) → d) :
- 14) In _____ Parallelism, transaction throughput is increased.
- a) Inter query b) Intra query
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- 15) OMG stands for
- a) Operational Management Group
b) Objective Management Group
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- 16) The operation of changing dimensions used in a cross-tab is called
- a) Slicing b) Dicing c) Pivoting d) Roll up
- 17) The selection operation distributes over _____ operation.
- a) Union b) Set difference
c) Intersection d) All the above
- 18) Some of the columns of a relation are at different sites in which of the following ?
- a) Horizontal fragmentation
b) Horizontal and vertical fragmentation
c) Vertical fragmentation
d) Data replication
- 19) Parallel Execution of multiple individual operations within a given query is called _____ parallelism.
- a) Interoperation b) Interquery c) Intraoperation d) Intraquery
- 20) The task of correcting and preprocessing the data is called
- a) Data warehousing b) Data cleaning
c) Data mining d) None of these
-



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

II. Attempt **any four** : **(4×5=20)**

- 1) Explain the features of parallel systems.
- 2) Explain parallel external-sort merge algorithm.
- 3) A car-rental company maintains a vehicle database for all the vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer, model, date of purchase and color. Special data are included for certain types of vehicles.
 - Trucks : cargo capacity
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 - Construct an SQL : 1999 schema definition for this databse. Use inheritance where appropriate.
- 4) Write the steps is semi join operation.
- 5) Describe the benefits and drawbacks of pipelined parallelism.

III. Answer **any one** : **10**

- 1) Explain 3 partitioning techniques and compare them.
- 2) What is the objective of 2-phase commit protocol ? Explain its working and its ability to handle failure of participating site.

IV. Explain two approaches for Distributed Data storage along with their advantages and disadvantages. **10**

SECTION – II

V. Answer **any 4** : **(4×5=20)**

- 1) Write the queries for the operations.
 - a) cube
 - b) roll up
 - c) rank() and dense rank ()
 - d) ntile()
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- 2) Explain three architectural approaches to workflow management system.
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Set R



- 4) List five important features of main-memory databases.
- 5) Explain the following search algorithms with their cost estimates.
A2(Primary index, Equality on key)
A3(Primary index, Equality on nonkey)

VI. Answer **any one** :

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- 1) What are Decision Support Systems ? Explain several issues of Decision Support Systems.
- 2) Explain real time transaction systems with its key properties.

VII. Draw the architecture of data warehouse and explain the data warehouse schema's.

10



Seat No.	
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Set

S

**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose correct the alternatives :

(20×1=20)

- 1) The operation of changing dimensions used in a cross-tab is called
a) Slicing b) Dicing c) Pivoting d) Roll up
- 2) The selection operation distributes over _____ operation.
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c) Intraoperation d) Intraquery
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a) Data warehousing b) Data cleaning
c) Data mining d) None of these
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- 7) TPC – D Benchmark is used
a) To test the performance of the core database system
b) To test the performance of the database systems on decision-support queries
c) To simulate a typical bank application
d) To concentrate on order-entry environment



- 8) Tables containing multidimensional data are called
a) Super Tables b) Fact Tables c) Star Tables d) Sub Tables
- 9) _____ is a measure of fraction of population of how often the consequent is true when antecedent is true.
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a) $Q_r + Q_w = S$ b) $Q_r + Q_w < S$ c) $Q_r + Q_w > S$ d) $Q_r = Q_w$
- 17) Today's General purpose computer systems provide
a) Coarse-Granularity Parallelism b) Fine-Granularity Parallelism
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- 19) In _____ Parallelism, transaction throughput is increased.
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- 20) OMG stands for
a) Operational Management Group b) Objective Management Group
c) Operational Manipulation Group d) Object Management Group



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) (Old) Examination, 2016
ADVANCED DATABASE SYSTEMS**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

II. Attempt **any four** : (4×5=20)

- 1) Explain the features of parallel systems.
- 2) Explain parallel external-sort merge algorithm.
- 3) A car-rental company maintains a vehicle database for all the vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer, model, date of purchase and color. Special data are included for certain types of vehicles.
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 - Vans : number of passengers
 - Construct an SQL : 1999 schema definition for this databse. Use inheritance where appropriate.
- 4) Write the steps is semi join operation.
- 5) Describe the benefits and drawbacks of pipelined parallelism.

III. Answer **any one** : 10

- 1) Explain 3 partitioning techniques and compare them.
- 2) What is the objective of 2-phase commit protocol ? Explain its working and its ability to handle failure of participating site.

IV. Explain two approaches for Distributed Data storage along with their advantages and disadvantages. 10

SECTION – II

V. Answer **any 4** : (4×5=20)

- 1) Write the queries for the operations.
 - a) cube
 - b) roll up
 - c) rank() and dense rank ()
 - d) ntile()
 - e) windowing
- 2) Explain three architectural approaches to workflow management system.
- 3) Explain nested-loop join and its cost analysis.

Set S



- 4) List five important features of main-memory databases.
- 5) Explain the following search algorithms with their cost estimates.
A2(Primary index, Equality on key)
A3(Primary index, Equality on nonkey)

VI. Answer **any one** :

10

- 1) What are Decision Support Systems ? Explain several issues of Decision Support Systems.
- 2) Explain real time transaction systems with its key properties.

VII. Draw the architecture of data warehouse and explain the data warehouse schema's.

10



SLR-EP – 195

Seat No.	
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Set	P
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Communication device can exhibit _____ characteristic.
 - a) Fixed and wired
 - b) Mobile and wired
 - c) a) and b)
 - d) None of these
- 2) Follow on services might depend on actual location.
 - a) True
 - b) False
- 3) Ground waves are of
 - a) <2 MHz
 - b) 2-10 MHz
 - c) <5 MHz
 - d) <10 MHz
- 4) The pattern of channel usage is called
 - a) Hopping sequence
 - b) Dwell time
 - c) a) and b)
 - d) None of these
- 5) The idea of dividing segment space into cells/sector of
 - a) TDMA
 - b) SDMA
 - c) FDMA
 - d) CDMA
- 6) _____ uses cell structure directed antennas for signal separation.
 - a) CDMA
 - b) FDMA
 - c) TDMA
 - d) SDMA
- 7) Inter cell, intra BSC handover happens when
 - a) Mobile station moves from one cell to another but stays within the control of same BSC
 - b) MS moves from one cell to another with control of another BSC
 - c) MS does not move from cell, control with same BSC
 - d) MS does not move from cell, control with different BSC

P.T.O.



- 8) IMSI number consists of
- Mobile country code and mobile network code
 - Mobile number and mobile network code
 - Mobile ID and mobile network code
 - Mobile user ID and mobile network code
- 9) Algorithm A3 is used for
- Encryption
 - Generation of cipher key
 - Authentication
 - All of above
- 10) GSM aims at maximum handover duration of
- 80 ms
 - 50 ms
 - 65 ms
 - 60 ms
- 11) In GPRS time slots are not allocated in a fixed, predetermined manner but on demand
- True
 - False
- 12) IEEE 802.11 is typically
- Infrastructure based networks
 - Wireless adhoc network
 - Only a)
 - a) and additionally supported by b)
- 13) DIFS is defined as
- PIFS plus two slot times
 - SIFS plus two slot times
 - PIFS minus two slot times
 - SIFS minus two slot times
- 14) Bluetooth technology also called as
- Advanced piconets
 - Adhoc piconets
 - Piconets
 - None of these
- 15) In _____ state device has the lowest duty cycle and the lowest power consumption.
- Sniff state
 - Hold state
 - Part state
 - Ideal state
- 16) A _____ contains a timestamp and other management information used for power management and roaming.
- BSS
 - Becon
 - MOC
 - MTS
- 17) HiperLAN2 supports two different types of convergence layers
- Cell based and packet based
 - Stream based and block based
 - Packet based and stream based
 - Cell based and block based
- 18) _____ defines current location of MN from an IP point of view.
- COA
 - HA
 - CN
 - FA
- 19) The mechanism of splitting TCP connection into 2 connections is used in
- Snooping TCP
 - Indirect TCP
 - M-TCP
 - Transaction oriented TCP
- 20) Which approach avoids slow start after roaming ?
- Fast retransmit/fast recovery
 - Transmission/time out freezing
 - Selective retransmission
 - Fast retransmit/slow recovery



Seat No.	
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any 4** : **(4×5=20)**
- a) Give two kinds of mobility. Explain them with suitable example.
 - b) Discuss various frequencies used for radio transmission.
 - c) Write short note on IEEE 802.15 working group.
 - d) Explain frequency and time division combined multiplexing.
 - e) Differentiate between classical and slotted ALOHA.
3. Explain basic function of code division multiple access. Additionally explain its working with the help of signals. **10**

OR

Explain functional architecture of GSM system.

4. Explain MTC and MOC with suitable diagram. Additionally explain message flow for MTC and MOC. **10**

SECTION – II

5. Attempt **any 4** : **(4×5=20)**
- a) Define WLAN. Give advantages, disadvantages and applications of WLAN.
 - b) Explain architecture of IEEE 802.11 adhoc wireless LAN with diagram.

Set P



- c) Explain generic WATM reference model with suitable diagram.
 - d) Write short note on mobile TCP.
 - e) Write short note on indirect TCP.
6. Explain HiperLAN2 basic structure and handover scenarios in detail with suitable diagram. **10**

OR

Give mechanisms of the TCP that influence the efficiency of TCP mobile environment and explain snooping TCP in detail.

- 7. a) Write short note on mobile IP. **5**
 - b) Hawaii. **5**
-



Seat No.	
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Set	Q
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A _____ contains a timestamp and other management information used for power management and roaming.
a) BSS b) Beacon c) MOC d) MTS
- 2) HiperLAN2 supports two different types of convergence layers
a) Cell based and packet based
b) Stream based and block based
c) Packet based and stream based
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- 6) Communication device can exhibit _____ characteristic.
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c) a) and b) d) None of these
- 7) Follow on services might depend on actual location.
a) True b) False



- 8) Ground waves are of
a) <2 MHz b) 2-10 MHz c) <5 MHz d) <10 MHz
- 9) The pattern of channel usage is called
a) Hopping sequence b) Dwell time
c) a) and b) d) None of these
- 10) The idea of dividing segment space into cells/sector of
a) TDMA b) SDMA c) FDMA d) CDMA
- 11) _____ uses cell structure directed antennas for signal separation.
a) CDMA b) FDMA c) TDMA d) SDMA
- 12) Inter cell, intra BSC handover happens when
a) Mobile station moves from one cell to another but stays within the control of same BSC
b) MS moves from one cell to another with control of another BSC
c) MS does not move from cell, control with same BSC
d) MS does not move from cell, control with different BSC
- 13) IMSI number consists of
a) Mobile country code and mobile network code
b) Mobile number and mobile network code
c) Mobile ID and mobile network code
d) Mobile user ID and mobile network code
- 14) Algorithm A3 is used for
a) Encryption b) Generation of cipher key
c) Authentication d) All of above
- 15) GSM aims at maximum handover duration of
a) 80 ms b) 50 ms c) 65 ms d) 60 ms
- 16) In GPRS time slots are not allocated in a fixed, predetermined manner but on demand
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- 17) IEEE 802.11 is typically
a) Infrastructure based networks b) Wireless adhoc network
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- 18) DIFS is defined as
a) PIFS plus two slot times b) SIFS plus two slot times
c) PIFS minus two slot times d) SIFS minus two slot times
- 19) Bluetooth technology also called as
a) Advanced piconets b) Adhoc piconets
c) Piconets d) None of these
- 20) In _____ state device has the lowest duty cycle and the lowest power consumption.
a) Sniff state b) Hold state c) Part state d) Ideal state



Seat No.	
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

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 - b) Discuss various frequencies used for radio transmission.
 - c) Write short note on IEEE 802.15 working group.
 - d) Explain frequency and time division combined multiplexing.
 - e) Differentiate between classical and slotted ALOHA.
3. Explain basic function of code division multiple access. Additionally explain its working with the help of signals. **10**

OR

Explain functional architecture of GSM system.

4. Explain MTC and MOC with suitable diagram. Additionally explain message flow for MTC and MOC. **10**

SECTION – II

5. Attempt **any 4** : **(4×5=20)**
- a) Define WLAN. Give advantages, disadvantages and applications of WLAN.
 - b) Explain architecture of IEEE 802.11 adhoc wireless LAN with diagram.

Set Q



- c) Explain generic WATM reference model with suitable diagram.
 - d) Write short note on mobile TCP.
 - e) Write short note on indirect TCP.
6. Explain HiperLAN2 basic structure and handover scenarios in detail with suitable diagram. **10**

OR

Give mechanisms of the TCP that influence the efficiency of TCP mobile environment and explain snooping TCP in detail.

- 7. a) Write short note on mobile IP. **5**
 - b) Hawaii. **5**
-



SLR-EP – 195

Seat No.	
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Set	R
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**

- 1) In GPRS time slots are not allocated in a fixed, predetermined manner but on demand
 - a) True
 - b) False
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 - b) Adhoc piconets
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- 6) A _____ contains a timestamp and other management information used for power management and roaming.
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 - c) MOC
 - d) MTS
- 7) HiperLAN2 supports two different types of convergence layers
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 - c) Packet based and stream based
 - d) Cell based and block based

P.T.O.



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Seat No.	
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

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3. Explain basic function of code division multiple access. Additionally explain its working with the help of signals. **10**

OR

Explain functional architecture of GSM system.

4. Explain MTC and MOC with suitable diagram. Additionally explain message flow for MTC and MOC. **10**

SECTION – II

5. Attempt **any 4** : **(4×5=20)**
- a) Define WLAN. Give advantages, disadvantages and applications of WLAN.
 - b) Explain architecture of IEEE 802.11 adhoc wireless LAN with diagram.

Set R



- c) Explain generic WATM reference model with suitable diagram.
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 - e) Write short note on indirect TCP.
6. Explain HiperLAN2 basic structure and handover scenarios in detail with suitable diagram. **10**

OR

Give mechanisms of the TCP that influence the efficiency of TCP mobile environment and explain snooping TCP in detail.

- 7. a) Write short note on mobile IP. **5**
 - b) Hawaii. **5**
-



- 8) DIFS is defined as
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 - b) 2-10 MHz
 - c) <5 MHz
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- 19) The pattern of channel usage is called
- a) Hopping sequence
 - b) Dwell time
 - c) a) and b)
 - d) None of these
- 20) The idea of dividing segment space into cells/sector of
- a) TDMA
 - b) SDMA
 - c) FDMA
 - d) CDMA



Seat No.	
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**B.E. (CSE) Part – II (Old) Examination, 2016
MOBILE COMPUTING**

Day and Date : Tuesday, 22-11-2016
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Marks : 80

SECTION – I

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OR

Explain functional architecture of GSM system.

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SECTION – II

5. Attempt **any 4** : **(4×5=20)**
- a) Define WLAN. Give advantages, disadvantages and applications of WLAN.
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Set S



- c) Explain generic WATM reference model with suitable diagram.
 - d) Write short note on mobile TCP.
 - e) Write short note on indirect TCP.
6. Explain HiperLAN2 basic structure and handover scenarios in detail with suitable diagram. **10**

OR

Give mechanisms of the TCP that influence the efficiency of TCP mobile environment and explain snooping TCP in detail.

7. a) Write short note on mobile IP. **5**
- b) Hawaii. **5**
-



SLR-EP – 196

Seat No.	
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Set	P
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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) The main disadvantage of a general partnership is
 - a) The unlimited liability of the partners
 - b) Disagreement amongst partners
 - c) Shared management
 - d) Difficulty of termination
- 2) A partner who is not actually involved in the partnership but lends his name for public relations purposes is a
 - a) Silent partner
 - b) General partner
 - c) Nominal partner
 - d) Dominant partner
- 3) Co-operatives play an important role in
 - a) Aerospace
 - b) Agriculture
 - c) Manufacturing
 - d) All of the above
- 4) Planning, organizing, directing and controlling are the
 - a) Functions of management
 - b) Goals of management
 - c) Results of management
 - d) All of the above
- 5) Supervisory management spends most of his/her time
 - a) Planning and controlling
 - b) Directing and controlling
 - c) Planning and organizing
 - d) Organizing and controlling
- 6) Determining the number of people who are accountable to a single manager refers to
 - a) Chain of command
 - b) Degree of centralization
 - c) Span of control
 - d) Degree of specialization
- 7) The formal channel that defines the lines of authority and accountability in a hierarchical organizational structure is called
 - a) Line positions
 - b) The chain of command
 - c) Staff positions
 - d) Line and staff positions

P.T.O.



Seat No.	
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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any 4** of the following : **(4×5=20)**
- 1) What is group ? What are the stages of group development, explain with diagram.
 - 2) Explain line and staff organization structure with example.
 - 3) Differentiate between joint stock company and partnership company with atleast 5 points.
 - 4) What is span of control ? Explain factors affecting span of control.
 - 5) Define planning. What are types of planning ? What are steps involved in planning ?
3. Attempt **any 2** of the following : **(2×5=10)**
- 1) Short note on Departmentalism.
 - 2) What is motivation ? Explain types of motives.
 - 3) Differentiate between formal and informal organization.
4. Attempt **any 2** of the following : **(2×5=10)**
- 1) Explain Herzberg's factor theory of work motivation.
 - 2) Explain various steps in staffing.
 - 3) Oral and written communication differentiation.

SECTION – II

5. Attempt **any 4** of the following : **(4×5=20)**
- 1) Write a short note on elasticity of demand with example.
 - 2) Applications of breakeven point.
 - 3) What is capital ? What are its types ?
 - 4) Write short note on finance from bank.
 - 5) Selling price Rs. 40, variable cost Rs. 22, variable cost of selling department Rs. 3, fixed cost factory overhead – 1,00,000, fixed office overhead – 60,000, fixed expansion of selling department – 20,000
- Find :
- 1) Breakeven point
 - 2) Sales on a profit of Rs. 1,20,000.

Set P



6. Attempt **any 2** of the following : (2×5=10)
- 1) Explain margin of utility with example.
 - 2) Price elasticity of demand.
 - 3) Define supply, supply schedule, elasticity of supply with example.

7. Attempt **any 2** of the following : (2×5=10)
- 1) Write a short note on equilibrium and price determination.
 - 2) Functions of banks.
 - 3) Short note on factors of production.

OR

7. Attempt following : 10

The following data are available from the records of a company.

	Rs.
Sales	6,00,000
Variable cost	3,00,000
Fixed cost	1,50,000

Calculate the profit volume ratio, Breakeven point and margin of safety at this level.



SLR-EP – 196

Seat No.	
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Set	Q
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B.E. (CSE) (Part – II) Examination, 2016
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) Angle of incidence is the angle at which
 - a) Total revenue line intersects the total cost line
 - b) Total cost line intersects the variable cost line
 - c) Variable cost line intersects fixed cost line
 - d) Fixed cost line intersects total revenue line
- 2) A particular amount of money used in business for the purpose of earning profit revenue is known as
 - a) Profit
 - b) Debenture
 - c) Share
 - d) Capital
- 3) The clearing house is managed by which of the following bank ?
 - a) State Bank of India
 - b) Co-operative Bank
 - c) Bank of Maharashtra
 - d) Reserve Bank of India
- 4) If the selling price per unit is Rs. 40, variable cost per unit Rs. 24 and fixed cost Rs. 72,000 then calculate breakeven point in units
 - a) 4500
 - b) 7000
 - c) 6000
 - d) 10000
- 5) If the cross elasticity of demand between good A and good B is negative, that means goods are
 - a) Substitute goods
 - b) Unrelated goods
 - c) Complement goods
 - d) Demanding goods
- 6) The main disadvantage of a general partnership is
 - a) The unlimited liability of the partners
 - b) Disagreement amongst partners
 - c) Shared management
 - d) Difficulty of termination
- 7) A partner who is not actually involved in the partnership but lends his name for public relations purposes is a
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 - c) Nominal partner
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- 8) Co-operatives play an important role in
 - a) Aerospace
 - b) Agriculture
 - c) Manufacturing
 - d) All of the above
- 9) Planning, organizing, directing and controlling are the
 - a) Functions of management
 - b) Goals of management
 - c) Results of management
 - d) All of the above

P.T.O.



- 10) Supervisory management spends most of his/her time
- Planning and controlling
 - Directing and controlling
 - Planning and organizing
 - Organizing and controlling
- 11) Determining the number of people who are accountable to a single manager refers to
- Chain of command
 - Degree of centralization
 - Span of control
 - Degree of specialization
- 12) The formal channel that defines the lines of authority and accountability in a hierarchical organizational structure is called
- Line positions
 - The chain of command
 - Staff positions
 - Line and staff positions
- 13) Rearrange the steps of Maslow's Need Hierarchy Theory.
- | | |
|---------------------------------|------------------------|
| A. Self – Actualisation needs | B. Physiological needs |
| C. Belongingness and love needs | D. Self – esteem needs |
| E. Safety needs | |
- ABCDE
 - ADCBE
 - DCBEA
 - ADCEB
- 14) Which of the following is a content theory ?
- Expectancy theory
 - ERG theory
 - Equity theory
 - None of the above
- 15) Which of the following work team do not do their work face to face ?
- Cross functional
 - Problem solving team
 - Virtual team
 - Self managed work team
- 16) The law of demand states that, other things remaining the same, the higher the price of a good, the
- Smaller is the demand for the good
 - Smaller is the quantity of the good demanded
 - Larger is the quantity of the good demanded
 - Larger is the demand for the good
- 17) A surplus occurs when the price is
- Equal to the equilibrium price
 - Greater than the equilibrium price
 - Less than the equilibrium price
 - None of the above because the existence of a surplus is independent of the price of the good
- 18) When demand decreases and supply does not change, the equilibrium price
- Rises and the equilibrium quantity decreases
 - Rises and the equilibrium quantity increases
 - Falls and the equilibrium quantity increases
 - Falls and the equilibrium quantity decreases
- 19) At breakeven point
- Total expenses = Total revenue
 - Total expenses > Total revenue
 - Total expenses < Total revenue
 - None of the above
- 20) What will be the amount of profit if Margin of safety is Rs. 50,000 and P/V ratio is 25% ?
- Rs. 12,500
 - Rs. 1,25,000
 - Rs. 1,250
 - None of the above



Seat No.	
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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any 4** of the following : **(4×5=20)**
- 1) What is group ? What are the stages of group development, explain with diagram.
 - 2) Explain line and staff organization structure with example.
 - 3) Differentiate between joint stock company and partnership company with atleast 5 points.
 - 4) What is span of control ? Explain factors affecting span of control.
 - 5) Define planning. What are types of planning ? What are steps involved in planning ?
3. Attempt **any 2** of the following : **(2×5=10)**
- 1) Short note on Departmentalism.
 - 2) What is motivation ? Explain types of motives.
 - 3) Differentiate between formal and informal organization.
4. Attempt **any 2** of the following : **(2×5=10)**
- 1) Explain Herzberg's factor theory of work motivation.
 - 2) Explain various steps in staffing.
 - 3) Oral and written communication differentiation.

SECTION – II

5. Attempt **any 4** of the following : **(4×5=20)**
- 1) Write a short note on elasticity of demand with example.
 - 2) Applications of breakeven point.
 - 3) What is capital ? What are its types ?
 - 4) Write short note on finance from bank.
 - 5) Selling price Rs. 40, variable cost Rs. 22, variable cost of selling department Rs. 3, fixed cost factory overhead – 1,00,000, fixed office overhead – 60,000, fixed expansion of selling department – 20,000
- Find :
- 1) Breakeven point
 - 2) Sales on a profit of Rs. 1,20,000.

Set Q



6. Attempt **any 2** of the following : (2×5=10)
- 1) Explain margin of utility with example.
 - 2) Price elasticity of demand.
 - 3) Define supply, supply schedule, elasticity of supply with example.

7. Attempt **any 2** of the following : (2×5=10)
- 1) Write a short note on equilibrium and price determination.
 - 2) Functions of banks.
 - 3) Short note on factors of production.

OR

7. Attempt following : 10
- The following data are available from the records of a company.

	Rs.
Sales	6,00,000
Variable cost	3,00,000
Fixed cost	1,50,000

Calculate the profit volume ratio, Breakeven point and margin of safety at this level.



SLR-EP – 196

Seat No.	
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Set	R
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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) The law of demand states that, other things remaining the same, the higher the price of a good, the
 - a) Smaller is the demand for the good
 - b) Smaller is the quantity of the good demanded
 - c) Larger is the quantity of the good demanded
 - d) Larger is the demand for the good
- 2) A surplus occurs when the price is
 - a) Equal to the equilibrium price
 - b) Greater than the equilibrium price
 - c) Less than the equilibrium price
 - d) None of the above because the existence of a surplus is independent of the price of the good
- 3) When demand decreases and supply does not change, the equilibrium price
 - a) Rises and the equilibrium quantity decreases
 - b) Rises and the equilibrium quantity increases
 - c) Falls and the equilibrium quantity increases
 - d) Falls and the equilibrium quantity decreases
- 4) At breakeven point
 - a) Total expenses = Total revenue
 - b) Total expenses > Total revenue
 - c) Total expenses < Total revenue
 - d) None of the above
- 5) What will be the amount of profit if Margin of safety is Rs. 50,000 and P/V ratio is 25% ?
 - a) Rs. 12,500
 - b) Rs. 1,25,000
 - c) Rs. 1,250
 - d) None of the above
- 6) Angle of incidence is the angle at which
 - a) Total revenue line intersects the total cost line
 - b) Total cost line intersects the variable cost line
 - c) Variable cost line intersects fixed cost line
 - d) Fixed cost line intersects total revenue line
- 7) A particular amount of money used in business for the purpose of earning profit revenue is known as
 - a) Profit
 - b) Debenture
 - c) Share
 - d) Capital
- 8) The clearing house is managed by which of the following bank ?
 - a) State Bank of India
 - b) Co-operative Bank
 - c) Bank of Maharashtra
 - d) Reserve Bank of India

P.T.O.



- 9) If the selling price per unit is Rs. 40, variable cost per unit Rs. 24 and fixed cost Rs. 72,000 then calculate breakeven point in units
a) 4500 b) 7000 c) 6000 d) 10000
- 10) If the cross elasticity of demand between good A and good B is negative, that means goods are
a) Substitute goods b) Unrelated goods c) Complement goods d) Demanding goods
- 11) The main disadvantage of a general partnership is
a) The unlimited liability of the partners
b) Disagreement amongst partners
c) Shared management
d) Difficulty of termination
- 12) A partner who is not actually involved in the partnership but lends his name for public relations purposes is a
a) Silent partner b) General partner
c) Nominal partner d) Dominant partner
- 13) Co-operatives play an important role in
a) Aerospace b) Agriculture
c) Manufacturing d) All of the above
- 14) Planning, organizing, directing and controlling are the
a) Functions of management b) Goals of management
c) Results of management d) All of the above
- 15) Supervisory management spends most of his/her time
a) Planning and controlling
b) Directing and controlling
c) Planning and organizing
d) Organizing and controlling
- 16) Determining the number of people who are accountable to a single manager refers to
a) Chain of command b) Degree of centralization
c) Span of control d) Degree of specialization
- 17) The formal channel that defines the lines of authority and accountability in a hierarchical organizational structure is called
a) Line positions
b) The chain of command
c) Staff positions
d) Line and staff positions
- 18) Rearrange the steps of Maslow's Need Hierarchy Theory.
A. Self – Actualisation needs B. Physiological needs
C. Belongingness and love needs D. Self – esteem needs
E. Safety needs
a) ABCDE b) ADCBE
c) DCBEA d) ADCEB
- 19) Which of the following is a content theory ?
a) Expectancy theory b) ERG theory
c) Equity theory d) None of the above
- 20) Which of the following work team do not do their work face to face ?
a) Cross functional b) Problem solving team
c) Virtual team d) Self managed work team



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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any 4** of the following : **(4×5=20)**
- 1) What is group ? What are the stages of group development, explain with diagram.
 - 2) Explain line and staff organization structure with example.
 - 3) Differentiate between joint stock company and partnership company with atleast 5 points.
 - 4) What is span of control ? Explain factors affecting span of control.
 - 5) Define planning. What are types of planning ? What are steps involved in planning ?
3. Attempt **any 2** of the following : **(2×5=10)**
- 1) Short note on Departmentalism.
 - 2) What is motivation ? Explain types of motives.
 - 3) Differentiate between formal and informal organization.
4. Attempt **any 2** of the following : **(2×5=10)**
- 1) Explain Herzberg's factor theory of work motivation.
 - 2) Explain various steps in staffing.
 - 3) Oral and written communication differentiation.

SECTION – II

5. Attempt **any 4** of the following : **(4×5=20)**
- 1) Write a short note on elasticity of demand with example.
 - 2) Applications of breakeven point.
 - 3) What is capital ? What are its types ?
 - 4) Write short note on finance from bank.
 - 5) Selling price Rs. 40, variable cost Rs. 22, variable cost of selling department Rs. 3, fixed cost factory overhead – 1,00,000, fixed office overhead – 60,000, fixed expansion of selling department – 20,000
- Find :
- 1) Breakeven point
 - 2) Sales on a profit of Rs. 1,20,000.

Set R



6. Attempt **any 2** of the following : (2×5=10)
- 1) Explain margin of utility with example.
 - 2) Price elasticity of demand.
 - 3) Define supply, supply schedule, elasticity of supply with example.

7. Attempt **any 2** of the following : (2×5=10)
- 1) Write a short note on equilibrium and price determination.
 - 2) Functions of banks.
 - 3) Short note on factors of production.

OR

7. Attempt following : 10

The following data are available from the records of a company.

	Rs.
Sales	6,00,000
Variable cost	3,00,000
Fixed cost	1,50,000

Calculate the profit volume ratio, Breakeven point and margin of safety at this level.



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Seat No.	
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Set	S
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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct options :

(20×1=20)

- 1) Determining the number of people who are accountable to a single manager refers to
 - a) Chain of command
 - b) Degree of centralization
 - c) Span of control
 - d) Degree of specialization
- 2) The formal channel that defines the lines of authority and accountability in a hierarchical organizational structure is called
 - a) Line positions
 - b) The chain of command
 - c) Staff positions
 - d) Line and staff positions
- 3) Rearrange the steps of Maslow's Need Hierarchy Theory.
 - A. Self – Actualisation needs
 - B. Physiological needs
 - C. Belongingness and love needs
 - D. Self – esteem needs
 - E. Safety needs
 - a) ABCDE
 - b) ADCBE
 - c) DCBEA
 - d) ADCEB
- 4) Which of the following is a content theory ?
 - a) Expectancy theory
 - b) ERG theory
 - c) Equity theory
 - d) None of the above
- 5) Which of the following work team do not do their work face to face ?
 - a) Cross functional
 - b) Problem solving team
 - c) Virtual team
 - d) Self managed work team
- 6) The law of demand states that, other things remaining the same, the higher the price of a good, the
 - a) Smaller is the demand for the good
 - b) Smaller is the quantity of the good demanded
 - c) Larger is the quantity of the good demanded
 - d) Larger is the demand for the good
- 7) A surplus occurs when the price is
 - a) Equal to the equilibrium price
 - b) Greater than the equilibrium price
 - c) Less than the equilibrium price
 - d) None of the above because the existence of a surplus is independent of the price of the good

P.T.O.



- 8) When demand decreases and supply does not change, the equilibrium price
- Rises and the equilibrium quantity decreases
 - Rises and the equilibrium quantity increases
 - Falls and the equilibrium quantity increases
 - Falls and the equilibrium quantity decreases
- 9) At breakeven point
- Total expenses = Total revenue
 - Total expenses > Total revenue
 - Total expenses < Total revenue
 - None of the above
- 10) What will be the amount of profit if Margin of safety is Rs. 50,000 and P/V ratio is 25% ?
- Rs. 12,500
 - Rs. 1,25,000
 - Rs. 1,250
 - None of the above
- 11) Angle of incidence is the angle at which
- Total revenue line intersects the total cost line
 - Total cost line intersects the variable cost line
 - Variable cost line intersects fixed cost line
 - Fixed cost line intersects total revenue line
- 12) A particular amount of money used in business for the purpose of earning profit revenue is known as
- Profit
 - Debenture
 - Share
 - Capital
- 13) The clearing house is managed by which of the following bank ?
- State Bank of India
 - Co-operative Bank
 - Bank of Maharashtra
 - Reserve Bank of India
- 14) If the selling price per unit is Rs. 40, variable cost per unit Rs. 24 and fixed cost Rs. 72,000 then calculate breakeven point in units
- 4500
 - 7000
 - 6000
 - 10000
- 15) If the cross elasticity of demand between good A and good B is negative, that means goods are
- Substitute goods
 - Unrelated goods
 - Complement goods
 - Demanding goods
- 16) The main disadvantage of a general partnership is
- The unlimited liability of the partners
 - Disagreement amongst partners
 - Shared management
 - Difficulty of termination
- 17) A partner who is not actually involved in the partnership but lends his name for public relations purposes is a
- Silent partner
 - General partner
 - Nominal partner
 - Dominant partner
- 18) Co-operatives play an important role in
- Aerospace
 - Agriculture
 - Manufacturing
 - All of the above
- 19) Planning, organizing, directing and controlling are the
- Functions of management
 - Goals of management
 - Results of management
 - All of the above
- 20) Supervisory management spends most of his/her time
- Planning and controlling
 - Directing and controlling
 - Planning and organizing
 - Organizing and controlling



Seat No.	
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B.E. (CSE) (Part – II) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ENGINEERING ECONOMICS (Old)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any 4** of the following : **(4×5=20)**
- 1) What is group ? What are the stages of group development, explain with diagram.
 - 2) Explain line and staff organization structure with example.
 - 3) Differentiate between joint stock company and partnership company with atleast 5 points.
 - 4) What is span of control ? Explain factors affecting span of control.
 - 5) Define planning. What are types of planning ? What are steps involved in planning ?
3. Attempt **any 2** of the following : **(2×5=10)**
- 1) Short note on Departmentalism.
 - 2) What is motivation ? Explain types of motives.
 - 3) Differentiate between formal and informal organization.
4. Attempt **any 2** of the following : **(2×5=10)**
- 1) Explain Herzberg's factor theory of work motivation.
 - 2) Explain various steps in staffing.
 - 3) Oral and written communication differentiation.

SECTION – II

5. Attempt **any 4** of the following : **(4×5=20)**
- 1) Write a short note on elasticity of demand with example.
 - 2) Applications of breakeven point.
 - 3) What is capital ? What are its types ?
 - 4) Write short note on finance from bank.
 - 5) Selling price Rs. 40, variable cost Rs. 22, variable cost of selling department Rs. 3, fixed cost factory overhead – 1,00,000, fixed office overhead – 60,000, fixed expansion of selling department – 20,000
- Find :
- 1) Breakeven point
 - 2) Sales on a profit of Rs. 1,20,000.

Set S



6. Attempt **any 2** of the following : (2×5=10)
- 1) Explain margin of utility with example.
 - 2) Price elasticity of demand.
 - 3) Define supply, supply schedule, elasticity of supply with example.

7. Attempt **any 2** of the following : (2×5=10)
- 1) Write a short note on equilibrium and price determination.
 - 2) Functions of banks.
 - 3) Short note on factors of production.

OR

7. Attempt following : 10
- The following data are available from the records of a company.

	Rs.
Sales	6,00,000
Variable cost	3,00,000
Fixed cost	1,50,000

Calculate the profit volume ratio, Breakeven point and margin of safety at this level.



SLR-EP – 198

Seat No.	
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Set	P
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) The _____ is defined as a computer based information system.
a) MIS b) MIP c) MIT d) None of these
- 2) The role of MIS in an organization can be compared to the role of _____ in the body.
a) brain b) heart c) lever d) stomach
- 3) The objective of the MIS is to provide information for a _____ support in the process of management.
a) tool b) goal c) decision d) analysis
- 4) The _____ management function deals with satisfying the consumer.
a) marketing b) production
c) personnel d) human resource
- 5) DSS means
a) Direct Support System b) Decision Support System
c) Decade Support System d) All
- 6) _____ system provide information about the performance of the organization.
a) Financial management b) Decision support
c) Management Information d) None of these
- 7) The _____ information generally relates to the top management functions in a business organization.
a) Tactical b) Strategic c) Operational d) Financial
- 8) _____ means to achieve objectives.
a) Dynamic operations b) Strategy
c) Structural activities d) Planning
- 9) _____ is the first step in system development life cycle.
a) Designing b) Analysis c) Planning d) Implementation

P.T.O.



- 10) The general transformation cycle for information is
a) data to information to knowledge b) knowledge to data to information
c) data to knowledge to information d) information to data to knowledge
- 11) _____ is one of the type of security.
a) Resource security systems b) Computer security systems
c) Domain security systems d) All
- 12) _____ is a method of identifying vulnerabilities and threat and assessing the possible damage to determine where to implement security safeguards.
a) Error analysis b) Threat analysis
c) Risk analysis d) None of these
- 13) _____, integrity and availability are the basic principles of information security.
a) Confidentiality b) Portability c) Modularity d) Efficiency
- 14) _____ writes web pages using HTML, DHTML, XML, CGI script and other tools.
a) Web administrator b) Web developer
c) Web master d) Content provider
- 15) In which one of the following type of E-Commerce, consumer sells consumer directly ?
a) C2B b) B2C c) C2C d) B2B
- 16) E-commerce is not suitable for
a) Online job searching
b) Sale/Purchase of mobile phones
c) Sale/Purchase of branded clothes
d) Sale/ purchase of expensive jewelry and antiques
- 17) The _____ system, deals with the planning and use of resources in the business.
a) SCM b) ERP c) BPR d) CRM
- 18) Accounting is the submodule of _____ module in ERP.
a) Sales b) Personnel c) Finance d) Production
- 19) BPR means
a) Business Process Reengineering b) Business Product Reengineering
c) Business Progress Reengineering d) Basic Process Reengineering
- 20) The purpose of _____ is to improve trust and collaboration among supply chain partners, thus improving inventory turnover.
a) Enterprise Resource Planning
b) Supply Chain Management
c) Customer Relationship Management
d) Business Process Reengineering
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Seat No.	
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- a) What is the concept of Management Information System ?
 - b) What are the major types of information system in organization ?
 - c) What are the different benefits of executive support systems ?
 - d) Explain contribution of information systems to pursue competitive strategies.
 - e) Explain system development life cycle for building information system.
 - f) What are the major problem areas in information system ?
3. What are different characteristics of MIS ? Also explain uses of MIS and how MIS support to management in the organization. **10**

OR

3. Explain Decision Support Systems (DSS) and Group Decision Support Systems (GDSS) in detail. **10**
4. Write note on **(any two)** : **(2×5=10)**
- a) Marketing information systems.
 - b) Concept of strategic information system.
 - c) Principle causes of information system failure.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain managing information resources in information system.
 - b) What are the organizational security policies of information systems resource management ?
 - c) Explain the concept of E-Commerce.

Set P



- d) Explain about E-market in business organization.
- e) What is Business Process Reengineering (BPR) ?
- f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? 10

OR

6. What is ERP ? Explain need, features, advantages, growth of ERP. 10

7. Write note on (**any two**) : (2×5=10)

- a) Computer Security in information systems resource management.
 - b) M-Commerce.
 - c) Customer Relationship Management (CRM).
-



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Seat No.	
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Set	Q
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) E-commerce is not suitable for
 - a) Online job searching
 - b) Sale/Purchase of mobile phones
 - c) Sale/Purchase of branded clothes
 - d) Sale/ purchase of expensive jewelry and antiques
- 2) The _____ system, deals with the planning and use of resources in the business.
 - a) SCM
 - b) ERP
 - c) BPR
 - d) CRM
- 3) Accounting is the submodule of _____ module in ERP.
 - a) Sales
 - b) Personnel
 - c) Finance
 - d) Production
- 4) BPR means
 - a) Business Process Reengineering
 - b) Business Product Reengineering
 - c) Business Progress Reengineering
 - d) Basic Process Reengineering
- 5) The purpose of _____ is to improve trust and collaboration among supply chain partners, thus improving inventory turnover.
 - a) Enterprise Resource Planning
 - b) Supply Chain Management
 - c) Customer Relationship Management
 - d) Business Process Reengineering
- 6) The _____ is defined as a computer based information system.
 - a) MIS
 - b) MIP
 - c) MIT
 - d) None of these
- 7) The role of MIS in an organization can be compared to the role of _____ in the body.
 - a) brain
 - b) heart
 - c) lever
 - d) stomach
- 8) The objective of the MIS is to provide information for a _____ support in the process of management.
 - a) tool
 - b) goal
 - c) decision
 - d) analysis

P.T.O.



Seat No.	
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- a) What is the concept of Management Information System ?
 - b) What are the major types of information system in organization ?
 - c) What are the different benefits of executive support systems ?
 - d) Explain contribution of information systems to pursue competitive strategies.
 - e) Explain system development life cycle for building information system.
 - f) What are the major problem areas in information system ?
3. What are different characteristics of MIS ? Also explain uses of MIS and how MIS support to management in the organization. **10**

OR

3. Explain Decision Support Systems (DSS) and Group Decision Support Systems (GDSS) in detail. **10**
4. Write note on **(any two)** : **(2×5=10)**
- a) Marketing information systems.
 - b) Concept of strategic information system.
 - c) Principle causes of information system failure.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain managing information resources in information system.
 - b) What are the organizational security policies of information systems resource management ?
 - c) Explain the concept of E-Commerce.

Set Q



- d) Explain about E-market in business organization.
- e) What is Business Process Reengineering (BPR) ?
- f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? 10

OR

6. What is ERP ? Explain need, features, advantages, growth of ERP. 10

7. Write note on (**any two**) : (2×5=10)

- a) Computer Security in information systems resource management.
 - b) M-Commerce.
 - c) Customer Relationship Management (CRM).
-



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Seat No.	
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Set	R
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) _____ is one of the type of security.
a) Resource security systems b) Computer security systems
c) Domain security systems d) All
- 2) _____ is a method of identifying vulnerabilities and threat and assessing the possible damage to determine where to implement security safeguards.
a) Error analysis b) Threat analysis
c) Risk analysis d) None of these
- 3) _____ , integrity and availability are the basic principles of information security.
a) Confidentiality b) Portability c) Modularity d) Efficiency
- 4) _____ writes web pages using HTML, DHTML, XML, CGI script and other tools.
a) Web administrator b) Web developer
c) Web master d) Content provider
- 5) In which one of the following type of E-Commerce, consumer sells consumer directly ?
a) C2B b) B2C c) C2C d) B2B
- 6) E-commerce is not suitable for
a) Online job searching
b) Sale/Purchase of mobile phones
c) Sale/Purchase of branded clothes
d) Sale/ purchase of expensive jewelry and antiques
- 7) The _____ system, deals with the planning and use of resources in the business.
a) SCM b) ERP c) BPR d) CRM

P.T.O.



- 8) Accounting is the submodule of _____ module in ERP.
a) Sales b) Personnel c) Finance d) Production
- 9) BPR means
a) Business Process Reengineering b) Business Product Reengineering
c) Business Progress Reengineering d) Basic Process Reengineering
- 10) The purpose of _____ is to improve trust and collaboration among supply chain partners, thus improving inventory turnover.
a) Enterprise Resource Planning
b) Supply Chain Management
c) Customer Relationship Management
d) Business Process Reengineering
- 11) The _____ is defined as a computer based information system.
a) MIS b) MIP c) MIT d) None of these
- 12) The role of MIS in an organization can be compared to the role of _____ in the body.
a) brain b) heart c) lever d) stomach
- 13) The objective of the MIS is to provide information for a _____ support in the process of management.
a) tool b) goal c) decision d) analysis
- 14) The _____ management function deals with satisfying the consumer.
a) marketing b) production
c) personnel d) human resource
- 15) DSS means
a) Direct Support System b) Decision Support System
c) Decade Support System d) All
- 16) _____ system provide information about the performance of the organization.
a) Financial management b) Decision support
c) Management Information d) None of these
- 17) The _____ information generally relates to the top management functions in a business organization.
a) Tactical b) Strategic c) Operational d) Financial
- 18) _____ means to achieve objectives.
a) Dynamic operations b) Strategy
c) Structural activities d) Planning
- 19) _____ is the first step in system development life cycle.
a) Designing b) Analysis c) Planning d) Implementation
- 20) The general transformation cycle for information is
a) data to information to knowledge b) knowledge to data to information
c) data to knowledge to information d) information to data to knowledge



Seat No.	
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- a) What is the concept of Management Information System ?
 - b) What are the major types of information system in organization ?
 - c) What are the different benefits of executive support systems ?
 - d) Explain contribution of information systems to pursue competitive strategies.
 - e) Explain system development life cycle for building information system.
 - f) What are the major problem areas in information system ?
3. What are different characteristics of MIS ? Also explain uses of MIS and how MIS support to management in the organization. **10**

OR

3. Explain Decision Support Systems (DSS) and Group Decision Support Systems (GDSS) in detail. **10**
4. Write note on **(any two)** : **(2×5=10)**
- a) Marketing information systems.
 - b) Concept of strategic information system.
 - c) Principle causes of information system failure.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain managing information resources in information system.
 - b) What are the organizational security policies of information systems resource management ?
 - c) Explain the concept of E-Commerce.

Set R



- d) Explain about E-market in business organization.
- e) What is Business Process Reengineering (BPR) ?
- f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? 10

OR

6. What is ERP ? Explain need, features, advantages, growth of ERP. 10

7. Write note on (**any two**) : (2×5=10)

- a) Computer Security in information systems resource management.
 - b) M-Commerce.
 - c) Customer Relationship Management (CRM).
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) _____ system provide information about the performance of the organization.
a) Financial management b) Decision support
c) Management Information d) None of these
- 2) The _____ information generally relates to the top management functions in a business organization.
a) Tactical b) Strategic c) Operational d) Financial
- 3) _____ means to achieve objectives.
a) Dynamic operations b) Strategy
c) Structural activities d) Planning
- 4) _____ is the first step in system development life cycle.
a) Designing b) Analysis c) Planning d) Implementation
- 5) The general transformation cycle for information is
a) data to information to knowledge b) knowledge to data to information
c) data to knowledge to information d) information to data to knowledge
- 6) _____ is one of the type of security.
a) Resource security systems b) Computer security systems
c) Domain security systems d) All
- 7) _____ is a method of identifying vulnerabilities and threat and assessing the possible damage to determine where to implement security safeguards.
a) Error analysis b) Threat analysis
c) Risk analysis d) None of these
- 8) _____ , integrity and availability are the basic principles of information security.
a) Confidentiality b) Portability c) Modularity d) Efficiency

P.T.O.



Seat No.	
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**B.E. (CSE) (Part – II) Examination, 2016
MANAGEMENT INFORMATION SYSTEM (New)**

Day and Date : Monday, 21-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- a) What is the concept of Management Information System ?
 - b) What are the major types of information system in organization ?
 - c) What are the different benefits of executive support systems ?
 - d) Explain contribution of information systems to pursue competitive strategies.
 - e) Explain system development life cycle for building information system.
 - f) What are the major problem areas in information system ?
3. What are different characteristics of MIS ? Also explain uses of MIS and how MIS support to management in the organization. **10**

OR

3. Explain Decision Support Systems (DSS) and Group Decision Support Systems (GDSS) in detail. **10**
4. Write note on **(any two)** : **(2×5=10)**
- a) Marketing information systems.
 - b) Concept of strategic information system.
 - c) Principle causes of information system failure.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain managing information resources in information system.
 - b) What are the organizational security policies of information systems resource management ?
 - c) Explain the concept of E-Commerce.

Set S



- d) Explain about E-market in business organization.
- e) What is Business Process Reengineering (BPR) ?
- f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? 10

OR

6. What is ERP ? Explain need, features, advantages, growth of ERP. 10

7. Write note on (**any two**) : (2×5=10)

- a) Computer Security in information systems resource management.
 - b) M-Commerce.
 - c) Customer Relationship Management (CRM).
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Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) Examination, 2016
INFORMATION AND CYBER SECURITY (New)**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Answer **any four** : **(4×5=20)**
- a) Define :
 - i) Security attack
 - ii) Security services
 - iii) Security mechanisms
 - b) Describe one-time pad with its advantage and disadvantage.
 - c) Using vigenere cipher, encrypt the word “cryptography” using key “house”.
 - d) What is Digital signature ? Mention the properties of Digital signature.
 - e) Perform encryption and decryption using RSA algorithm for the following :
 $p = 5, q = 7, e = 7, M = 12$
3. Answer **any one** : **10**
- a) What is message authentication ? Explain basic uses of Hash function for message authentication with diagrams.
 - b) Construct the playfair matrix with the key “occurrence” and use it to encrypt the message “The enemy must be stopped at all costs”.
4. Consider Diffie-Hellman scheme with common prime $q = 11$ and primitive root $\alpha = 2$. **10**
- a) Show that 2 is the primitive root of 11.
 - b) If user A has public key $Y_A = 9$, what is X_A ?
 - c) If user B has public key $Y_B = 3$, what is the shared secret key ?



SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**
- A) List and explain functions of S/MIME.
 - B) Explain Security Association (SA) and its parameters.
 - C) Explain the cybercrime : The legal and an Indian perspective.
 - D) Differentiate computer virus and worm.
 - E) Explain the concept of steganography.
6. Attempt **any one** : **10**
- A) What are the basic requirements, key features and participants in SET transactions ?
 - B) What is Authentication Header ? Draw the format of authentication header. Explain the Transport mode AH and Tunnel mode AH with diagram.
7. What are the different types of viruses ? Explain it in detail. **10**
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Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) Examination, 2016
INFORMATION AND CYBER SECURITY (New)**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Answer **any four** : **(4×5=20)**
- a) Define :
 - i) Security attack
 - ii) Security services
 - iii) Security mechanisms
 - b) Describe one-time pad with its advantage and disadvantage.
 - c) Using vigenere cipher, encrypt the word “cryptography” using key “house”.
 - d) What is Digital signature ? Mention the properties of Digital signature.
 - e) Perform encryption and decryption using RSA algorithm for the following :
 $p = 5, q = 7, e = 7, M = 12$
3. Answer **any one** : **10**
- a) What is message authentication ? Explain basic uses of Hash function for message authentication with diagrams.
 - b) Construct the playfair matrix with the key “occurrence” and use it to encrypt the message “The enemy must be stopped at all costs”.
4. Consider Diffie-Hellman scheme with common prime $q = 11$ and primitive root $\alpha = 2$. **10**
- a) Show that 2 is the primitive root of 11.
 - b) If user A has public key $Y_A = 9$, what is X_A ?
 - c) If user B has public key $Y_B = 3$, what is the shared secret key ?

Set Q



SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**
- A) List and explain functions of S/MIME.
 - B) Explain Security Association (SA) and its parameters.
 - C) Explain the cybercrime : The legal and an Indian perspective.
 - D) Differentiate computer virus and worm.
 - E) Explain the concept of steganography.
6. Attempt **any one** : **10**
- A) What are the basic requirements, key features and participants in SET transactions ?
 - B) What is Authentication Header ? Draw the format of authentication header. Explain the Transport mode AH and Tunnel mode AH with diagram.
7. What are the different types of viruses ? Explain it in detail. **10**
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Seat No.	
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Set **R**

**B.E. (Computer Science and Engg.) (Part – II) Examination, 2016
INFORMATION AND CYBER SECURITY (New)**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) PGP (Pretty Good Privacy) provides
 - A) Confidentiality
 - B) Authentication
 - C) Both confidentiality and authentication
 - D) Key exchange protocol
- 2) SET is an open encryption and security specification designed to protect
 - A) E-mail
 - B) Credit card transactions
 - C) Intrusion detection
 - D) All of these
- 3) An internet standard approach to e-mail security is provided by
 - A) SET
 - B) RSA
 - C) PGP
 - D) S/MIME
- 4) The SSL Record Protocol provides
 - A) Confidentiality
 - B) Message Integrity
 - C) Neither (A) nor (B)
 - D) Both (A) and (B)
- 5) The TLS is an Proposed Internet Standard defined in
 - A) RFC 2248
 - B) RFC 2246
 - C) RFC 2244
 - D) RFC 2240
- 6) The left of software through the illegal copying of genuine programs or the counterfeiting and distribution of products intended to pass for the original is known as
 - A) Web Jacking
 - B) Data Diddling
 - C) Software Piracy
 - D) All of these
- 7) _____ refers to sending a large number of E-Mails to the victim to crash victim's E-Mail account or to make victim's mail servers crash.
 - A) Software Privacy
 - B) E-Mail Spoofing
 - C) Web Jacking
 - D) E-Mail Bombing
- 8) _____ are programs that monitor and record the name and password of network users as they login, jeopardizing security at a site.
 - A) Password Sniffers
 - B) Mail Bombs
 - C) Web Jacking
 - D) Computer Worms

P.T.O.



- 9) _____ attacks usually require physical access to the computer and copying the password file from the system onto removable media.
A) Phishing B) Online C) Offline D) All of these
- 10) _____ is quicker and easier way of capturing the passwords and monitoring the victims' IT savvy behaviour.
A) Mail Bombs B) Phishing C) Hacking D) Keylogger
- 11) _____ takes place when one entity pretends to be a different entity.
A) Masquerade B) Replay
C) Modification of message D) Denial of service
- 12) _____ are sophisticated precomputer hardware devices that use substitution techniques.
A) Rotor machines B) Steganography
C) Birthday attack D) Man in middle attack
- 13) Vigenere Cipher is
A) Monoalphabetic Cipher B) Playfair Cipher
C) Polyalphabetic Cipher D) One time pad
- 14) _____ is a technique for hiding a secret message within a larger one in such a way that others cannot discern the presence or contents of the hidden message.
A) Cryptography B) Steganography
C) Block cipher D) Stream cipher
- 15) Plaintext is written down as a sequence of diagonals and then read off as a sequence of rows in
A) Transposition technique B) Rail fence technique
C) Substitution technique D) None of these
- 16) Data encryption technique uses _____ block and _____ key.
A) 56 bit, 64 bit B) 56 byte, 64 bit
C) 64 bit, 56 bit D) 64 byte, 56 byte
- 17) _____ seeks to make the relationship between the statistics of the ciphertext and the value of the encryption key as complex as possible.
A) Diffusion B) Confision
C) Both D) None of these
- 18) A change in one bit of the plaintext or one bit of the key should produce a change in many bits of the ciphertext is referred to as
A) Avalanche effect B) Timing effect
C) Birthday attack D) Man in middle attack
- 19) Linear cryptanalysis and differential cryptanalysis requires _____ known plaintexts respectively.
A) 2^{43} and 2^{44} B) 2^{44} and 2^{47}
C) 2^{47} and 2^{43} D) 2^{43} and 2^{47}
- 20) When a hash function is used to provide message authentication, the hash function value is referred to as
A) Message digest B) Hash code
C) Message authentication code D) Digital signature
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**B.E. (Computer Science and Engg.) (Part – II) Examination, 2016
INFORMATION AND CYBER SECURITY (New)**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Answer **any four** : **(4×5=20)**
- a) Define :
 - i) Security attack
 - ii) Security services
 - iii) Security mechanisms
 - b) Describe one-time pad with its advantage and disadvantage.
 - c) Using vigenere cipher, encrypt the word “cryptography” using key “house”.
 - d) What is Digital signature ? Mention the properties of Digital signature.
 - e) Perform encryption and decryption using RSA algorithm for the following :
 $p = 5, q = 7, e = 7, M = 12$
3. Answer **any one** : **10**
- a) What is message authentication ? Explain basic uses of Hash function for message authentication with diagrams.
 - b) Construct the playfair matrix with the key “occurrence” and use it to encrypt the message “The enemy must be stopped at all costs”.
4. Consider Diffie-Hellman scheme with common prime $q = 11$ and primitive root $\alpha = 2$. **10**
- a) Show that 2 is the primitive root of 11.
 - b) If user A has public key $Y_A = 9$, what is X_A ?
 - c) If user B has public key $Y_B = 3$, what is the shared secret key ?



SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**
- A) List and explain functions of S/MIME.
 - B) Explain Security Association (SA) and its parameters.
 - C) Explain the cybercrime : The legal and an Indian perspective.
 - D) Differentiate computer virus and worm.
 - E) Explain the concept of steganography.
6. Attempt **any one** : **10**
- A) What are the basic requirements, key features and participants in SET transactions ?
 - B) What is Authentication Header ? Draw the format of authentication header. Explain the Transport mode AH and Tunnel mode AH with diagram.
7. What are the different types of viruses ? Explain it in detail. **10**
-



- 8) An internet standard approach to e-mail security is provided by
A) SET B) RSA C) PGP D) S/MIME
- 9) The SSL Record Protocol provides
A) Confidentiality B) Message Integrity
C) Neither (A) nor (B) D) Both (A) and (B)
- 10) The TLS is an Proposed Internet Standard defined in
A) RFC 2248 B) RFC 2246 C) RFC 2244 D) RFC 2240
- 11) The left of software through the illegal copying of genuine programs or the counterfeiting and distribution of products intended to pass for the original is known as
A) Web Jacking B) Data Diddling
C) Software Piracy D) All of these
- 12) _____ refers to sending a large number of E-Mails to the victim to crash victim's E-Mail account or to make victim's mail servers crash.
A) Software Privacy B) E-Mail Spoofing
C) Web Jacking D) E-Mail Bombing
- 13) _____ are programs that monitor and record the name and password of network users as they login, jeopardizing security at a site.
A) Password Sniffers B) Mail Bombs
C) Web Jacking D) Computer Worms
- 14) _____ attacks usually require physical access to the computer and copying the password file from the system onto removable media.
A) Phishing B) Online C) Offline D) All of these
- 15) _____ is quicker and easier way of capturing the passwords and monitoring the victims' IT savvy behaviour.
A) Mail Bombs B) Phishing C) Hacking D) Keylogger
- 16) _____ takes place when one entity pretends to be a different entity.
A) Masquerade B) Replay
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- 17) _____ are sophisticated precomputer hardware devices that use substitution techniques.
A) Rotor machines B) Steganography
C) Birthday attack D) Man in middle attack
- 18) Vigenere Cipher is
A) Monoalphabetic Cipher B) Playfair Cipher
C) Polyalphabetic Cipher D) One time pad
- 19) _____ is a technique for hiding a secret message within a larger one in such a way that others cannot discern the presence or contents of the hidden message.
A) Cryptography B) Steganography
C) Block cipher D) Stream cipher
- 20) Plaintext is written down as a sequence of diagonals and then read off as a sequence of rows in
A) Transposition technique B) Rail fence technique
C) Substitution technique D) None of these



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – II) Examination, 2016
INFORMATION AND CYBER SECURITY (New)**

Day and Date : Tuesday, 22-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Answer **any four** : **(4×5=20)**
- a) Define :
 - i) Security attack
 - ii) Security services
 - iii) Security mechanisms
 - b) Describe one-time pad with its advantage and disadvantage.
 - c) Using vigenere cipher, encrypt the word “cryptography” using key “house”.
 - d) What is Digital signature ? Mention the properties of Digital signature.
 - e) Perform encryption and decryption using RSA algorithm for the following :
 $p = 5, q = 7, e = 7, M = 12$
3. Answer **any one** : **10**
- a) What is message authentication ? Explain basic uses of Hash function for message authentication with diagrams.
 - b) Construct the playfair matrix with the key “occurrence” and use it to encrypt the message “The enemy must be stopped at all costs”.
4. Consider Diffie-Hellman scheme with common prime $q = 11$ and primitive root $\alpha = 2$. **10**
- a) Show that 2 is the primitive root of 11.
 - b) If user A has public key $Y_A = 9$, what is X_A ?
 - c) If user B has public key $Y_B = 3$, what is the shared secret key ?



SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**
- A) List and explain functions of S/MIME.
 - B) Explain Security Association (SA) and its parameters.
 - C) Explain the cybercrime : The legal and an Indian perspective.
 - D) Differentiate computer virus and worm.
 - E) Explain the concept of steganography.
6. Attempt **any one** : **10**
- A) What are the basic requirements, key features and participants in SET transactions ?
 - B) What is Authentication Header ? Draw the format of authentication header. Explain the Transport mode AH and Tunnel mode AH with diagram.
7. What are the different types of viruses ? Explain it in detail. **10**
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Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to the **right** indicate **full** marks for that question.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A process that is designed to detect, prevent or recover from security is
 - A) security
 - B) security mechanism
 - C) security services
 - D) security threat
- 2) Playfair cipher is _____ cipher.
 - A) monoalphabetic
 - B) polyalphabetic
 - C) multiletter
 - D) blinding
- 3) In _____ type of security attack in which the attacker tries every possible key on a piece of cipher text until an intelligible translation into plaintext is obtained.
 - A) Birthday attack
 - B) Man-in middle
 - C) Brute-force attack
 - D) Paradox
- 4) In block cipher for a given algorithm the impact of larger block size is
 - A) greater security
 - B) reduced encryption speed
 - C) easy for hacker to know plaintext
 - D) both A and B
- 5) In DES algorithm key size is
 - A) 56 bits
 - B) 64 bits
 - C) 168 bits
 - D) 256 bits
- 6) In _____ mode, there is no XORing of the current plaintext block and preceding ciphertext block.
 - A) Cipher Block Chaining
 - B) Cipher Feedback Mode
 - C) Electronic Code Book
 - D) None of above
- 7) The RSA scheme is a _____ in which the plaintext and ciphertext are integers between 0 and $n - 1$ for some n .
 - A) stream cipher
 - B) block cipher
 - C) block cipher mode operation
 - D) symmetric cipher

P.T.O.



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is steganography ? List some examples of various other message concealing techniques that have been used historically.
 - B) Using rail fence transposition technique write encrypted message for the plaintext “solapur university solapur”.
 - C) What is the purpose of S-boxes in DES algorithm ?
 - D) Describe with diagram a public-key encryption scheme.
 - E) Describe generic model of digital signature process.
3. Write answer to **any one** question. **10**
- A) Describe the Cipher Block Chaining (CBC) mode of block cipher.
 - B) Describe with the help of diagram three basic uses of Message Authentication Code.
4. List and briefly define categories of passive and active security attacks. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is Kerberos ? List the requirements of Kerberos.
 - B) What is the difference between transport mode and tunnel mode ?
 - C) Draw the diagram depicting top-level format of an ESP Packet and briefly explain its fields.
 - D) Explain Secure Electronic Transaction (SET) with diagram.
 - E) What is computer virus ? List its three parts and four phases that it goes through its lifetime.

Set P



6. Write answer to **any one** questions. **10**
- A) What is PGP ? Explain with the help of diagram how PGP provides authentication only and confidentially only cryptographic functions ?
 - B) Draw the diagram depicting general format of a X.509 certificate and briefly explain its elements.
7. In UNIX password scheme how a new password is loaded and password is verified. **10**
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Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to the **right** indicate **full** marks for that question.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A firewall may be designed to operate as a _____ at the level of IP packets.
A) filter B) aggregator C) tunnel D) multiplexer
- 2) _____ defines a number of techniques for key management.
A) IKE B) AH C) ESP D) SSL
- 3) A Denial of Service (DoS) attack is an attempt to prevent _____ users of a service from using that service.
A) legitimate B) guest C) administrative D) none of above
- 4) Password selection strategies use which of the following techniques?
A) User education B) Reactive password checking
C) Proactive password checking D) All above
- 5) Anderson identified three classes of intruder namely Masquerader, Clandestine user and
A) Suspicious user B) Misfeasor
C) Cliff stoll D) None of above
- 6) A process that is designed to detect, prevent or recover from security is
A) security B) security mechanism
C) security services D) security threat
- 7) Playfair cipher is _____ cipher.
A) monoalphabetic B) polyalphabetic
C) multiletter D) blinding



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is steganography ? List some examples of various other message concealing techniques that have been used historically.
 - B) Using rail fence transposition technique write encrypted message for the plaintext “solapur university solapur”.
 - C) What is the purpose of S-boxes in DES algorithm ?
 - D) Describe with diagram a public-key encryption scheme.
 - E) Describe generic model of digital signature process.
3. Write answer to **any one** question. **10**
- A) Describe the Cipher Block Chaining (CBC) mode of block cipher.
 - B) Describe with the help of diagram three basic uses of Message Authentication Code.
4. List and briefly define categories of passive and active security attacks. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is Kerberos ? List the requirements of Kerberos.
 - B) What is the difference between transport mode and tunnel mode ?
 - C) Draw the diagram depicting top-level format of an ESP Packet and briefly explain its fields.
 - D) Explain Secure Electronic Transaction (SET) with diagram.
 - E) What is computer virus ? List its three parts and four phases that it goes through its lifetime.

Set Q



6. Write answer to **any one** questions. **10**
- A) What is PGP ? Explain with the help of diagram how PGP provides authentication only and confidentially only cryptographic functions ?
 - B) Draw the diagram depicting general format of a X.509 certificate and briefly explain its elements.
7. In UNIX password scheme how a new password is loaded and password is verified. **10**
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SLR-EP – 366

Seat No.	
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Set **R**

**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to the **right** indicate **full** marks for that question.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) MIME is
 - A) Multikey Internet Mail Extension
 - B) Multinetwork Internet Mail Extension
 - C) Multimedia Internal Mail Encryption
 - D) Multipurpose Internet Mail Extension
- 2) In kerberos to provide more secured authentication dialogue
 - A) Ticket grant server
 - B) Authentication server
 - C) Server
 - D) Hash value
- 3) We trust a digital certificate because it contains
 - A) Owner's Public Key
 - B) CA's Public Key
 - C) Owners Signature
 - D) CA's Signature
- 4) Simple Mail Transfer Protocol is an example of
 - A) One-way Authentication
 - B) Two-way Authentication
 - C) Three-way Authentication
 - D) None of these
- 5) _____ is an IETF standardization initiative for an Internet Standard version of SSI.
 - A) TTL
 - B) TLS
 - C) SA
 - D) HTTPS
- 6) A firewall may be designed to operate as a _____ at the level of IP packets.
 - A) filter
 - B) aggrigator
 - C) tunel
 - D) multiplexer
- 7) _____ defines a number of technique for key management.
 - A) IKE
 - B) AH
 - C) ESP
 - D) SSL
- 8) A Denial of Service (DoS) attack is an attempt to prevent _____ users of a service from using that service.
 - A) legitimate
 - B) guest
 - C) administrative
 - D) none of above

P.T.O.



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is steganography ? List some examples of various other message concealing techniques that have been used historically.
 - B) Using rail fence transposition technique write encrypted message for the plaintext “solapur university solapur”.
 - C) What is the purpose of S-boxes in DES algorithm ?
 - D) Describe with diagram a public-key encryption scheme.
 - E) Describe generic model of digital signature process.
3. Write answer to **any one** question. **10**
- A) Describe the Cipher Block Chaining (CBC) mode of block cipher.
 - B) Describe with the help of diagram three basic uses of Message Authentication Code.
4. List and briefly define categories of passive and active security attacks. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is Kerberos ? List the requirements of Kerberos.
 - B) What is the difference between transport mode and tunnel mode ?
 - C) Draw the diagram depicting top-level format of an ESP Packet and briefly explain its fields.
 - D) Explain Secure Electronic Transaction (SET) with diagram.
 - E) What is computer virus ? List its three parts and four phases that it goes through its lifetime.

Set R



6. Write answer to **any one** questions. **10**
- A) What is PGP ? Explain with the help of diagram how PGP provides authentication only and confidentially only cryptographic functions ?
 - B) Draw the diagram depicting general format of a X.509 certificate and briefly explain its elements.
7. In UNIX password scheme how a new password is loaded and password is verified. **10**
-



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
3) **All questions are compulsory.**
4) Figures to the **right** indicate **full** marks for that question.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) In _____ mode, there is no XORing of the current plaintext block and preceding ciphertext block.
A) Cipher Block Chaining B) Cipher Feedback Mode
C) Electronic Code Book D) None of above
- 2) The RSA scheme is a _____ in which the plaintext and ciphertext are integers between 0 and $n - 1$ for some n .
A) stream cipher B) block cipher
C) block cipher mode operation D) symmetric cipher
- 3) _____ algorithm is used for key exchange only.
A) DSS B) RSA
C) Diffie Hellman D) ECC
- 4) A function of the message and a secret key that produces a fixed-length value that serves as the authenticator is
A) Hash value B) Symmetric encryption of message
C) Message encryption D) Message Authentication Code
- 5) The Digital Signature Standard (DSS) is an NIST standard that uses the
A) Secure Hash Algorithm (SHA) B) MAC
C) Hash Value D) DES
- 6) MIME is
A) Multikey Internet Mail Extension B) Multinetwork Internet Mail Extension
C) Multimedia Internal Mail Encryption D) Multipurpose Internet Mail Extension

P.T.O.



- 7) In kerberos to provide more secured authentication dialogue
A) Ticket grant server B) Authentication server
C) Server D) Hash value
- 8) We trust a digital certificate because it contains
A) Owner's Public Key B) CA's Public Key
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A) One-way Authentication B) Two-way Authentication
C) Three-way Authentication D) None of these
- 10) _____ is an IETF standardization initiative for an Internet Standard version of SSI.
A) TTL B) TLS C) SA D) HTTPS
- 11) A firewall may be designed to operate as a _____ at the level of IP packets.
A) filter B) aggregator C) tunel D) multiplexer
- 12) _____ defines a number of technique for key management.
A) IKE B) AH C) ESP D) SSL
- 13) A Denial of Service (DoS) attack is an attempt to prevent _____ users of a service from using that service.
A) legitimate B) guest C) administrative D) none of above
- 14) Password selection strategies uses which of the following technique
A) User education B) Reactive password checking
C) Proactive password checking D) All above
- 15) Anderson identified three classes of intruder namely Masquerader, Clandestine user and
A) Suspicious user B) Misfeasor
C) Cliff stoll D) None of above
- 16) A process that is designed to detect, prevent or recover from security is
A) security B) security mechanism
C) security services D) security threat
- 17) Playfair cipher is _____ cipher.
A) monoalphabetic B) polyalphabetic
C) multiletter D) blinding
- 18) In _____ type of security attack in which the attacker tries every possible key on a piece of cipher text until an intelligible translation into plaintext is obtained.
A) Birthday attack B) Man-in middle
C) Brute-force attack D) Paradox
- 19) In block cipher for a given algorithm the impact of larger block size is
A) greater security B) reduced encryption speed
C) easy for hacker to know plaintext D) both A and B
- 20) In DES algorithm key size is
A) 56 bits B) 64 bits C) 168 bits D) 256 bits



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
NETWORK SECURITY (Old)**

Day and Date : Tuesday, 13-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is steganography ? List some examples of various other message concealing techniques that have been used historically.
 - B) Using rail fence transposition technique write encrypted message for the plaintext “solapur university solapur”.
 - C) What is the purpose of S-boxes in DES algorithm ?
 - D) Describe with diagram a public-key encryption scheme.
 - E) Describe generic model of digital signature process.
3. Write answer to **any one** question. **10**
- A) Describe the Cipher Block Chaining (CBC) mode of block cipher.
 - B) Describe with the help of diagram three basic uses of Message Authentication Code.
4. List and briefly define categories of passive and active security attacks. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**). **20**
- A) What is Kerberos ? List the requirements of Kerberos.
 - B) What is the difference between transport mode and tunnel mode ?
 - C) Draw the diagram depicting top-level format of an ESP Packet and briefly explain its fields.
 - D) Explain Secure Electronic Transaction (SET) with diagram.
 - E) What is computer virus ? List its three parts and four phases that it goes through its lifetime.

Set S



6. Write answer to **any one** questions. **10**
- A) What is PGP ? Explain with the help of diagram how PGP provides authentication only and confidentially only cryptographic functions ?
 - B) Draw the diagram depicting general format of a X.509 certificate and briefly explain its elements.
7. In UNIX password scheme how a new password is loaded and password is verified. **10**
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SLR-EP – 367

Seat No.	
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Set	P
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B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) An activity is associated with _____
a) Event b) State c) Transaction d) Condition
- 2) When a subclass is created using inheritance the resulting class ?
a) May have only attributes of parent class
b) May have only operations of parent class
c) May have new operations only in addition to those in parent class
d) May have new attributes and new operations in addition to those of the parent class
- 3) Link is physical connection among _____
a) Classes b) Entity c) Object d) Packages
- 4) Dynamic models are used to define the _____ of the components over time.
a) Behaviour b) Strategy c) Condition d) Constraint
- 5) By encapsulation in object-oriented modelling we mean
a) Encapsulating data and programs
b) Hiding attributes of an object from users
c) Hiding operations on object from users
d) Hiding implementation details of methods from users of objects
- 6) _____ is the special attribute that reduces the effective multiplicity of an association.
a) Role Name b) Link Attribute
c) Qualifier d) None of the above
- 7) Which of the following statement is true concerning objects and/or classes ?
a) An object is an instance of a class
b) A class is an instance of an object
c) An object includes encapsulates only data
d) A class includes encapsulates only data
- 8) Single inheritance, Multiple inheritance and Aggregation comes under _____
a) Modularity b) Typing
c) Hierarchy d) None of the mentioned
- 9) A _____ transforms data values in data flow diagram.
a) Data store b) Actor c) Data flow d) Processes

P.T.O.



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**

- 1) Explain with respect to dynamic model :
 - a) Entry and Exit action
 - b) Internal action.
- 2) Explain the object oriented language features.
- 3) What is metadata is object Model ? Explain.
- 4) Differentiate between Aggregation, Association, Generalization.
- 5) Define :
 - i) Object
 - ii) Class
 - iii) Link
 - iv) Association
 - v) Role name.

3. Explain the concept of state and event. Draw state diagram with suitable example. **10**

OR

3. Explain with neat diagram the analysis for object diagram compiler (draw basic model and explain). **10**

4. Explain with suitable example modelling as a design technique. **10**



SECTION – II

5. Solve **any four** : **(5×4=20)**
- 1) What are building blocks of UML ?
 - 2) Explain in brief Modelling Flow of Control.
 - 3) Explain concept of package. How it is represented graphically ?
 - 4) Define interface, component, node, role, type.
 - 5) Explain Processes and Threads.
6. Explain different terms and concept of Use Cases with an example of Use Case Diagram. **10**
- OR
6. Draw an activity diagram to Enroll a student for particular course in college. **10**
7. Explain in details with suitable example and diagram Kinds of Events in Behavioural Model. **10**
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Seat No.	
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Set	Q
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Find out correct match :
 - 1) Problem Statement
 - 2) Architecture
 - 3) Design Model
 - 4) Programming Language
 - i) Implementation
 - ii) Object Design
 - iii) System Design
 - iv) Analysis
 - a) 1 – ii, 2 – iv, 3 – i, 4 – iii
 - b) 1 – i, 2 – iv, 3 – iii, 4 – ii
 - c) 1 – iv, 2 – iii, 3 – ii, 4 – i
 - d) 1 – iii, 2 – ii, 3 – i, 4 – iv
- 2) Aggregation is a _____ relationship between object classes.
 - a) Part-Whole
 - b) Hierarchical
 - c) Unqualified
 - d) Qualified
- 3) For understanding control mechanisms, such as user interfaces and device controllers, which one of the following UML artifacts is most useful ?
 - a) Interaction Diagram
 - b) Package Diagram
 - c) State Diagram
 - d) Activity Diagram
- 4) A _____ is a diagram that shows the configuration of run time processing nodes and the artifacts that live on them.
 - a) Collaboration Diagram
 - b) Communication Diagram
 - c) Deployment Diagram
 - d) Artifact Diagram
- 5) Consider the following statements for UML _____
S1 : Interface cannot have direct instances.
S2 : One can also associate signals with an interface.
 - a) Only S1 is TRUE
 - b) Only S2 is TRUE
 - c) Both are FALSE
 - d) Both are TRUE
- 6) An activity is associated with _____.
 - a) Event
 - b) State
 - c) Transaction
 - d) Condition
- 7) When a subclass is created using inheritance the resulting class ?
 - a) May have only attributes of parent class
 - b) May have only operations of parent class
 - c) May have new operations only in addition to those in parent class
 - d) May have new attributes and new operations in addition to those of the parent class



- 8) Link is physical connection among _____
- a) Classes b) Entity c) Object d) Packages
- 9) Dynamic models are used to define the _____ of the components over time.
- a) Behaviour b) Strategy c) Condition d) Constraint
- 10) By encapsulation in object-oriented modelling we mean
- a) Encapsulating data and programs
- b) Hiding attributes of an object from users
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- d) Hiding implementation details of methods from users of objects
- 11) _____ is the special attribute that reduces the effective multiplicity of an association.
- a) Role Name b) Link Attribute
- c) Qualifier d) None of the above
- 12) Which of the following statement is true concerning objects and/or classes ?
- a) An object is an instance of a class
- b) A class is an instance of an object
- c) An object includes encapsulates only data
- d) A class includes encapsulates only data
- 13) Single inheritance, Multiple inheritance and Aggregation comes under _____
- a) Modularity b) Typing
- c) Hierarchy d) None of the mentioned
- 14) A _____ transforms data values in data flow diagram.
- a) Data store b) Actor c) Data flow d) Processes
- 15) OMT was developed as an approach to _____
- a) Software Testing b) Software Development
- c) Software Design d) Computer Programming
- 16) The fact that the same operation may apply to two or more classes is called what ?
- a) Inheritance b) Polymorphism
- c) Encapsulation d) Multiple classification
- 17) Which one of the following should be supported by programming language for OMT ?
- i) Data Structure
- ii) Dynamic Flow of control
- iii) Functional Transformation
- a) Only i) b) Both i) and ii)
- c) All of the above d) None of the above
- 18) Consider following statements :
- S1 : In the Dynamic Model, every trigger must map to an operation in the interface of a class.
- S2 : Every arrow incident on an object in an interaction Model represents an operation that must be in the interface of class.
- a) Only S1 is TRUE b) Only S2 is TRUE
- c) Both are TRUE d) Both are FALSE
- 19) Which one of the following highlights the roles each object plays, in an interaction model ?
- a) Collaboration Diagram b) Sequence Diagram
- c) Deployment Diagram d) Package Diagrams
- 20) A _____ is a sequence of events that occurs during one particular execution of a system.
- a) State Transaction b) Scenario c) Trigger d) Qualifier



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Explain with respect to dynamic model :
 - a) Entry and Exit action
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 - 2) Explain the object oriented language features.
 - 3) What is metadata in object Model ? Explain.
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 - v) Role name.

3. Explain the concept of state and event. Draw state diagram with suitable example. **10**

OR

3. Explain with neat diagram the analysis for object diagram compiler (draw basic model and explain). **10**
4. Explain with suitable example modelling as a design technique. **10**



SECTION – II

5. Solve **any four** : **(5×4=20)**
- 1) What are building blocks of UML ?
 - 2) Explain in brief Modelling Flow of Control.
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 - 4) Define interface, component, node, role, type.
 - 5) Explain Processes and Threads.
6. Explain different terms and concept of Use Cases with an example of Use Case Diagram. **10**
- OR
6. Draw an activity diagram to Enroll a student for particular course in college. **10**
7. Explain in details with suitable example and diagram Kinds of Events in Behavioural Model. **10**
-



SLR-EP – 367

Seat No.	
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Set	R
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B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) The fact that the same operation may apply to two or more classes is called what ?
 - a) Inheritance
 - b) Polymorphism
 - c) Encapsulation
 - d) Multiple classification
- 2) Which one of the following should be supported by programming language for OMT ?
 - i) Data Structure
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 - a) Only i)
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 - d) None of the above
- 3) Consider following statements :

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 - d) Package Diagrams
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- 6) Find out correct match :
 - 1) Problem Statement
 - 2) Architecture
 - 3) Design Model
 - 4) Programming Language
 - i) Implementation
 - ii) Object Design
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 - iv) Analysis
 - a) 1 – ii, 2 – iv, 3 – i, 4 – iii
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- 7) Aggregation is a _____ relationship between object classes.
 - a) Part-Whole
 - b) Hierarchical
 - c) Unqualified
 - d) Qualified

P.T.O.



- 8) For understanding control mechanisms, such as user interfaces and device controllers, which one of the following UML artifacts is most useful ?
- a) Interaction Diagram
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 - c) State Diagram
 - d) Activity Diagram
- 9) A _____ is a diagram that shows the configuration of run time processing nodes and the artifacts that live on them.
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- 15) By encapsulation in object-oriented modelling we mean
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 - d) Processes
- 20) OMT was developed as an approach to _____
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 - c) Software Design
 - d) Computer Programming



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Explain with respect to dynamic model :
 - a) Entry and Exit action
 - b) Internal action.
 - 2) Explain the object oriented language features.
 - 3) What is metadata is object Model ? Explain.
 - 4) Differentiate between Aggregation, Association, Generalization.
 - 5) Define :
 - i) Object
 - ii) Class
 - iii) Link
 - iv) Association
 - v) Role name.

3. Explain the concept of state and event. Draw state diagram with suitable example. **10**

OR

3. Explain with neat diagram the analysis for object diagram compiler (draw basic model and explain). **10**
4. Explain with suitable example modelling as a design technique. **10**



SECTION – II

5. Solve **any four** : **(5×4=20)**
- 1) What are building blocks of UML ?
 - 2) Explain in brief Modelling Flow of Control.
 - 3) Explain concept of package. How it is represented graphically ?
 - 4) Define interface, component, node, role, type.
 - 5) Explain Processes and Threads.
6. Explain different terms and concept of Use Cases with an example of Use Case Diagram. **10**
- OR
6. Draw an activity diagram to Enroll a student for particular course in college. **10**
7. Explain in details with suitable example and diagram Kinds of Events in Behavioural Model. **10**
-



- 9) Which one of the following highlights the roles each object plays, in an interaction model ?
- Collaboration Diagram
 - Sequence Diagram
 - Deployment Diagram
 - Package Diagrams
- 10) A _____ is a sequence of events that occurs during one particular execution of a system.
- State Transaction
 - Scenario
 - Trigger
 - Qualifier
- 11) Find out correct match :
- | | |
|-------------------------|--------------------|
| 1) Problem Statement | i) Implementation |
| 2) Architecture | ii) Object Design |
| 3) Design Model | iii) System Design |
| 4) Programming Language | iv) Analysis |
- 1 – ii, 2 – iv, 3 – i, 4 – iii
 - 1 – i, 2 – iv, 3 – iii, 4 – ii
 - 1 – iv, 2 – iii, 3 – ii, 4 – i
 - 1 – iii, 2 – ii, 3 – i, 4 – iv
- 12) Aggregation is a _____ relationship between object classes.
- Part-Whole
 - Hierarchical
 - Unqualified
 - Qualified
- 13) For understanding control mechanisms, such as user interfaces and device controllers, which one of the following UML artifacts is most useful ?
- Interaction Diagram
 - Package Diagram
 - State Diagram
 - Activity Diagram
- 14) A _____ is a diagram that shows the configuration of run time processing nodes and the artifacts that live on them.
- Collaboration Diagram
 - Communication Diagram
 - Deployment Diagram
 - Artifact Diagram
- 15) Consider the following statements for UML _____
- S1 : Interface cannot have direct instances.
S2 : One can also associate signals with an interface.
- Only S1 is TRUE
 - Only S2 is TRUE
 - Both are FALSE
 - Both are TRUE
- 16) An activity is associated with _____
- Event
 - State
 - Transaction
 - Condition
- 17) When a subclass is created using inheritance the resulting class ?
- May have only attributes of parent class
 - May have only operations of parent class
 - May have new operations only in addition to those in parent class
 - May have new attributes and new operations in addition to those of the parent class
- 18) Link is physical connection among _____
- Classes
 - Entity
 - Object
 - Packages
- 19) Dynamic models are used to define the _____ of the components over time.
- Behaviour
 - Strategy
 - Condition
 - Constraint
- 20) By encapsulation in object-oriented modelling we mean
- Encapsulating data and programs
 - Hiding attributes of an object from users
 - Hiding operations on object from users
 - Hiding implementation details of methods from users of objects



Seat No.	
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**B.E. (Computer Science and Engg.) (Part – I) Examination, 2016
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)**

Day and Date : Wednesday, 14-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Explain with respect to dynamic model :
 - a) Entry and Exit action
 - b) Internal action.
 - 2) Explain the object oriented language features.
 - 3) What is metadata is object Model ? Explain.
 - 4) Differentiate between Aggregation, Association, Generalization.
 - 5) Define :
 - i) Object
 - ii) Class
 - iii) Link
 - iv) Association
 - v) Role name.

3. Explain the concept of state and event. Draw state diagram with suitable example. **10**

OR

3. Explain with neat diagram the analysis for object diagram compiler (draw basic model and explain). **10**
4. Explain with suitable example modelling as a design technique. **10**

Set S



SECTION – II

5. Solve **any four** : **(5×4=20)**
- 1) What are building blocks of UML ?
 - 2) Explain in brief Modelling Flow of Control.
 - 3) Explain concept of package. How it is represented graphically ?
 - 4) Define interface, component, node, role, type.
 - 5) Explain Processes and Threads.
6. Explain different terms and concept of Use Cases with an example of Use Case Diagram. **10**
- OR
6. Draw an activity diagram to Enroll a student for particular course in college. **10**
7. Explain in details with suitable example and diagram Kinds of Events in Behavioural Model. **10**
-



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Seat No.	
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Set	P
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicates **full** marks.
 - 2) Assume suitable **data** if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**
- 1) Documents have no match in vector model if cosine value is
a) 0 b) 1 c) 90 d) 45
 - 2) Structural queries allows querying based on
a) Text b) Structure c) Text structure d) None of these
 - 3) In Boolean model index term weights are _____ values.
a) Hexadecimal b) Octal c) Binary d) Decimal
 - 4) An inverted file is _____ oriented mechanism.
a) Data b) Word c) Letter d) Sentences
 - 5) Use of IR is more concerned with
a) Information b) Data c) Words d) Letter
 - 6) Recall is fraction of relevant doc and
a) Modified doc b) Deleted doc c) Retrieved doc d) All of the above
 - 7) SGML stands for
a) Structured Generalized Markup Language
b) Standard Generalized Markup Language
c) Sequential Generalized Markup Language
d) Soft Generalized Markup Language

P.T.O.



- 8) Phrase query is sequence of _____ queries.
a) Boolean b) Single word c) Proximity d) All of these
- 9) _____ is the technique used in allowing error pattern matching.
a) Distance function b) LCS
c) Edit distance d) None of these
- 10) Precision is the ratio of retrieved doc and _____ doc.
a) Relevant b) Non-relevant
c) Modified d) All the doc in database
- 11) Object index is pair of
a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) (MC, IMH)
- 12) MULTOS stands for
a) Multimedia Office Server b) Multimedia Offline Server
c) Multimedia Oriented Server d) Multimedia Outline Server
- 13) GEMINI has also been applied for color images with the _____ project of IBM.
a) QDIC b) QCIC c) QBIC d) QQIC
- 14) Trying all possible patterns positions in text is _____ algo.
a) KMP b) Boyer-moore family
c) B d) All of the above
- 15) TIFF stands for
a) Tagged Image Frame Format b) Tagged Image File Format
c) Tagged Image Form Format d) Tagged Image File Frame
- 16) Harvest uses _____ architecture.
a) Client/server b) Centralized c) Distributed d) None of these
- 17) Crawlers are _____ that send the request to different remote web servers.
a) Algorithm b) Program c) Data d) Information
- 18) An important metadata format is
a) MARC b) CARC c) FARC d) DARC
- 19) MULTOS data model is based on _____ architecture.
a) Client b) Server c) Client-server d) Two-tier
- 20) Digital Libraries are part of _____ information infrastructure.
a) Whole b) Global c) Domestic d) None of these



Seat No.	
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

- Instructions:** 1) Figures to the **right** indicates **full** marks.
2) Assume suitable **data** if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Answer **any four** : **20**
- a) Explain information retrieval versus data retrieval.
 - b) Write a short note on single word queries.
 - c) Explain about structural queries.
 - d) Write the KMP Algorithm.
 - e) Explain about Query Protocols.
3. Describe Boolean model with example. **10**

OR

Explain probabilistic model.

4. Explain SGML, XML, HTML documents with example. **10**

SECTION – II

5. Describe a typical form of multos query and write a sample multos query and explain. **10**

OR

Explain architectural issues of digital library.



6. Describe the following steps of data retrieval : **10**
Query specification
Query processing and optimization
Query answer
Query iteration
7. Write short notes on **any four** : **20**
- 1) Problems posed by web
 - 2) Crawler indexer architecture
 - 3) Indices in searching web
 - 4) Two dimension color images
 - 5) Similarity model.
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Seat No.	
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Set	Q
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicates **full** marks.
 - 2) Assume suitable **data** if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**
- 1) Harvest uses _____ architecture.
a) Client/server b) Centralized c) Distributed d) None of these
 - 2) Crawlers are _____ that send the request to different remote web servers.
a) Algorithm b) Program c) Data d) Information
 - 3) An important metadata format is
a) MARC b) CARC c) FARC d) DARC
 - 4) MULTOS data model is based on _____ architecture.
a) Client b) Server c) Client-server d) Two-tier
 - 5) Digital Libraries are part of _____ information infrastructure.
a) Whole b) Global c) Domestic d) None of these
 - 6) Documents have no match in vector model if cosine value is
a) 0 b) 1 c) 90 d) 45
 - 7) Structural queries allows querying based on
a) Text b) Structure c) Text structure d) None of these
 - 8) In Boolean model index term weights are _____ values.
a) Hexadecimal b) Octal c) Binary d) Decimal



- 9) An inverted file is _____ oriented mechanism.
a) Data b) Word c) Letter d) Sentences
- 10) Use of IR is more concerned with
a) Information b) Data c) Words d) Letter
- 11) Recall is fraction of relevant doc and
a) Modified doc b) Deleted doc c) Retrieved doc d) All of the above
- 12) SGML stands for
a) Structured Generalized Markup Language
b) Standard Generalized Markup Language
c) Sequential Generalized Markup Language
d) Soft Generalized Markup Language
- 13) Phrase query is sequence of _____ queries.
a) Boolean b) Single word c) Proximity d) All of these
- 14) _____ is the technique used in allowing error pattern matching.
a) Distance function b) LCS
c) Edit distance d) None of these
- 15) Precision is the ratio of retrieved doc and _____ doc.
a) Relevant b) Non-relevant
c) Modified d) All the doc in database
- 16) Object index is pair of
a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) (MC, IMH)
- 17) MULTOS stands for
a) Multimedia Office Server b) Multimedia Offline Server
c) Multimedia Oriented Server d) Multimedia Outline Server
- 18) GEMINI has also been applied for color images with the _____ project of IBM.
a) QDIC b) QCIC c) QBIC d) QQIC
- 19) Trying all possible patterns positions in text is _____ algo.
a) KMP b) Boyer-moore family
c) B d) All of the above
- 20) TIFF stands for
a) Tagged Image Frame Format b) Tagged Image File Format
c) Tagged Image Form Format d) Tagged Image File Frame



Seat No.	
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

- Instructions:** 1) Figures to the **right** indicates **full** marks.
2) Assume suitable **data** if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Answer **any four** : **20**
- a) Explain information retrieval versus data retrieval.
 - b) Write a short note on single word queries.
 - c) Explain about structural queries.
 - d) Write the KMP Algorithm.
 - e) Explain about Query Protocols.
3. Describe Boolean model with example. **10**

OR

Explain probabilistic model.

4. Explain SGML, XML, HTML documents with example. **10**

SECTION – II

5. Describe a typical form of multos query and write a sample multos query and explain. **10**

OR

Explain architectural issues of digital library.

Set Q



6. Describe the following steps of data retrieval : **10**
Query specification
Query processing and optimization
Query answer
Query iteration
7. Write short notes on **any four** : **20**
- 1) Problems posed by web
 - 2) Crawler indexer architecture
 - 3) Indices in searching web
 - 4) Two dimension color images
 - 5) Similarity model.
-



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Seat No.	
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Set	R
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicates **full** marks.
 - 2) Assume suitable **data** if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**
- 1) Object index is pair of
a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) (MC, IMH)
 - 2) MULTOS stands for
a) Multimedia Office Server b) Multimedia Offline Server
c) Multimedia Oriented Server d) Multimedia Outline Server
 - 3) GEMINI has also been applied for color images with the _____ project of IBM.
a) QDIC b) QCIC c) QBIC d) QQIC
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a) KMP b) Boyer-moore family
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 - 6) Harvest uses _____ architecture.
a) Client/server b) Centralized c) Distributed d) None of these
 - 7) Crawlers are _____ that send the request to different remote web servers.
a) Algorithm b) Program c) Data d) Information

P.T.O.



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- 9) MULTOS data model is based on _____ architecture.
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- 11) Documents have no match in vector model if cosine value is
a) 0 b) 1 c) 90 d) 45
- 12) Structural queries allows querying based on
a) Text b) Structure c) Text structure d) None of these
- 13) In Boolean model index term weights are _____ values.
a) Hexadecimal b) Octal c) Binary d) Decimal
- 14) An inverted file is _____ oriented mechanism.
a) Data b) Word c) Letter d) Sentences
- 15) Use of IR is more concerned with
a) Information b) Data c) Words d) Letter
- 16) Recall is fraction of relevant doc and
a) Modified doc b) Deleted doc c) Retrieved doc d) All of the above
- 17) SGML stands for
a) Structured Generalized Markup Language
b) Standard Generalized Markup Language
c) Sequential Generalized Markup Language
d) Soft Generalized Markup Language
- 18) Phrase query is sequence of _____ queries.
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- 19) _____ is the technique used in allowing error pattern matching.
a) Distance function b) LCS
c) Edit distance d) None of these
- 20) Precision is the ratio of retrieved doc and _____ doc.
a) Relevant b) Non-relevant
c) Modified d) All the doc in database
-



Seat No.	
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

- Instructions:** 1) Figures to the **right** indicates **full** marks.
2) Assume suitable **data** if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Answer **any four** : **20**
- a) Explain information retrieval versus data retrieval.
 - b) Write a short note on single word queries.
 - c) Explain about structural queries.
 - d) Write the KMP Algorithm.
 - e) Explain about Query Protocols.
3. Describe Boolean model with example. **10**

OR

Explain probabilistic model.

4. Explain SGML, XML, HTML documents with example. **10**

SECTION – II

5. Describe a typical form of multos query and write a sample multos query and explain. **10**

OR

Explain architectural issues of digital library.

Set R



6. Describe the following steps of data retrieval : **10**
Query specification
Query processing and optimization
Query answer
Query iteration
7. Write short notes on **any four** : **20**
- 1) Problems posed by web
 - 2) Crawler indexer architecture
 - 3) Indices in searching web
 - 4) Two dimension color images
 - 5) Similarity model.
-



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Seat No.	
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Set	S
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicates **full** marks.
 - 2) Assume suitable **data** if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**
- 1) Recall is fraction of relevant doc and
a) Modified doc b) Deleted doc c) Retrieved doc d) All of the above
 - 2) SGML stands for
a) Structured Generalized Markup Language
b) Standard Generalized Markup Language
c) Sequential Generalized Markup Language
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a) Boolean b) Single word c) Proximity d) All of these
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a) Distance function b) LCS
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 - 5) Precision is the ratio of retrieved doc and _____ doc.
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 - 6) Object index is pair of
a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) (MC, IMH)

P.T.O.



- 7) MULTOS stands for
a) Multimedia Office Server b) Multimedia Offline Server
c) Multimedia Oriented Server d) Multimedia Outline Server
- 8) GEMINI has also been applied for color images with the _____ project of IBM.
a) QDIC b) QCIC c) QBIC d) QQIC
- 9) Trying all possible patterns positions in text is _____ algo.
a) KMP b) Boyer-moore family
c) B d) All of the above
- 10) TIFF stands for
a) Tagged Image Frame Format b) Tagged Image File Format
c) Tagged Image Form Format d) Tagged Image File Frame
- 11) Harvest uses _____ architecture.
a) Client/server b) Centralized c) Distributed d) None of these
- 12) Crawlers are _____ that send the request to different remote web servers.
a) Algorithm b) Program c) Data d) Information
- 13) An important metadata format is
a) MARC b) CARC c) FARC d) DARC
- 14) MULTOS data model is based on _____ architecture.
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a) Whole b) Global c) Domestic d) None of these
- 16) Documents have no match in vector model if cosine value is
a) 0 b) 1 c) 90 d) 45
- 17) Structural queries allows querying based on
a) Text b) Structure c) Text structure d) None of these
- 18) In Boolean model index term weights are _____ values.
a) Hexadecimal b) Octal c) Binary d) Decimal
- 19) An inverted file is _____ oriented mechanism.
a) Data b) Word c) Letter d) Sentences
- 20) Use of IR is more concerned with
a) Information b) Data c) Words d) Letter



Seat No.	
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**B.E. (CSE) (Part – I) (Old) Examination, 2016
INFORMATION RETRIEVAL (Elective)**

Day and Date : Wednesday, 14-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

- Instructions:** 1) Figures to the **right** indicates **full** marks.
2) Assume suitable **data** if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Answer **any four** : **20**
- a) Explain information retrieval versus data retrieval.
 - b) Write a short note on single word queries.
 - c) Explain about structural queries.
 - d) Write the KMP Algorithm.
 - e) Explain about Query Protocols.
3. Describe Boolean model with example. **10**

OR

Explain probabilistic model.

4. Explain SGML, XML, HTML documents with example. **10**

SECTION – II

5. Describe a typical form of multos query and write a sample multos query and explain. **10**

OR

Explain architectural issues of digital library.



6. Describe the following steps of data retrieval : **10**
Query specification
Query processing and optimization
Query answer
Query iteration
7. Write short notes on **any four** : **20**
- 1) Problems posed by web
 - 2) Crawler indexer architecture
 - 3) Indices in searching web
 - 4) Two dimension color images
 - 5) Similarity model.
-



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Seat No.	
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Set	P
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B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct option :

20

- 1) _____ reasoning, reasons from a fact to the action or state that caused it.
a) Abductive b) Inductive c) Deductive d) Indexive
- 2) In human eye, vision begins with
a) rays b) sensor c) light d) sound
- 3) _____ systems present a 3D virtual world.
a) Virtual reality b) Space reality
c) Cognitive reality d) None of these
- 4) _____ engineering promotes the use of explicit criteria to judge the success of a product.
a) Reliability b) Usability c) Portability d) Flexibility
- 5) UIMS means
a) User Interface Management System
b) Unit Interface Management System
c) Unique Interface Management System
d) None of the above
- 6) The elements of WIMP interfaces are called as
a) resources b) Widgets c) Devices d) Items
- 7) WIMP stands for _____, Icons, Menus and Pointers.
a) Widgets b) Wifi c) Windows d) None of these
- 8) _____ models represents the user system grammar.
a) Hierarchical b) Linguistic c) User d) Physical

P.T.O.



- 9) _____ analysis is used to design new system.
a) Static b) Task c) Complex d) Documentation
- 10) _____ user interfaces give users physical objects to manipulate so as to operate the interface.
a) Tangible b) Direct c) Augmented d) Static
- 11) For users, the main experience of Quality of Service is the computer system's _____ time.
a) Execution b) Compile c) Request d) Response
- 12) _____ displays are attractive to users and can often improve task performance.
a) Interface b) Structured c) Framework d) Color
- 13) _____ can provide indexes of terms, keyword searches, step by-step guidance and access to complementary web information.
a) Online tutorial b) Online help c) Interactive help d) None of these
- 14) _____ is term for applications written to support the collaboration of several users.
a) Cognitive b) Quality c) Firmware d) Groupware
- 15) _____ refers to the computer generated simulation of a world or a subset of it.
a) Multimedia reality b) Visual reality
c) Virtual reality d) None of these
- 16) The _____ is global hypermedia system.
a) WorldWide Web b) Multimedia
c) Hypertext d) Virtual reality
- 17) Video Searching involves more than simply searching through each of the
a) Facts b) Graphics c) Frames d) Object
- 18) OAI model means
a) Object Action Interface b) Object Attribute Interface
c) Object Augmented Interface d) All
- 19) _____ web content can be used for complete web based applications.
a) Static b) Dynamic c) Complex d) Simple
- 20) Applications of _____ include online help, education and e-commerce.
a) Animation b) Hypermedia
c) Multimedia d) Augmented reality
-



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) What are the different devices used for virtual reality and 3-D interaction.
 - 2) Describe software life cycle in detail.
 - 3) Write note on Usability Engineering.
 - 4) Explain GOMS model.
 - 5) Explain collaboration and social media participation in interaction styles.
 - 6) Describe command and natural languages in interaction styles.
3. Explain all common interface interaction styles in detail. **10**
- OR
- What are the different principles to support usability in design ? **10**
4. What is task analysis ? What are the different sources of information and data collection for task analysis. Also differentiate between task analysis and other techniques. **10**

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- 1) Explain quality of service in design issue.
 - 2) Write short note on User Documentation and Online help.
 - 3) Explain virtual and augmented reality in detail.
 - 4) Explain information visualization in information search.
 - 5) Explain information search in textual documents and database querying.
 - 6) Describe static web content in detail.
6. What is Groupware ? Explain ubiquitous computing application research. **10**
- OR
- Explain OAI (Object Action Interface) model for website design. **10**
7. Explain understanding hypertext, web technology and its issues in detail. **10**
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SLR-EP – 477

Seat No.	
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Set	Q
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B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct option :

20

- 1) The _____ is global hypermedia system.
 - a) World Wide Web
 - b) Multimedia
 - c) Hypertext
 - d) Virtual reality
- 2) Video Searching involves more than simply searching through each of the
 - a) Facts
 - b) Graphics
 - c) Frames
 - d) Object
- 3) OAI model means
 - a) Object Action Interface
 - b) Object Attribute Interface
 - c) Object Augmented Interface
 - d) All
- 4) _____ web content can be used for complete web based applications.
 - a) Static
 - b) Dynamic
 - c) Complex
 - d) Simple
- 5) Applications of _____ include online help, education and e-commerce.
 - a) Animation
 - b) Hypermedia
 - c) Multimedia
 - d) Augmented reality
- 6) _____ reasoning, reasons from a fact to the action or state that caused it.
 - a) Abductive
 - b) Inductive
 - c) Deductive
 - d) Indexive
- 7) In human eye, vision begins with
 - a) rays
 - b) sensor
 - c) light
 - d) sound
- 8) _____ systems present a 3D virtual world.
 - a) Virtual reality
 - b) Space reality
 - c) Cognitive reality
 - d) None of these

P.T.O.



- 9) _____ engineering promotes the use of explicit criteria to judge the success of a product.
a) Reliability b) Usability c) Portability d) Flexibility
- 10) UIMS means
a) User Interface Management System
b) Unit Interface Management System
c) Unique Interface Management System
d) None of the above
- 11) The elements of WIMP interfaces are called as
a) resources b) Widgets c) Devices d) Items
- 12) WIMP stands for _____, Icons, Menus and Pointers.
a) Widgets b) Wifi c) Windows d) None of these
- 13) _____ models represents the user system grammar.
a) Hierarchical b) Linguistic c) User d) Physical
- 14) _____ analysis is used to design new system.
a) Static b) Task c) Complex d) Documentation
- 15) _____ user interfaces give users physical objects to manipulate so as to operate the interface.
a) Tangible b) Direct c) Augmented d) Static
- 16) For users, the main experience of Quality of Service is the computer system's _____ time.
a) Execution b) Compile c) Request d) Response
- 17) _____ displays are attractive to users and can often improve task performance.
a) Interface b) Structured c) Framework d) Color
- 18) _____ can provide indexes of terms, keyword searches, step by-step guidance and access to complementary web information.
a) Online tutorial b) Online help c) Interactive help d) None of these
- 19) _____ is term for applications written to support the collaboration of several users.
a) Cognitive b) Quality c) Firmware d) Groupware
- 20) _____ refers to the computer generated simulation of a world or a subset of it.
a) Multimedia reality b) Visual reality
c) Virtual reality d) None of these



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**B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) What are the different devices used for virtual reality and 3-D interaction.
 - 2) Describe software life cycle in detail.
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3. Explain all common interface interaction styles in detail. **10**
- OR
- What are the different principles to support usability in design ? **10**
4. What is task analysis ? What are the different sources of information and data collection for task analysis. Also differentiate between task analysis and other techniques. **10**

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- 1) Explain quality of service in design issue.
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 - 3) Explain virtual and augmented reality in detail.
 - 4) Explain information visualization in information search.
 - 5) Explain information search in textual documents and database querying.
 - 6) Describe static web content in detail.
6. What is Groupware ? Explain ubiquitous computing application research. **10**
- OR
- Explain OAI (Object Action Interface) model for website design. **10**
7. Explain understanding hypertext, web technology and its issues in detail. **10**
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SLR-EP – 477

Seat No.	
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B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

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20

- 1) For users, the main experience of Quality of Service is the computer system's _____ time.
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- 2) _____ displays are attractive to users and can often improve task performance.
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P.T.O.



- 8) OAI model means
a) Object Action Interface b) Object Attribute Interface
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- 13) _____ systems present a 3D virtual world.
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- 19) _____ analysis is used to design new system.
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- 20) _____ user interfaces give users physical objects to manipulate so as to operate the interface.
a) Tangible b) Direct c) Augmented d) Static
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**B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
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 - 2) Describe software life cycle in detail.
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SECTION – II

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6. What is Groupware ? Explain ubiquitous computing application research. **10**
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7. Explain understanding hypertext, web technology and its issues in detail. **10**
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B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions: 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.

2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

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20

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P.T.O.



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Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
HUMAN COMPUTER INTERACTION (HCI) (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) What are the different devices used for virtual reality and 3-D interaction.
 - 2) Describe software life cycle in detail.
 - 3) Write note on Usability Engineering.
 - 4) Explain GOMS model.
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 - 6) Describe command and natural languages in interaction styles.
3. Explain all common interface interaction styles in detail. **10**
- OR
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SECTION – II

5. Attempt **any four** : **(5×4=20)**
- 1) Explain quality of service in design issue.
 - 2) Write short note on User Documentation and Online help.
 - 3) Explain virtual and augmented reality in detail.
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6. What is Groupware ? Explain ubiquitous computing application research. **10**
- OR
- Explain OAI (Object Action Interface) model for website design. **10**
7. Explain understanding hypertext, web technology and its issues in detail. **10**
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Seat No.	
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**B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

20

- 1) One dimensional signal is a function of
 - a) Multiple independent variables
 - b) Single independent variable
 - c) Multiple dependent variables
 - d) Single dependent variable
- 2) Superposition of signals in a linear system refers to the
 - a) Output that is product of all the signals
 - b) Output that is sum of all the signals
 - c) Output that is of highest amplitude of all the signals
 - d) Output that is of largest spectrum of all the signals
- 3) The scaling of a sequence $x[n]$ by a factor α is given by
 - a) $y[n] = \alpha[x[n]]^2$
 - b) $y[n] = \alpha x[n^2]$
 - c) $y[n] = \alpha x[n]$
 - d) $y[n] = x[n] x[-n]$
- 4) DFT is applied to
 - a) Infinite sequences
 - b) Finite discrete sequences
 - c) Continuous infinite signals
 - d) Continuous finite sequences
- 5) A system is said to be marginally unstable if
 - a) None of its zeros of its transfer function lies on the $j\omega$ axis of s-plane
 - b) At least one zero of its transfer function lies on the $j\omega$ axis of s-plane
 - c) None of its poles of its transfer function lies on the $j\omega$ axis of s-plane
 - d) At least one pole of its transfer function lies on the $j\omega$ axis of s-plane
- 6) Causal systems are the systems in which
 - a) The output of the system depends on the present and the past inputs
 - b) The output of the system depends only on the present inputs
 - c) The output of the system depends only on the past inputs
 - d) The output of the system depends on the present input as well as the previous outputs
- 7) For the calculation of N-point DFT, Radix-2 FFT algorithm repeats
 - a) $2(N \log_2 N)$ stages
 - b) $(N \log_2 N)^2/2$ stages
 - c) $(N \log_2 N)/2$ stages
 - d) $(N \log_2 (2N))/2$ stages



Seat No.	
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**B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

2. Answer **any four** of the following : 20

- a) Classify the following signals based on one or multidimensional/single or multi channel/continuous or discrete time/analog or digital. Give a brief explanation.
 - i) Closing prices of utility stocks on the New York stock exchange.
 - ii) A color movie.
 - iii) Position of steering wheel of a car in motion relative to ground reference frame.
 - iv) Weight and height measurements of a child taken every month.
- b) An analog signal $x_a(t) = \sin(480\pi t) + 3\sin(720\pi t)$ is sampled 600 times per second. Determine Nyquist sampling rate, folding frequency, frequency in radians for $x(n)$ and if $x(n)$ is passed through an ideal D/A converter, what is the reconstructed signal $Y_a(t)$?
- c) Determine the range of values of parameter a for the linear time invariant system with impulse response $h(n) = a^n u(n)$.
- d) A relaxed linear system is causal if and only if for any input $x(n)$, such that $x(n) = 0$ for $n < n_0 \Rightarrow y(n) = 0$ for $n < n_0$.
- e) What is z transform and explain properties of z transform ?
- f) Determine the signal $x(n)$ whose z transform is given by $X(z) = \log(1 + az^{-1})$, $|z| > |a|$.

3. Answer **any one** of the following : 10

- a) What is Fourier transform ? Explain and prove complexity of radix-2 algorithm.
- b) Explain correlation, cross correlation and anti-correlation with suitable real time example.

4. Attempt the following (**compulsory**) : 10

Explain stability of linear time invariant systems with suitable mathematical equations.



5. Answer **any four** of the following : **20**
- a) Compare FIR filter with IIR filter.
 - b) Explain characteristics of practical frequency selective filters.
 - c) A finite duration sequence of length L is given as $x(n) = \begin{cases} 1, & \text{for } 0 \leq n \leq L - 1 \\ 0, & \text{otherwise} \end{cases}$. Determine the N-point DFT of this sequence for $N \geq L$.
 - d) Explain ideal sampling and reconstruction of continuous time signals.
 - e) Describe analog to digital signal conversion process.
 - f) Compare FFT and DFT.
6. Attempt **any one** of the following : **10**
- a) Design a linear phase FIR filter by the frequency sampling method.
 - b) Explain IIR filter design by the Bilinear transformation.
7. Attempt the following (**Compulsory**) : **10**
- The impulse response of a linear time invariant system is $h(n) = \{1, 2, 1, -1\}$ (Consider arrow below 2). Determine the response of the system to the input signal.
- $x(n) = \{1, 2, 3, 1\}$ (Consider arrow below first 1).
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Seat No.	
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Set	Q
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B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

20

- 1) Consider the assertions given below. Which among them is an advantage of FIR filter ?
 - a) Necessity of computational techniques for filter implementation
 - b) Requirement of large storage
 - c) Incapability of simulating prototype analog filters
 - d) Presence of linear phase response
- 2) The overlap save method is used to calculate
 - a) The discrete convolution between a sampled signal and a Finite Impulse Response (FIR) filter
 - b) The discrete convolution between a sampled signal and an Infinite Impulse Response (IIR) filter
 - c) The discrete convolution between a very long signal and a Finite Impulse Response (FIR) filter
 - d) The discrete convolution between a very long signal and a Infinite Impulse Response (IIR) filter
- 3) ROC does not have
 - a) Zeros
 - b) Poles
 - c) Negative values
 - d) Positive values
- 4) Damping is the ability of a system
 - a) To support oscillatory nature of the system's transient response
 - b) To oppose the continuous nature of the system's transient response
 - c) To oppose the oscillatory nature of the system's transient response
 - d) To support the discrete nature of the system's transient response
- 5) Two vectors a, b are orthogonal if
 - a) $\langle a, b \rangle = 0$
 - b) $\langle a, b \rangle = \langle a, b \rangle$
 - c) $\langle a, b \rangle = 1$
 - d) $\langle a, b \rangle = - \langle a, b \rangle$
- 6) One dimensional signal is a function of
 - a) Multiple independent variables
 - b) Single independent variable
 - c) Multiple dependent variables
 - d) Single dependent variable
- 7) Superposition of signals in a linear system refers to the
 - a) Output that is product of all the signals
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 - a) $y[n] = \alpha x[n]^2$
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P.T.O.



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- 12) For the calculation of N-point DFT, Radix-2 FFT algorithm repeats
- a) $2(N \log_2 N)$ stages
 - b) $(N \log_2 N)^2/2$ stages
 - c) $(N \log_2 N)/2$ stages
 - d) $(N \log_2 (2N))/2$ stages
- 13) Why is it desirable to optimize frequency response in the transition band of the filter ?
- a) Increase side lobe
 - b) Reduce side lobe
 - c) Increase main lobe
 - d) None of the above
- 14) Which of the following is introduced in the frequency sampling realization of the FIR filter ?
- a) Poles are more in number on unit circle
 - b) Zeros are more in number on the unit circle
 - c) Poles and zeros at equally spaced points on the unit circle
 - d) None of the above
- 15) The linear equations for determining $\{h(n)\}$ from $\{H(k + \alpha)\}$ are not simplified.
- a) True
 - b) False
- 16) To reduce side lobes, in which region of the filter the frequency specifications has to be optimized ?
- a) Stop band
 - b) Pass band
 - c) Transition band
 - d) None of the above
- 17) In the frequency sampling method for FIR filter design, we specify the desired frequency response $H_d(\omega)$ at a set of equally spaced frequencies.
- a) Yes
 - b) No
- 18) How scaling is done ?
- a) Scaling must be done in such a way that no overflow occurs at the summing point
 - b) Scaling must be done in such a way that overflow occurs at the summing point
 - c) Scaling must be done in such a way that no underflow occurs at the summing point
 - d) None of the above
- 19) The non-linear difference equations are solved using
- a) Iterative method
 - b) Cobweb model
 - c) Phase diagram
 - d) Power series method
- 20) The error in the filter output that results from rounding or truncating calculations within the filter is called
- a) Coefficient quantization error
 - b) Adder overflow limit cycle
 - c) Round off noise
 - d) Limit cycles



Seat No.	
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**B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

2. Answer **any four** of the following : 20

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- b) An analog signal $x_a(t) = \sin(480\pi t) + 3\sin(720\pi t)$ is sampled 600 times per second. Determine Nyquist sampling rate, folding frequency, frequency in radians for $x(n)$ and if $x(n)$ is passed through an ideal D/A converter, what is the reconstructed signal $Y_a(t)$?
- c) Determine the range of values of parameter a for the linear time invariant system with impulse response $h(n) = a^n u(n)$.
- d) A relaxed linear system is causal if and only if for any input $x(n)$, such that $x(n) = 0$ for $n < n_0 \Rightarrow y(n) = 0$ for $n < n_0$.
- e) What is z transform and explain properties of z transform ?
- f) Determine the signal $x(n)$ whose z transform is given by $X(z) = \log(1 + az^{-1})$, $|z| > |a|$.

3. Answer **any one** of the following : 10

- a) What is Fourier transform ? Explain and prove complexity of radix-2 algorithm.
- b) Explain correlation, cross correlation and anti-correlation with suitable real time example.

4. Attempt the following (**compulsory**) : 10

Explain stability of linear time invariant systems with suitable mathematical equations.



5. Answer **any four** of the following : **20**
- a) Compare FIR filter with IIR filter.
 - b) Explain characteristics of practical frequency selective filters.
 - c) A finite duration sequence of length L is given as $x(n) = \begin{cases} 1, & \text{for } 0 \leq n \leq L - 1 \\ 0, & \text{otherwise} \end{cases}$. Determine the N-point DFT of this sequence for $N \geq L$.
 - d) Explain ideal sampling and reconstruction of continuous time signals.
 - e) Describe analog to digital signal conversion process.
 - f) Compare FFT and DFT.
6. Attempt **any one** of the following : **10**
- a) Design a linear phase FIR filter by the frequency sampling method.
 - b) Explain IIR filter design by the Bilinear transformation.
7. Attempt the following (**Compulsory**) : **10**
- The impulse response of a linear time invariant system is $h(n) = \{1, 2, 1, -1\}$ (Consider arrow below 2). Determine the response of the system to the input signal.
- $x(n) = \{1, 2, 3, 1\}$ (Consider arrow below first 1).
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SLR-EP – 478

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B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

20

- 1) To reduce side lobes, in which region of the filter the frequency specifications has to be optimized ?
a) Stop band b) Pass band c) Transition band d) None of the above
- 2) In the frequency sampling method for FIR filter design, we specify the desired frequency response $H_d(\omega)$ at a set of equally spaced frequencies.
a) Yes b) No
- 3) How scaling is done ?
a) Scaling must be done in such a way that no overflow occurs at the summing point
b) Scaling must be done in such a way that overflow occurs at the summing point
c) Scaling must be done in such a way that no underflow occurs at the summing point
d) None of the above
- 4) The non-linear difference equations are solved using
a) Iterative method b) Cobweb model
c) Phase diagram d) Power series method
- 5) The error in the filter output that results from rounding or truncating calculations within the filter is called
a) Coefficient quantization error b) Adder overflow limit cycle
c) Round off noise d) Limit cycles
- 6) Consider the assertions given below. Which among them is an advantage of FIR filter ?
a) Necessity of computational techniques for filter implementation
b) Requirement of large storage
c) Incapability of simulating prototype analog filters
d) Presence of linear phase response
- 7) The overlap save method is used to calculate
a) The discrete convolution between a sampled signal and a Finite Impulse Response (FIR) filter
b) The discrete convolution between a sampled signal and an Infinite Impulse Response (IIR) filter
c) The discrete convolution between a very long signal and a Finite Impulse Response (FIR) filter
d) The discrete convolution between a very long signal and a Infinite Impulse Response (IIR) filter
- 8) ROC does not have
a) Zeros b) Poles c) Negative values d) Positive values

P.T.O.



- 9) Damping is the ability of a system
- To support oscillatory nature of the system's transient response
 - To oppose the continuous nature of the system's transient response
 - To oppose the oscillatory nature of the system's transient response
 - To support the discrete nature of the system's transient response
- 10) Two vectors a, b are orthogonal if
- $\langle a, b \rangle = 0$
 - $\langle a, b \rangle = \langle a, b \rangle$
 - $\langle a, b \rangle = 1$
 - $\langle a, b \rangle = -\langle a, b \rangle$
- 11) One dimensional signal is a function of
- Multiple independent variables
 - Single independent variable
 - Multiple dependent variables
 - Single dependent variable
- 12) Superposition of signals in a linear system refers to the
- Output that is product of all the signals
 - Output that is sum of all the signals
 - Output that is of highest amplitude of all the signals
 - Output that is of largest spectrum of all the signals
- 13) The scaling of a sequence $x[n]$ by a factor α is given by
- $y[n] = \alpha[x[n]]^2$
 - $y[n] = \alpha x[n^2]$
 - $y[n] = \alpha x[n]$
 - $y[n] = x[n] x[-n]$
- 14) DFT is applied to
- Infinite sequences
 - Finite discrete sequences
 - Continuous infinite signals
 - Continuous finite sequences
- 15) A system is said to be marginally unstable if
- None of its zeros of its transfer function lies on the $j\omega$ axis of s-plane
 - At least one zero of its transfer function lies on the $j\omega$ axis of s-plane
 - None of its poles of its transfer function lies on the $j\omega$ axis of s-plane
 - At least one pole of its transfer function lies on the $j\omega$ axis of s-plane
- 16) Causal systems are the systems in which
- The output of the system depends on the present and the past inputs
 - The output of the system depends only on the present inputs
 - The output of the system depends only on the past inputs
 - The output of the system depends on the present input as well as the previous outputs
- 17) For the calculation of N-point DFT, Radix-2 FFT algorithm repeats
- $2(N \log_2 N)$ stages
 - $(N \log_2 N)^2/2$ stages
 - $(N \log_2 N)/2$ stages
 - $(N \log_2 (2N))/2$ stages
- 18) Why is it desirable to optimize frequency response in the transition band of the filter ?
- Increase side lobe
 - Reduce side lobe
 - Increase main lobe
 - None of the above
- 19) Which of the following is introduced in the frequency sampling realization of the FIR filter ?
- Poles are more in number on unit circle
 - Zeros are more in number on the unit circle
 - Poles and zeros at equally spaced points on the unit circle
 - None of the above
- 20) The linear equations for determining $\{h(n)\}$ from $\{H(k + \alpha)\}$ are not simplified.
- True
 - False



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**B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

2. Answer **any four** of the following : **20**

- a) Classify the following signals based on one or multidimensional/single or multi channel/continuous or discrete time/analog or digital. Give a brief explanation.
 - i) Closing prices of utility stocks on the New York stock exchange.
 - ii) A color movie.
 - iii) Position of steering wheel of a car in motion relative to ground reference frame.
 - iv) Weight and height measurements of a child taken every month.
- b) An analog signal $x_a(t) = \sin(480\pi t) + 3\sin(720\pi t)$ is sampled 600 times per second. Determine Nyquist sampling rate, folding frequency, frequency in radians for $x(n)$ and if $x(n)$ is passed through an ideal D/A converter, what is the reconstructed signal $Y_a(t)$?
- c) Determine the range of values of parameter a for the linear time invariant system with impulse response $h(n) = a^n u(n)$.
- d) A relaxed linear system is causal if and only if for any input $x(n)$, such that $x(n) = 0$ for $n < n_0 \Rightarrow y(n) = 0$ for $n < n_0$.
- e) What is z transform and explain properties of z transform ?
- f) Determine the signal $x(n)$ whose z transform is given by $X(z) = \log(1 + az^{-1})$, $|z| > |a|$.

3. Answer **any one** of the following : **10**

- a) What is Fourier transform ? Explain and prove complexity of radix-2 algorithm.
- b) Explain correlation, cross correlation and anti-correlation with suitable real time example.

4. Attempt the following (**compulsory**) : **10**

Explain stability of linear time invariant systems with suitable mathematical equations.



5. Answer **any four** of the following : 20
- a) Compare FIR filter with IIR filter.
 - b) Explain characteristics of practical frequency selective filters.
 - c) A finite duration sequence of length L is given as $x(n) = \begin{cases} 1, & \text{for } 0 \leq n \leq L - 1 \\ 0, & \text{otherwise} \end{cases}$. Determine the N-point DFT of this sequence for $N \geq L$.
 - d) Explain ideal sampling and reconstruction of continuous time signals.
 - e) Describe analog to digital signal conversion process.
 - f) Compare FFT and DFT.
6. Attempt **any one** of the following : 10
- a) Design a linear phase FIR filter by the frequency sampling method.
 - b) Explain IIR filter design by the Bilinear transformation.
7. Attempt the following (**Compulsory**) : 10
- The impulse response of a linear time invariant system is $h(n) = \{1, 2, 1, -1\}$ (Consider arrow below 2). Determine the response of the system to the input signal.
- $x(n) = \{1, 2, 3, 1\}$ (Consider arrow below first 1).
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B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternatives :

20

- 1) Causal systems are the systems in which
 - a) The output of the system depends on the present and the past inputs
 - b) The output of the system depends only on the present inputs
 - c) The output of the system depends only on the past inputs
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- 2) For the calculation of N-point DFT, Radix-2 FFT algorithm repeats
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 - d) $(N \log_2 (2N))/2$ stages
- 3) Why is it desirable to optimize frequency response in the transition band of the filter ?
 - a) Increase side lobe
 - b) Reduce side lobe
 - c) Increase main lobe
 - d) None of the above
- 4) Which of the following is introduced in the frequency sampling realization of the FIR filter ?
 - a) Poles are more in number on unit circle
 - b) Zeros are more in number on the unit circle
 - c) Poles and zeros at equally spaced points on the unit circle
 - d) None of the above
- 5) The linear equations for determining $\{h(n)\}$ from $\{H(k + \alpha)\}$ are not simplified.
 - a) True
 - b) False
- 6) To reduce side lobes, in which region of the filter the frequency specifications has to be optimized ?
 - a) Stop band
 - b) Pass band
 - c) Transition band
 - d) None of the above
- 7) In the frequency sampling method for FIR filter design, we specify the desired frequency response $H_d(\omega)$ at a set of equally spaced frequencies.
 - a) Yes
 - b) No
- 8) How scaling is done ?
 - a) Scaling must be done in such a way that no overflow occurs at the summing point
 - b) Scaling must be done in such a way that overflow occurs at the summing point
 - c) Scaling must be done in such a way that no underflow occurs at the summing point
 - d) None of the above
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 - a) Iterative method
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 - c) Phase diagram
 - d) Power series method

P.T.O.



- 10) The error in the filter output that results from rounding or truncating calculations within the filter is called
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 - c) $\langle a, b \rangle = 1$
 - d) $\langle a, b \rangle = -\langle a, b \rangle$
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 - c) $y[n] = \alpha x[n]$
 - d) $y[n] = x[n] x[-n]$
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- 20) A system is said to be marginally unstable if
- a) None of its zeros of its transfer function lies on the $j\omega$ axis of s-plane
 - b) At least one zero of its transfer function lies on the $j\omega$ axis of s-plane
 - c) None of its poles of its transfer function lies on the $j\omega$ axis of s-plane
 - d) At least one pole of its transfer function lies on the $j\omega$ axis of s-plane



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**B.E. (CSE) Part – I Examination, 2016
DIGITAL SIGNAL PROCESSING (Elective – I)**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

2. Answer **any four** of the following : **20**

- a) Classify the following signals based on one or multidimensional/single or multi channel/continuous or discrete time/analog or digital. Give a brief explanation.
 - i) Closing prices of utility stocks on the New York stock exchange.
 - ii) A color movie.
 - iii) Position of steering wheel of a car in motion relative to ground reference frame.
 - iv) Weight and height measurements of a child taken every month.
- b) An analog signal $x_a(t) = \sin(480\pi t) + 3\sin(720\pi t)$ is sampled 600 times per second. Determine Nyquist sampling rate, folding frequency, frequency in radians for $x(n)$ and if $x(n)$ is passed through an ideal D/A converter, what is the reconstructed signal $Y_a(t)$?
- c) Determine the range of values of parameter a for the linear time invariant system with impulse response $h(n) = a^n u(n)$.
- d) A relaxed linear system is causal if and only if for any input $x(n)$, such that $x(n) = 0$ for $n < n_0 \Rightarrow y(n) = 0$ for $n < n_0$.
- e) What is z transform and explain properties of z transform ?
- f) Determine the signal $x(n)$ whose z transform is given by $X(z) = \log(1 + az^{-1})$, $|z| > |a|$.

3. Answer **any one** of the following : **10**

- a) What is Fourier transform ? Explain and prove complexity of radix-2 algorithm.
- b) Explain correlation, cross correlation and anti-correlation with suitable real time example.

4. Attempt the following (**compulsory**) : **10**

Explain stability of linear time invariant systems with suitable mathematical equations.



5. Answer **any four** of the following : **20**
- a) Compare FIR filter with IIR filter.
 - b) Explain characteristics of practical frequency selective filters.
 - c) A finite duration sequence of length L is given as $x(n) = \begin{cases} 1, & \text{for } 0 \leq n \leq L - 1 \\ 0, & \text{otherwise} \end{cases}$. Determine the N-point DFT of this sequence for $N \geq L$.
 - d) Explain ideal sampling and reconstruction of continuous time signals.
 - e) Describe analog to digital signal conversion process.
 - f) Compare FFT and DFT.
6. Attempt **any one** of the following : **10**
- a) Design a linear phase FIR filter by the frequency sampling method.
 - b) Explain IIR filter design by the Bilinear transformation.
7. Attempt the following (**Compulsory**) : **10**
- The impulse response of a linear time invariant system is $h(n) = \{1, 2, 1, -1\}$ (Consider arrow below 2). Determine the response of the system to the input signal.
- $x(n) = \{1, 2, 3, 1\}$ (Consider arrow below first 1).
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B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicates **full** marks.
 - 4) Assume suitable data **if** necessary.
 - 5) Figures must be drawn **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) To check wheater we are developing the right product according to the customer requirements are not. It is a static process
A) Validation
B) Verification
C) Quality Assurance
D) Quality Control
- 2) Software Testing which is done without planning and documentation is known as
A) Adhoc testing
B) Unit testing
C) Regression testing
D) Functional testing
- 3) White Box testing is not called as
A) Glass box testing
B) Closed box testing
C) Open box testing
D) Clear box testing
- 4) Under Static testing code is
A) Executed
B) Not executed
C) Both A and B
D) None
- 5) What is correct Software Process Cycle ?
A) Plan (P) -----> Check (C) -----> Act (A) -----> Do (D)
B) Plan (P) -----> Do (D) -----> Check (C) -----> Act (A)
C) Plan (P) -----> Do (D) -----> Act (A) -----> Check (C)
D) Plan (P) -----> D (D) -----> At (A) -----> acheck (C)
- 6) _____ testing is a testing technique that is inspired from hardware testing, which checks for the smoke from the hardware components once the hardware's power is switched on.
A) Smoke testing
B) Sanity testing
C) Adhoc testing
D) None
- 7) What are the Testing Levels ?
A) Unit Testing
B) Integration Testing
C) System and Acceptance Testing
D) All

P.T.O.



- 8) In testing all components or modules are integrated simultaneously, After which everything is tested as a whole
- A) Sandwich Testing B) Smoke Testing
C) Big bang Integration Testing D) None
- 9) _____ is final testing before the software is released to the general public.
- A) Beta B) Alpha C) Gamma D) Both A and B
- 10) Defects generally fall into the following categories
- A) Wrong B) Missing C) Extra D) All
- 11) User Acceptance Testing is
- A) White Box Testing B) Black Box Testing
C) Gray Box Testing D) None
- 12) Which is the reputed testing standard ?
- A) M Bridge awards B) QAI
C) ISO D) Microsoft
- 13) Degree to which design specifications are followed in manufacturing the product is called
- A) Quality Control B) Quality of Conformance
C) Quality Assurance D) None
- 14) Defects are less costly if detected in which of the following phases ?
- A) Coding B) Design
C) Requirements Gathering D) Implementation
- 15) Error guessing is a
- A) Test verification techniques
B) Test execution techniques
C) Test control management techniques
D) Test data management technique
- 16) Code Coverage is dynamic _____ Testing.
- A) White box B) Black box C) Gamma D) Beta
- 17) _____ coverage involves tracking a piece of data completely through the software.
- A) Information flow B) Data flow C) Process flow D) None
- 18) _____ test tool allows you to see details of the software's operation that you wouldn't normally be able to see.
- A) Viewer B) Driver C) Tester D) None
- 19) You are performing a test to see that it complies with the user requirement that a certain field be populated by using a drop down box containing a list of values. What kind of testing are you doing ?
- A) White box testing B) Black box testing
C) Load testing D) Regression testing
- 20) The simplest form of path testing is called
- A) Branch coverage testing B) Data coverage testing
C) Module testing D) None



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)**

Day and Date : Tuesday, 6-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer the following questions (**any four**) : **(5×4=20)**

- 1) What are the different skills required by tester ?
- 2) What are the misconceptions about testing ?
- 3) Write short note on code coverage.
- 4) Explain state testing in brief.
- 5) Write short notes on levels of testing.
- 6) Define Software testing and explain Load Testing, Stress Testing with Example.

3. Answer **any one** : **10**

- 1) Explain proposal testing and requirement testing in detail.

OR

2) Write short notes on :

Regression testing

Smoke testing

Ad-hoc testing

Usability testing.

4. Explain White box and Black Box testing techniques in detail. **10**

Set P



SECTION – II

5. Answer the following questions (**any four**) : **(5×4=20)**
- 1) Explain five views of quality.
 - 2) What are goals and metrics of software quality ?
 - 3) Explain Bug life cycle.
 - 4) Write note on Six sigma standard.
 - 5) What are the limitations of using automation tools ?
 - 6) Explain goals of test planning.
6. Answer the following : **10**
- 1) Write short notes on :
 - a) Elements of SQA.
 - b) Software Reliability.
- OR
- 2) Write short notes on :
 - a) Explain in brief severity and priority of bugs.
 - b) Explain in detail test case organization.
7. Explain in detail the Selenium testing tool. **10**
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Seat No.	
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B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicates **full** marks.
 - 4) Assume suitable data **if** necessary.
 - 5) Figures must be drawn **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Code Coverage is dynamic _____ Testing.
A) White box B) Black box C) Gamma D) Beta
- 2) _____ coverage involves tracking a piece of data completely through the software.
A) Information flow B) Data flow C) Process flow D) None
- 3) _____ test tool allows you to see details of the software's operation that you wouldn't normally be able to see.
A) Viewer B) Driver C) Tester D) None
- 4) You are performing a test to see that it complies with the user requirement that a certain field be populated by using a drop down box containing a list of values. What kind of testing are you doing ?
A) White box testing B) Black box testing
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- 5) The simplest form of path testing is called
A) Branch coverage testing B) Data coverage testing
C) Module testing D) None
- 6) To check wheater we are developing the right product according to the customer requirements are not. It is a static process
A) Validation B) Verification
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- 7) Software Testing which is done without planning and documentation is known as
A) Adhoc testing B) Unit testing
C) Regression testing D) Functional testing
- 8) White Box testing is not called as
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P.T.O.



- 9) Under Static testing code is
A) Executed
B) Not executed
C) Both A and B
D) None
- 10) What is correct Software Process Cycle ?
A) Plan (P) -----> Check (C) -----> Act (A) -----> Do (D)
B) Plan (P) -----> Do (D) -----> Check (C) -----> Act (A)
C) Plan (P) -----> Do (D) -----> Act (A) -----> Check (C)
D) Plan (P) -----> D (D) -----> At (A) -----> acheck (C)
- 11) _____ testing is a testing technique that is inspired from hardware testing, which checks for the smoke from the hardware components once the hardware's power is switched on.
A) Smoke testing
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C) Adhoc testing
D) None
- 12) What are the Testing Levels ?
A) Unit Testing
B) Integration Testing
C) System and Acceptance Testing
D) All
- 13) In testing all components or modules are integrated simultaneously, After which everything is tested as a whole
A) Sandwich Testing
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- 19) Defects are less costly if detected in which of the following phases ?
A) Coding
B) Design
C) Requirements Gathering
D) Implementation
- 20) Error guessing is a
A) Test verification techniques
B) Test execution techniques
C) Test control management techniques
D) Test data management technique



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)**

Day and Date : Tuesday, 6-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer the following questions (**any four**) : **(5×4=20)**

- 1) What are the different skills required by tester ?
- 2) What are the misconceptions about testing ?
- 3) Write short note on code coverage.
- 4) Explain state testing in brief.
- 5) Write short notes on levels of testing.
- 6) Define Software testing and explain Load Testing, Stress Testing with Example.

3. Answer **any one** : **10**

- 1) Explain proposal testing and requirement testing in detail.

OR

2) Write short notes on :

Regression testing

Smoke testing

Ad-hoc testing

Usability testing.

4. Explain White box and Black Box testing techniques in detail. **10**

Set Q



SECTION – II

5. Answer the following questions (**any four**) : **(5×4=20)**
- 1) Explain five views of quality.
 - 2) What are goals and metrics of software quality ?
 - 3) Explain Bug life cycle.
 - 4) Write note on Six sigma standard.
 - 5) What are the limitations of using automation tools ?
 - 6) Explain goals of test planning.
6. Answer the following : **10**
- 1) Write short notes on :
 - a) Elements of SQA.
 - b) Software Reliability.
- OR
- 2) Write short notes on :
 - a) Explain in brief severity and priority of bugs.
 - b) Explain in detail test case organization.
7. Explain in detail the Selenium testing tool. **10**
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Seat No.	
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Set	R
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B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicates **full** marks.
 - 4) Assume suitable data **if** necessary.
 - 5) Figures must be drawn **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

(20×1=20)

1. Choose the correct answer :

- 1) User Acceptance Testing is
A) White Box Testing
B) Black Box Testing
C) Gray Box Testing
D) None
- 2) Which is the reputed testing standard ?
A) M Bridge awards
B) QAI
C) ISO
D) Microsoft
- 3) Degree to which design specifications are followed in manufacturing the product is called
A) Quality Control
B) Quality of Conformance
C) Quality Assurance
D) None
- 4) Defects are less costly if detected in which of the following phases ?
A) Coding
B) Design
C) Requirements Gathering
D) Implementation
- 5) Error guessing is a
A) Test verification techniques
B) Test execution techniques
C) Test control management techniques
D) Test data management technique
- 6) Code Coverage is dynamic _____ Testing.
A) White box
B) Black box
C) Gamma
D) Beta
- 7) _____ coverage involves tracking a piece of data completely through the software.
A) Information flow
B) Data flow
C) Process flow
D) None
- 8) _____ test tool allows you to see details of the software's operation that you wouldn't normally be able to see.
A) Viewer
B) Driver
C) Tester
D) None

P.T.O.



- 9) You are performing a test to see that it complies with the user requirement that a certain field be populated by using a drop down box containing a list of values. What kind of testing are you doing ?
- A) White box testing B) Black box testing
C) Load testing D) Regression testing
- 10) The simplest form of path testing is called
- A) Branch coverage testing B) Data coverage testing
C) Module testing D) None
- 11) To check wheater we are developing the right product according to the customer requirements are not. It is a static process
- A) Validation B) Verification
C) Quality Assurance D) Quality Control
- 12) Software Testing which is done without planning and documentation is known as
- A) Adhoc testing B) Unit testing
C) Regression testing D) Functional testing
- 13) White Box testing is not called as
- A) Glass box testing B) Closed box testing
C) Open box testing D) Clear box testing
- 14) Under Static testing code is
- A) Executed B) Not executed
C) Both A and B D) None
- 15) What is correct Software Process Cycle ?
- A) Plan (P) -----> Check (C) -----> Act (A) -----> Do (D)
B) Plan (P) -----> Do (D) -----> Check (C) -----> Act (A)
C) Plan (P) -----> Do (D) -----> Act (A) -----> Check (C)
D) Plan (P) -----> D (D) -----> At (A) -----> acheck (C)
- 16) _____ testing is a testing technique that is inspired from hardware testing, which checks for the smoke from the hardware components once the hardware's power is switched on.
- A) Smoke testing B) Sanity testing
C) Adhoc testing D) None
- 17) What are the Testing Levels ?
- A) Unit Testing B) Integration Testing
C) System and Acceptance Testing D) All
- 18) In testing all components or modules are integrated simultaneously, After which everything is tested as a whole
- A) Sandwich Testing B) Smoke Testing
C) Big bang Integration Testing D) None
- 19) _____ is final testing before the software is released to the general public.
- A) Beta B) Alpha C) Gamma D) Both A and B
- 20) Defects generally fall into the following categories
- A) Wrong B) Missing C) Extra D) All



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)**

Day and Date : Tuesday, 6-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer the following questions (**any four**) : **(5×4=20)**

- 1) What are the different skills required by tester ?
- 2) What are the misconceptions about testing ?
- 3) Write short note on code coverage.
- 4) Explain state testing in brief.
- 5) Write short notes on levels of testing.
- 6) Define Software testing and explain Load Testing, Stress Testing with Example.

3. Answer **any one** : **10**

- 1) Explain proposal testing and requirement testing in detail.

OR

2) Write short notes on :

Regression testing

Smoke testing

Ad-hoc testing

Usability testing.

4. Explain White box and Black Box testing techniques in detail. **10**

Set R



SECTION – II

5. Answer the following questions (**any four**) : **(5×4=20)**
- 1) Explain five views of quality.
 - 2) What are goals and metrics of software quality ?
 - 3) Explain Bug life cycle.
 - 4) Write note on Six sigma standard.
 - 5) What are the limitations of using automation tools ?
 - 6) Explain goals of test planning.
6. Answer the following : **10**
- 1) Write short notes on :
 - a) Elements of SQA.
 - b) Software Reliability.
- OR
- 2) Write short notes on :
 - a) Explain in brief severity and priority of bugs.
 - b) Explain in detail test case organization.
7. Explain in detail the Selenium testing tool. **10**
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Seat No.	
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Set	S
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B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**
 - 3) Figures to the **right** indicates **full** marks.
 - 4) Assume suitable data **if** necessary.
 - 5) Figures must be drawn **wherever** necessary.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) _____ testing is a testing technique that is inspired from hardware testing, which checks for the smoke from the hardware components once the hardware's power is switched on.
A) Smoke testing
B) Sanity testing
C) Adhoc testing
D) None
- 2) What are the Testing Levels ?
A) Unit Testing
B) Integration Testing
C) System and Acceptance Testing
D) All
- 3) In testing all components or modules are integrated simultaneously, After which everything is tested as a whole
A) Sandwich Testing
B) Smoke Testing
C) Big bang Integration Testing
D) None
- 4) _____ is final testing before the software is released to the general public.
A) Beta
B) Alpha
C) Gamma
D) Both A and B
- 5) Defects generally fall into the following categories
A) Wrong
B) Missing
C) Extra
D) All
- 6) User Acceptance Testing is
A) White Box Testing
B) Black Box Testing
C) Gray Box Testing
D) None
- 7) Which is the reputed testing standard ?
A) M Bridge awards
B) QAI
C) ISO
D) Microsoft
- 8) Degree to which design specifications are followed in manufacturing the product is called
A) Quality Control
B) Quality of Conformance
C) Quality Assurance
D) None

P.T.O.



Seat No.	
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**B.E. (CSE) (Part – I) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)**

Day and Date : Tuesday, 6-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer the following questions (**any four**) : **(5×4=20)**

- 1) What are the different skills required by tester ?
- 2) What are the misconceptions about testing ?
- 3) Write short note on code coverage.
- 4) Explain state testing in brief.
- 5) Write short notes on levels of testing.
- 6) Define Software testing and explain Load Testing, Stress Testing with Example.

3. Answer **any one** : **10**

- 1) Explain proposal testing and requirement testing in detail.

OR

2) Write short notes on :

Regression testing

Smoke testing

Ad-hoc testing

Usability testing.

4. Explain White box and Black Box testing techniques in detail. **10**

Set S



SECTION – II

5. Answer the following questions (**any four**) : **(5×4=20)**
- 1) Explain five views of quality.
 - 2) What are goals and metrics of software quality ?
 - 3) Explain Bug life cycle.
 - 4) Write note on Six sigma standard.
 - 5) What are the limitations of using automation tools ?
 - 6) Explain goals of test planning.
6. Answer the following : **10**
- 1) Write short notes on :
 - a) Elements of SQA.
 - b) Software Reliability.
- OR
- 2) Write short notes on :
 - a) Explain in brief severity and priority of bugs.
 - b) Explain in detail test case organization.
7. Explain in detail the Selenium testing tool. **10**
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Seat No.	
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Set	P
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) Assume **suitable data if necessary.**
 - 3) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : (1 mark each 20×1=20 mark)

- 1) Dimensional modeling is the name of a _____ technique often used for data warehouses.
a) logical design b) physical design c) virtual design d) UML design
- 2) Business user query services are provided by
a) back room b) presentation servers
c) database servers d) none of these mentioned
- 3) A BI's system's usefulness and performance are evaluated from _____ point of view.
a) Business user's b) BI application developer's
c) BI application tester's d) Business consumer's
- 4) _____ controls check-in and check-out processing of ETL modules and jobs.
a) Version check-out system b) Version migration system
c) Version check-in system d) Version control system
- 5) The full form of OLAP is
a) Online Analytical Processing b) Online Advanced Processing
c) Online Advanced Preparation d) Online Analytical Performance
- 6) _____ is a subject-oriented, integrated, time-variant, nonvolatile collection or data in support of management decisions.
a) Data mining b) Data warehousing
c) Document mining d) Text mining
- 7) The data is stored, retrieved and updated in
a) OLAP b) OLTP c) SMTP d) FTP
- 8) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives and analysts.
a) OLAP b) OLTP c) Both of the above d) None of the above

P.T.O.



- 9) _____ is a good alternative to the star schema.
- a) Star schema
 - b) Snowflake schema
 - c) Fact constellation
 - d) Star-snowflake schema
- 10) The _____ exposes the information being captured, stored and managed by operational systems.
- a) top-down view
 - b) data warehouse view
 - c) data source view
 - d) business query view
- 11) The type of relationship in star schema is _____
- a) many to many
 - b) one to one
 - c) one to many
 - d) many to one
- 12) The _____ allows the selection of the relevant information necessary for the data warehouse.
- a) top-down view
 - b) data warehouse view
 - c) data source view
 - d) business query view
- 13) Which of the following is not a component of a data warehouse ?
- a) Metadata
 - b) Current detail data
 - c) Lightly summarized data
 - d) Component key
- 14) Which of the following is not a kind of data warehouse application ?
- a) Information processing
 - b) Analytical processing
 - c) Data mining
 - d) Transaction processing
- 15) Data scrubbing is which of the following ?
- a) A process to reject data from the data warehouse and to create the necessary indexes
 - b) A process to load the data in the data warehouse and to create the necessary indexes
 - c) A process to upgrade the quality of data after it is moved into a data warehouse
 - d) A process to upgrade the quality of data before it is moved into a data warehouse
- 16) The @ active data warehouse architecture includes which of the following ?
- a) At least one data mart
 - b) Data that can be extracted from numerous internal and external sources
 - c) Near real-time updates
 - d) All of the above
- 17) A goal of data mining includes which of the following ?
- a) To explain some observed event or condition
 - b) To confirm that data exists
 - c) To analyse data for expected relationships
 - d) To create a new data warehouse
- 18) An operational system is which of the following ?
- a) A system that is used to run the business in real time and is based on historical data
 - b) A system that is used to run the business in real time and is based on current data
 - c) A system that is used to support decision making and is based on current data
 - d) A system that is used to support decision making and is based on historical data
- 19) A data warehouse is which of the following ?
- a) Can be updated by end users
 - b) Contains numerous naming conventions and formats
 - c) Organized around important subject areas
 - d) Contains only current data
- 20) A snowflake schema is which of the following types of tables ?
- a) Fact
 - b) Dimension
 - c) Helper
 - d) All of the above



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instructions: 1) **All questions are compulsory.**
2) Assume **suitable data if necessary.**

SECTION – 1

2. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
 - a) What is the value of the architecture in the context BI ?
 - b) Explain relationship between dimensional modeling and entity relationship modeling.
 - c) Write a short note on basic dimensional modeling techniques.
 - d) Explain some of the myths which you think, about dimensional modeling.
3. Attempt **any two (10 marks each, 2×10 Marks = 20 marks)**.
 - a) Write a short note on back room architecture.
 - b) Explain in detail strengths of dimensional modeling.
 - c) Explain the “Four-Step Design Method for Designing an Individual Fact Table”.

SECTION – 2

4. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
 - a) Write a short note on types of business intelligence applications.
 - b) Explain the role of the BI Application Developer.
 - c) As a BI application developer what would be your tasks as under business intelligence application maintenance.
 - d) Explain some of the hindrances involved in developing and testing ETL automation.



5. Attempt **any two (10 marks each, 2×10 marks = 20 marks)**.
- a) Explain in detail the importance of B.I. applications.
 - b) Explain in detail stepwise process to develop ETL Plan.
 - c) Write a short note on Operational Business Intelligence.
-



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Seat No.	
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Set	Q
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) Assume **suitable data if necessary.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : (1 mark each 20×1=20 mark)

- 1) The @ active data warehouse architecture includes which of the following ?
 - a) At least one data mart
 - b) Data that can extracted from numerous internal and external sources
 - c) Near real-time updates
 - d) All of the above
- 2) A goal of data mining includes which of the following ?
 - a) To explain some observed event or condition
 - b) To confirm that data exists
 - c) To analyse data for expected relationships
 - d) To create a new data warehouse
- 3) An operational system is which of the following ?
 - a) A system that is used to run the business in real time and is based on historical data
 - b) A system that is used to run the business in real time and is based on current data
 - c) A system that is used to support decision making and is based on current data
 - d) A system that is used to support decision making and is based on historical data
- 4) A data warehouse is which of the following ?
 - a) Can be updated by end users
 - b) Contains numerous naming conventions and formats
 - c) Organized around important subject areas
 - d) Contains only current data
- 5) A snowflake schema is which of the following types of tables ?
 - a) Fact
 - b) Dimension
 - c) Helper
 - d) All of the above
- 6) Dimensional modeling is the name of a _____ technique often used for data warehouses.
 - a) logical design
 - b) physical design
 - c) virtual design
 - d) UML design

P.T.O.



- 7) Business user query services are provided by
 - a) back room
 - b) presentation servers
 - c) database servers
 - d) none of these mentioned
- 8) A BI's system's usefulness and performance are evaluated from _____ point of view.
 - a) Business user's
 - b) BI application developer's
 - c) BI application tester's
 - d) Business consumer's
- 9) _____ controls check-in and check-out processing of ETL modules and jobs.
 - a) Version check-out system
 - b) Version migration system
 - c) Version check-in system
 - d) Version control system
- 10) The full form of OLAP is
 - a) Online Analytical Processing
 - b) Online Advanced Processing
 - c) Online Advanced Preparation
 - d) Online Analytical Performance
- 11) _____ is a subject-oriented, integrated, time-variant, nonvolatile collection or data in support of management decisions.
 - a) Data mining
 - b) Data warehousing
 - c) Document mining
 - d) Text mining
- 12) The data is stored, retrieved and updated in
 - a) OLAP
 - b) OLTP
 - c) SMTP
 - d) FTP
- 13) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives and analysts.
 - a) OLAP
 - b) OLTP
 - c) Both of the above
 - d) None of the above
- 14) _____ is a good alternative to the star schema.
 - a) Star schema
 - b) Snowflake schema
 - c) Fact constellation
 - d) Star-snowflake schema
- 15) The _____ exposes the information being captured, stored and managed by operational systems.
 - a) top-down view
 - b) data warehouse view
 - c) data source view
 - d) business query view
- 16) The type of relationship in star schema is _____.
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 - b) one to one
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- 18) Which of the following is not a component of a data warehouse ?
 - a) Metadata
 - b) Current detail data
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- 19) Which of the following is not a kind of data warehouse application ?
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- 20) Data scrubbing is which of the following ?
 - a) A process to reject data from the data warehouse and to create the necessary indexes
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 - c) A process to upgrade the quality of data after it is moved into a data warehouse
 - d) A process to upgrade the quality of data before it is moved into a data warehouse



Seat No.	
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B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

- Instructions:** 1) **All questions are compulsory.**
2) Assume **suitable data if necessary.**

SECTION – 1

2. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
- a) What is the value of the architecture in the context BI ?
 - b) Explain relationship between dimensional modeling and entity relationship modeling.
 - c) Write a short note on basic dimensional modeling techniques.
 - d) Explain some of the myths which you think, about dimensional modeling.
3. Attempt **any two (10 marks each, 2×10 Marks = 20 marks)**.
- a) Write a short note on back room architecture.
 - b) Explain in detail strengths of dimensional modeling.
 - c) Explain the “Four-Step Design Method for Designing an Individual Fact Table”.

SECTION – 2

4. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
- a) Write a short note on types of business intelligence applications.
 - b) Explain the role of the BI Application Developer.
 - c) As a BI application developer what would be your tasks as under business intelligence application maintenance.
 - d) Explain some of the hindrances involved in developing and testing ETL automation.



5. Attempt **any two (10 marks each, 2×10 marks = 20 marks)**.
- a) Explain in detail the importance of B.I. applications.
 - b) Explain in detail stepwise process to develop ETL Plan.
 - c) Write a short note on Operational Business Intelligence.
-



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Seat No.	
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B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
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 - 3) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(1 mark each 20×1=20 mark)**

- 1) The type of relationship in star schema is _____
a) many to many b) one to one c) one to many d) many to one
- 2) The _____ allows the selection of the relevant information necessary for the data warehouse.
a) top-down view b) data warehouse view
c) data source view d) business query view
- 3) Which of the following is not a component of a data warehouse ?
a) Metadata b) Current detail data
c) Lightly summarized data d) Component key
- 4) Which of the following is not a kind of data warehouse application ?
a) Information processing b) Analytical processing
c) Data mining d) Transaction processing
- 5) Data scrubbing is which of the following ?
a) A process to reject data from the data warehouse and to create the necessary indexes
b) A process to load the data in the data warehouse and to create the necessary indexes
c) A process to upgrade the quality of data after it is moved into a data warehouse
d) A process to upgrade the quality of data before it is moved into a data warehouse
- 6) The @ active data warehouse architecture includes which of the following ?
a) At least one data mart
b) Data that can be extracted from numerous internal and external sources
c) Near real-time updates
d) All of the above
- 7) A goal of data mining includes which of the following ?
a) To explain some observed event or condition
b) To confirm that data exists
c) To analyse data for expected relationships
d) To create a new data warehouse

P.T.O.



- 8) An operational system is which of the following ?
- A system that is used to run the business in real time and is based on historical data
 - A system that is used to run the business in real time and is based on current data
 - A system that is used to support decision making and is based on current data
 - A system that is used to support decision making and is based on historical data
- 9) A data warehouse is which of the following ?
- Can be updated by end users
 - Contains numerous naming conventions and formats
 - Organized around important subject areas
 - Contains only current data
- 10) A snowflake schema is which of the following types of tables ?
- Fact
 - Dimension
 - Helper
 - All of the above
- 11) Dimensional modeling is the name of a _____ technique often used for data warehouses.
- logical design
 - physical design
 - virtual design
 - UML design
- 12) Business user query services are provided by
- back room
 - presentation servers
 - database servers
 - none of these mentioned
- 13) A BI's system's usefulness and performance are evaluated from _____ point of view.
- Business user's
 - BI application developer's
 - BI application tester's
 - Business consumer's
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- Version check-out system
 - Version migration system
 - Version check-in system
 - Version control system
- 15) The full form of OLAP is
- Online Analytical Processing
 - Online Advanced Processing
 - Online Advanced Preparation
 - Online Analytical Performance
- 16) _____ is a subject-oriented, integrated, time-variant, nonvolatile collection or data in support of management decisions.
- Data mining
 - Data warehousing
 - Document mining
 - Text mining
- 17) The data is stored, retrieved and updated in
- OLAP
 - OLTP
 - SMTP
 - FTP
- 18) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives and analysts.
- OLAP
 - OLTP
 - Both of the above
 - None of the above
- 19) _____ is a good alternative to the star schema.
- Star schema
 - Snowflake schema
 - Fact constellation
 - Star-snowflake schema
- 20) The _____ exposes the information being captured, stored and managed by operational systems.
- top-down view
 - data warehouse view
 - data source view
 - business query view



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE**

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instructions: 1) **All questions are compulsory.**
2) Assume **suitable data if necessary.**

SECTION – 1

2. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
 - a) What is the value of the architecture in the context BI ?
 - b) Explain relationship between dimensional modeling and entity relationship modeling.
 - c) Write a short note on basic dimensional modeling techniques.
 - d) Explain some of the myths which you think, about dimensional modeling.
3. Attempt **any two (10 marks each, 2×10 Marks = 20 marks)**.
 - a) Write a short note on back room architecture.
 - b) Explain in detail strengths of dimensional modeling.
 - c) Explain the “Four-Step Design Method for Designing an Individual Fact Table”.

SECTION – 2

4. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
 - a) Write a short note on types of business intelligence applications.
 - b) Explain the role of the BI Application Developer.
 - c) As a BI application developer what would be your tasks as under business intelligence application maintenance.
 - d) Explain some of the hindrances involved in developing and testing ETL automation.



5. Attempt **any two (10 marks each, 2×10 marks = 20 marks)**.
- a) Explain in detail the importance of B.I. applications.
 - b) Explain in detail stepwise process to develop ETL Plan.
 - c) Write a short note on Operational Business Intelligence.
-



- 9) Which of the following is not a kind of data warehouse application ?
a) Information processing b) Analytical processing
c) Data mining d) Transaction processing
- 10) Data scrubbing is which of the following ?
a) A process to reject data from the data warehouse and to create the necessary indexes
b) A process to load the data in the data warehouse and to create the necessary indexes
c) A process to upgrade the quality of data after it is moved into a data warehouse
d) A process to upgrade the quality of data before it is moved into a data warehouse
- 11) The @ active data warehouse architecture includes which of the following ?
a) At least one data mart
b) Data that can be extracted from numerous internal and external sources
c) Near real-time updates
d) All of the above
- 12) A goal of data mining includes which of the following ?
a) To explain some observed event or condition
b) To confirm that data exists
c) To analyse data for expected relationships
d) To create a new data warehouse
- 13) An operational system is which of the following ?
a) A system that is used to run the business in real time and is based on historical data
b) A system that is used to run the business in real time and is based on current data
c) A system that is used to support decision making and is based on current data
d) A system that is used to support decision making and is based on historical data
- 14) A data warehouse is which of the following ?
a) Can be updated by end users
b) Contains numerous naming conventions and formats
c) Organized around important subject areas
d) Contains only current data
- 15) A snowflake schema is which of the following types of tables ?
a) Fact b) Dimension c) Helper d) All of the above
- 16) Dimensional modeling is the name of a _____ technique often used for data warehouses.
a) logical design b) physical design c) virtual design d) UML design
- 17) Business user query services are provided by
a) back room b) presentation servers
c) database servers d) none of these mentioned
- 18) A BI's system's usefulness and performance are evaluated from _____ point of view.
a) Business user's b) BI application developer's
c) BI application tester's d) Business consumer's
- 19) _____ controls check-in and check-out processing of ETL modules and jobs.
a) Version check-out system b) Version migration system
c) Version check-in system d) Version control system
- 20) The full form of OLAP is
a) Online Analytical Processing b) Online Advanced Processing
c) Online Advanced Preparation d) Online Analytical Performance



Seat No.	
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B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
Elective – I : 4 – BUSINESS INTELLIGENCE

Day and Date : Tuesday, 6-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instructions: 1) **All questions are compulsory.**
2) Assume **suitable data if necessary.**

SECTION – 1

2. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
 - a) What is the value of the architecture in the context BI ?
 - b) Explain relationship between dimensional modeling and entity relationship modeling.
 - c) Write a short note on basic dimensional modeling techniques.
 - d) Explain some of the myths which you think, about dimensional modeling.
3. Attempt **any two (10 marks each, 2×10 Marks = 20 marks)**.
 - a) Write a short note on back room architecture.
 - b) Explain in detail strengths of dimensional modeling.
 - c) Explain the “Four-Step Design Method for Designing an Individual Fact Table”.

SECTION – 2

4. Attempt **all (5 marks each, 4×5 marks = 20 marks)**.
 - a) Write a short note on types of business intelligence applications.
 - b) Explain the role of the BI Application Developer.
 - c) As a BI application developer what would be your tasks as under business intelligence application maintenance.
 - d) Explain some of the hindrances involved in developing and testing ETL automation.



5. Attempt **any two (10 marks each, 2×10 marks = 20 marks)**.
- a) Explain in detail the importance of B.I. applications.
 - b) Explain in detail stepwise process to develop ETL Plan.
 - c) Write a short note on Operational Business Intelligence.
-



SLR-EP – 481

Seat No.	
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Set	P
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**B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Which of the following statement is true concerning objects and/or classes ?
 - A) An object is an instance of a class
 - B) A class is an instance of an object
 - C) An object includes encapsulates only data
 - D) A class includes encapsulates only data
- 2) What is the programming style of the object oriented conceptual model ?
 - A) Invariant relationships
 - B) Algorithms
 - C) Classes and objects
 - D) Goals, often expressed in a predicate calculus
- 3) A _____ is the special attribute that reduces the effective multiplicity of an association.
 - A) Role Name
 - B) Qualifier
 - C) Link Attribute
 - D) None of above
- 4) A _____ transforms data values in data flow diagram.
 - A) Data store
 - B) Actor
 - C) Data flow
 - D) Processes
- 5) Generalization is _____ relationship.
 - A) Is A
 - B) Part-whole
 - C) Part-of
 - D) Both B) and C)
- 6) Dynamic models are used to define the _____ of the components over time.
 - A) Strategy
 - B) Behaviour
 - C) Condition
 - D) Constraint
- 7) An Activity is associated with
 - A) Event
 - B) Condition
 - C) State
 - D) Transaction
- 8) Single inheritance, Multiple inheritance and Aggregation comes under
 - A) Modularity
 - B) Typing
 - C) Hierarchy
 - D) None of the mentioned

P.T.O.



- 9) By encapsulation in object-oriented modelling we mean
- A) Encapsulating data and programs
 - B) Hiding attributes of an object from users
 - C) Hiding operations on object from users
 - D) Hiding implementation details of methods from users of objects
- 10) The benefits of object-oriented modelling are which of the following ?
- A) The ability to tackle more challenging problems
 - B) Reusability of analysis, design, and program
 - C) Improved communication between users, analysts, etc.
 - D) All of the above
- 11) A collaboration is rendered as a
- A) Rectangle with tabs
 - B) Ellipse with dashed line
 - C) Circle
 - D) Oval
- 12) _____ allows you to name a conceptual chunk that encompasses both static and dynamic aspects.
- A) Collaboration
 - B) Deployment
 - C) Component
 - D) None of the above
- 13) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
- A) State
 - B) Events
 - C) Signal
 - D) Activity
- 14) The use case diagram are important for _____ behavioural element.
- A) Visualizing
 - B) Specifying
 - C) Documenting
 - D) All of the above
- 15) _____ are language specific – they capture existing programming experience.
- A) Idioms
 - B) Design Pattern
 - C) Architectural Pattern
 - D) None of the above
- 16) Functional transformations are expressed in terms of
- A) Primitive operators of the language
 - B) Calls to subprograms
 - C) Both A) and B)
 - D) None of the above
- 17) A good component define
- A) The physical packaging
 - B) Crisp abstractions with well defined interfaces
 - C) Logical elements
 - D) None of the above
- 18) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
- A) Signals
 - B) Events
 - C) State
 - D) Activity
- 19) You can visualize the state machine in
- A) One way
 - B) Two way
 - C) Three way
 - D) None of the above
- 20) All software development methodologies emphasize the importance of first _____ then
- i) Testing
 - ii) Communication/Planning
 - iii) Designing
 - iv) Coding
 - A) i and ii
 - B) iv and i
 - C) iii and ii
 - D) iii and iv



Seat No.	
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**B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Identify input and output values for ATM System and draw top level data flow diagram for ATM.
 - 2) Explain Abstract and concrete classes with example.
 - 3) Describe data store with an example.
 - 4) What are the impacts of an object oriented approach on the process of software development ?
 - 5) With example define derived objects, Links and Attributes.
3. Draw class diagram for student library management system with the relationship (aggregation, association, generalization, multiplicity etc.) among the classes. **10**

OR

- Explain Aggregation, Generalization and Association in detail with example. **10**
4. Draw a functional diagram for Online Shopping Model. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Explain computer animation process in detail.
 - 2) Explain Deployment Diagrams in detail.
 - 3) Explain the relationship between the patterns.
 - 4) What are the features of Object-Oriented Languages ?
 - 5) Explain different Object-Oriented Styles.
 - 6) Write a short note on Use Case Diagram.
6. Attempt **any one** : **10**
- A) Write a short note on :
 - i) Forwarder-Receiver.
 - ii) Publisher-Subscriber.
 - B) Draw the use case diagram for Canteen/Hotel and also draw the use case diagram for Course – Ware Management System.
7. Explain Component in detail. Draw a component diagram for Online Shopping. **10**

Set P



SLR-EP – 481

Seat No.	
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Set	Q
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B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Functional transformations are expressed in terms of
 - A) Primitive operators of the language
 - B) Calls to subprograms
 - C) Both A) and B)
 - D) None of the above
- 2) A good component define
 - A) The physical packaging
 - B) Crisp abstractions with well defined interfaces
 - C) Logical elements
 - D) None of the above
- 3) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
 - A) Signals
 - B) Events
 - C) State
 - D) Activity
- 4) You can visualize the state machine in
 - A) One way
 - B) Two way
 - C) Three way
 - D) None of the above
- 5) All software development methodologies emphasize the importance of first _____ then
 - i) Testing
 - ii) Communication/Planning
 - iii) Designing
 - iv) Coding
 - A) i and ii
 - B) iv and i
 - C) iii and ii
 - D) iii and iv
- 6) Which of the following statement is true concerning objects and/or classes ?
 - A) An object is an instance of a class
 - B) A class is an instance of an object
 - C) An object includes encapsulates only data
 - D) A class includes encapsulates only data
- 7) What is the programming style of the object oriented conceptual model ?
 - A) Invariant relationships
 - B) Algorithms
 - C) Classes and objects
 - D) Goals, often expressed in a predicate calculus

P.T.O.



- 8) A _____ is the special attribute that reduces the effective multiplicity of an association.
A) Role Name B) Qualifier C) Link Attribute D) None of above
- 9) A _____ transforms data values in data flow diagram.
A) Data store B) Actor C) Data flow D) Processes
- 10) Generalization is _____ relationship.
A) Is A B) Part-whole C) Part-of D) Both B) and C)
- 11) Dynamic models are used to define the _____ of the components over time.
A) Strategy B) Behaviour C) Condition D) Constraint
- 12) An Activity is associated with
A) Event B) Condition C) State D) Transaction
- 13) Single inheritance, Multiple inheritance and Aggregation comes under
A) Modularity
B) Typing
C) Hierarchy
D) None of the mentioned
- 14) By encapsulation in object-oriented modelling we mean
A) Encapsulating data and programs
B) Hiding attributes of an object from users
C) Hiding operations on object from users
D) Hiding implementation details of methods from users of objects
- 15) The benefits of object-oriented modelling are which of the following ?
A) The ability to tackle more challenging problems
B) Reusability of analysis, design, and program
C) Improved communication between users, analysts, etc.
D) All of the above
- 16) A collaboration is rendered as a
A) Rectangle with tabs B) Ellipse with dashed line
C) Circle D) Oval
- 17) _____ allows you to name a conceptual chunk that encompasses both static and dynamic aspects.
A) Collaboration B) Deployment
C) Component D) None of the above
- 18) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
A) State B) Events C) Signal D) Activity
- 19) The use case diagram are important for _____ behavioural element.
A) Visualizing B) Specifying C) Documenting D) All of the above
- 20) _____ are language specific – they capture existing programming experience.
A) Idioms B) Design Pattern
C) Architectural Pattern D) None of the above



Seat No.	
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**B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Identify input and output values for ATM System and draw top level data flow diagram for ATM.
 - 2) Explain Abstract and concrete classes with example.
 - 3) Describe data store with an example.
 - 4) What are the impacts of an object oriented approach on the process of software development ?
 - 5) With example define derived objects, Links and Attributes.
3. Draw class diagram for student library management system with the relationship (aggregation, association, generalization, multiplicity etc.) among the classes. **10**

OR

Explain Aggregation, Generalization and Association in detail with example. **10**

4. Draw a functional diagram for Online Shopping Model. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Explain computer animation process in detail.
 - 2) Explain Deployment Diagrams in detail.
 - 3) Explain the relationship between the patterns.
 - 4) What are the features of Object-Oriented Languages ?
 - 5) Explain different Object-Oriented Styles.
 - 6) Write a short note on Use Case Diagram.
6. Attempt **any one** : **10**
- A) Write a short note on :
 - i) Forwarder-Receiver.
 - ii) Publisher-Subscriber.
 - B) Draw the use case diagram for Canteen/Hotel and also draw the use case diagram for Course – Ware Management System.
7. Explain Component in detail. Draw a component diagram for Online Shopping. **10**

Set Q



Seat No.	
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Set	R
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B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) A collaboration is rendered as a
 - A) Rectangle with tabs
 - B) Ellipse with dashed line
 - C) Circle
 - D) Oval
- 2) _____ allows you to name a conceptual chunk that encompasses both static and dynamic aspects.
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 - C) Component
 - D) None of the above
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 - B) Events
 - C) Signal
 - D) Activity
- 4) The use case diagram are important for _____ behavioural element.
 - A) Visualizing
 - B) Specifying
 - C) Documenting
 - D) All of the above
- 5) _____ are language specific – they capture existing programming experience.
 - A) Idioms
 - B) Design Pattern
 - C) Architectural Pattern
 - D) None of the above
- 6) Functional transformations are expressed in terms of
 - A) Primitive operators of the language
 - B) Calls to subprograms
 - C) Both A) and B)
 - D) None of the above
- 7) A good component define
 - A) The physical packaging
 - B) Crisp abstractions with well defined interfaces
 - C) Logical elements
 - D) None of the above
- 8) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
 - A) Signals
 - B) Events
 - C) State
 - D) Activity



- 9) You can visualize the state machine in
A) One way
B) Two way
C) Three way
D) None of the above
- 10) All software development methodologies emphasize the importance of first _____ then
i) Testing
ii) Communication/Planning
iii) Designing
iv) Coding
A) i and ii
B) iv and i
C) iii and ii
D) iii and iv
- 11) Which of the following statement is true concerning objects and/or classes ?
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B) A class is an instance of an object
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D) A class includes encapsulates only data
- 12) What is the programming style of the object oriented conceptual model ?
A) Invariant relationships
B) Algorithms
C) Classes and objects
D) Goals, often expressed in a predicate calculus
- 13) A _____ is the special attribute that reduces the effective multiplicity of an association.
A) Role Name
B) Qualifier
C) Link Attribute
D) None of above
- 14) A _____ transforms data values in data flow diagram.
A) Data store
B) Actor
C) Data flow
D) Processes
- 15) Generalization is _____ relationship.
A) Is A
B) Part-whole
C) Part-of
D) Both B) and C)
- 16) Dynamic models are used to define the _____ of the components over time.
A) Strategy
B) Behaviour
C) Condition
D) Constraint
- 17) An Activity is associated with
A) Event
B) Condition
C) State
D) Transaction
- 18) Single inheritance, Multiple inheritance and Aggregation comes under
A) Modularity
B) Typing
C) Hierarchy
D) None of the mentioned
- 19) By encapsulation in object-oriented modelling we mean
A) Encapsulating data and programs
B) Hiding attributes of an object from users
C) Hiding operations on object from users
D) Hiding implementation details of methods from users of objects
- 20) The benefits of object-oriented modelling are which of the following ?
A) The ability to tackle more challenging problems
B) Reusability of analysis, design, and program
C) Improved communication between users, analysts, etc.
D) All of the above



Seat No.	
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**B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Identify input and output values for ATM System and draw top level data flow diagram for ATM.
 - 2) Explain Abstract and concrete classes with example.
 - 3) Describe data store with an example.
 - 4) What are the impacts of an object oriented approach on the process of software development ?
 - 5) With example define derived objects, Links and Attributes.
3. Draw class diagram for student library management system with the relationship (aggregation, association, generalization, multiplicity etc.) among the classes. **10**

OR

- Explain Aggregation, Generalization and Association in detail with example. **10**
4. Draw a functional diagram for Online Shopping Model. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Explain computer animation process in detail.
 - 2) Explain Deployment Diagrams in detail.
 - 3) Explain the relationship between the patterns.
 - 4) What are the features of Object-Oriented Languages ?
 - 5) Explain different Object-Oriented Styles.
 - 6) Write a short note on Use Case Diagram.
6. Attempt **any one** : **10**
- A) Write a short note on :
 - i) Forwarder-Receiver.
 - ii) Publisher-Subscriber.
 - B) Draw the use case diagram for Canteen/Hotel and also draw the use case diagram for Course – Ware Management System.
7. Explain Component in detail. Draw a component diagram for Online Shopping. **10**

Set R



- 8) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
A) State B) Events C) Signal D) Activity
- 9) The use case diagram are important for _____ behavioural element.
A) Visualizing B) Specifying C) Documenting D) All of the above
- 10) _____ are language specific – they capture existing programming experience.
A) Idioms B) Design Pattern
C) Architectural Pattern D) None of the above
- 11) Functional transformations are expressed in terms of
A) Primitive operators of the language B) Calls to subprograms
C) Both A) and B) D) None of the above
- 12) A good component define
A) The physical packaging
B) Crisp abstractions with well defined interfaces
C) Logical elements
D) None of the above
- 13) _____ represents a named object that is dispatched asynchronously by one object and they received by another.
A) Signals B) Events C) State D) Activity
- 14) You can visualize the state machine in
A) One way B) Two way
C) Three way D) None of the above
- 15) All software development methodologies emphasize the importance of first _____ then
i) Testing ii) Communication/Planning
iii) Designing iv) Coding
A) i and ii B) iv and i C) iii and ii D) iii and iv
- 16) Which of the following statement is true concerning objects and/or classes ?
A) An object is an instance of a class
B) A class is an instance of an object
C) An object includes encapsulates only data
D) A class includes encapsulates only data
- 17) What is the programming style of the object oriented conceptual model ?
A) Invariant relationships
B) Algorithms
C) Classes and objects
D) Goals, often expressed in a predicate calculus
- 18) A _____ is the special attribute that reduces the effective multiplicity of an association.
A) Role Name B) Qualifier C) Link Attribute D) None of above
- 19) A _____ transforms data values in data flow diagram.
A) Data store B) Actor C) Data flow D) Processes
- 20) Generalization is _____ relationship.
A) Is A B) Part-whole C) Part-of D) Both B) and C)



Seat No.	
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**B.E. (Computer Science And Engg.) (Part – I) Examination, 2016
OBJECT ORIENTED MODELLING AND DESIGN (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- 1) Identify input and output values for ATM System and draw top level data flow diagram for ATM.
 - 2) Explain Abstract and concrete classes with example.
 - 3) Describe data store with an example.
 - 4) What are the impacts of an object oriented approach on the process of software development ?
 - 5) With example define derived objects, Links and Attributes.
3. Draw class diagram for student library management system with the relationship (aggregation, association, generalization, multiplicity etc.) among the classes. **10**

OR

Explain Aggregation, Generalization and Association in detail with example. **10**

4. Draw a functional diagram for Online Shopping Model. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
- 1) Explain computer animation process in detail.
 - 2) Explain Deployment Diagrams in detail.
 - 3) Explain the relationship between the patterns.
 - 4) What are the features of Object-Oriented Languages ?
 - 5) Explain different Object-Oriented Styles.
 - 6) Write a short note on Use Case Diagram.
6. Attempt **any one** : **10**
- A) Write a short note on :
 - i) Forwarder-Receiver.
 - ii) Publisher-Subscriber.
 - B) Draw the use case diagram for Canteen/Hotel and also draw the use case diagram for Course – Ware Management System.
7. Explain Component in detail. Draw a component diagram for Online Shopping. **10**

Set S



SLR-EP – 482

Seat No.	
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Set	P
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Assume necessary data if required and state it.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Zone routing protocol is example of
 - a) Reactive protocol
 - b) Proactive protocol
 - c) Both a) and b)
 - d) None of these
- 2) Bluetooth unit will change the _____ 1600 times in second.
 - a) Destination
 - b) Source
 - c) Carrier frequency
 - d) Signal
- 3) The regulatory body in charge of the national radio frequency resources is the
 - a) Frequency Committee of Communication
 - b) Federal Communications Commission
 - c) Federal Committee of Communication
 - d) Frequency Communication Commission
- 4) Distance between two neighboring nodes of regular grid topology is
 - a) Spatial density
 - b) d_{link}
 - c) Theta
 - d) None of these
- 5) SDP stands for
 - a) Service Datagram Protocol
 - b) Standard Discovery Protocol
 - c) Standard Datagram Protocol
 - d) Service Discovery Protocol
- 6) Link communication model in Ad-hoc wireless scenario without INI is defined as
 - a) $r(t) = f(t) + s(a) + w_{thermal} + w_{int}(t)$
 - b) $r(t) = f(t) s(a) + w_{thermal}$
 - c) $r(t) = f(t) s(a) + w_{thermal} + w_{int}(t)$
 - d) $r(t) = f(t) + s(a) + w_{thermal}$

P.T.O.



- 7) Time dispersion could cause the reception of contradicting information, called
- Inter node interference
 - Reyleigh fading
 - Inter-symbol interference
 - None of these
- 8) A Piconet can consist of a maximum of _____ active nodes.
- 10
 - 8
 - 9
 - 7
- 9) The average number of hops can be defined as
- $2\pi N$
 - $2N$
 - $n_h^{\max}/2$
 - None of these
- 10) In Poisson distribution method the λ indicates
- Inter-arrival time of packet
 - Delay in network
 - Throughput
 - None of these
- 11) In Poisson distribution method L/R_b is used for
- Packet duration
 - Delay
 - Inter-arrival time of packet
 - None of these
- 12) In physical model, the signal power is _____ noise.
- Lower than
 - Equal to
 - Higher than
 - None
- 13) Quality of service constraints given in terms of maximum acceptable _____ at the end of multi-hop route.
- BER
 - SNR
 - ONRBS
 - RBS
- 14) In _____ model, error free transmission is provided if the distance is suitably lower than the distance from the destination node to any other node in network.
- Physical
 - Protocol
 - RBS
 - None
- 15) In _____, tentative multi-hop route from source to destination is created.
- RBS
 - DP
 - ONRBS
 - None
- 16) The mobility status of a node can be described in terms of its
- Mobility direction
 - Speed
 - Range
 - None
- 17) In direction persistent model, the speed of node is
- Constant
 - Non-constant
 - Varies
 - None
- 18) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
- Average
 - Signal
 - Both a) and b)
 - Detected
- 19) The optimal transmit power is the _____ power sufficient to guarantee network connectivity.
- Minimum
 - Maximum
 - Average
 - None
- 20) In transmission power, N/A will be considered as
- Traffic
 - Power
 - Average power
 - Special density



Seat No.	
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions:** 1) **All questions are compulsory.**
2) **Assume necessary data if required and state it.**

SECTION – I

2. Attempt **any four** questions : **20**
- 1) Show that $BER_{route} = 1 - (1 - BER_{link})^n$.
 - 2) Write a short note on MAC protocols.
 - 3) What is fading ? Explain its types with neat diagram.
 - 4) What are the new perspectives for the design of Ad-hoc Wireless network ?
 - 5) Derive and explain the average number of hops in ideal scenario of theoretic framework for multi-hop Ad-hoc Wireless Network.
 - 6) Explain routing based approaches in WAN.
3. Differentiate Regular, Quasi-Regular and Random Topology with neat diagram. **10**
4. Explain with neat diagram Bluetooth Technological Design. **10**

OR

4. Explain link signal to noise ratio with INI and without INI.

Set P



SECTION – II

5. Attempt **any four** questions : **20**
- 1) Explain how node and network lifetime and effective transport capacity will help to improve performance matrix of AWN.
 - 2) Explain ONRBS and RBS switching model in detail.
 - 3) What are the switching schemes in route reservation ? Explain any one of them in detail.
 - 4) Write a short note on average sustainable number of hops for transport capacity.
 - 5) What is effective transport capacity with its model and assumptions ?
 - 6) Derive and explain the equation for BER at the end of multi-hop route for random topology.
6. How route evolution happens during a message transmission in case of RBS of Direction Persistent Mobility Models ? **10**
7. Write a short note on optimal common transmit power with square grid topology and with random topology. **10**

OR

7. Explain aggregate effective transport capacity.
-



SLR-EP – 482

Seat No.	
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Set	Q
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Assume necessary data if required and state it.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) The mobility status of a node can be described in terms of its
a) Mobility direction b) Speed c) Range d) None
- 2) In direction persistent model, the speed of node is
a) Constant b) Non-constant
c) Varies d) None
- 3) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
a) Average b) Signal
c) Both a) and b) d) Detected
- 4) The optimal transmit power is the _____ power sufficient to guarantee network connectivity.
a) Minimum b) Maximum c) Average d) None
- 5) In transmission power, N/A will be considered as
a) Traffic b) Power c) Average power d) Special density
- 6) Zone routing protocol is example of
a) Reactive protocol b) Proactive protocol
c) Both a) and b) d) None of these
- 7) Bluetooth unit will change the _____ 1600 times in second.
a) Destination b) Source
c) Carrier frequency d) Signal

P.T.O.



- 8) The regulatory body in charge of the national radio frequency resources is the
- Frequency Committee of Communication
 - Federal Communications Commission
 - Federal Committee of Communication
 - Frequency Communication Commission
- 9) Distance between two neighboring nodes of regular grid topology is
- Spatial density
 - d_{link}
 - Theta
 - None of these
- 10) SDP stands for
- Service Datagram Protocol
 - Standard Discovery Protocol
 - Standard Datagram Protocol
 - Service Discovery Protocol
- 11) Link communication model in Ad-hoc wireless scenario without INI is defined as
- $r(t) = f(t) + s(a) + w_{\text{thermal}} + w_{\text{int}}(t)$
 - $r(t) = f(t) s(a) + w_{\text{thermal}}$
 - $r(t) = f(t) s(a) + w_{\text{thermal}} + w_{\text{int}}(t)$
 - $r(t) = f(t) + s(a) + w_{\text{thermal}}$
- 12) Time dispersion could cause the reception of contradicting information, called
- Inter node interference
 - Reyleigh fading
 - Inter-symbol interference
 - None of these
- 13) A Piconet can consist of a maximum of _____ active nodes.
- 10
 - 8
 - 9
 - 7
- 14) The average number of hops can be defined as
- $2 \Pi N$
 - $2 N$
 - $n_h^{\text{max}}/2$
 - None of these
- 15) In Poisson distribution method the λ indicates
- Inter-arrival time of packet
 - Delay in network
 - Throughput
 - None of these
- 16) In Poisson distribution method L/R_b is used for
- Packet duration
 - Delay
 - Inter-arrival time of packet
 - None of these
- 17) In physical model, the signal power is _____ noise.
- Lower than
 - Equal to
 - Higher than
 - None
- 18) Quality of service constraints given in terms of maximum acceptable _____ at the end of multi-hop route.
- BER
 - SNR
 - ONRBS
 - RBS
- 19) In _____ model, error free transmission is provided if the distance is suitably lower than the distance from the destination node to any other node in network.
- Physical
 - Protocol
 - RBS
 - None
- 20) In _____, tentative multi-hop route from source to destination is created.
- RBS
 - DP
 - ONRBS
 - None



Seat No.	
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

- Instructions:** 1) **All questions are compulsory.**
2) **Assume necessary data if required and state it.**

SECTION – I

2. Attempt **any four** questions : **20**
- 1) Show that $BER_{route} = 1 - (1 - BER_{link})^n$.
 - 2) Write a short note on MAC protocols.
 - 3) What is fading ? Explain its types with neat diagram.
 - 4) What are the new perspectives for the design of Ad-hoc Wireless network ?
 - 5) Derive and explain the average number of hops in ideal scenario of theoretic framework for multi-hop Ad-hoc Wireless Network.
 - 6) Explain routing based approaches in WAN.
3. Differentiate Regular, Quasi-Regular and Random Topology with neat diagram. **10**
4. Explain with neat diagram Bluetooth Technological Design. **10**

OR

4. Explain link signal to noise ratio with INI and without INI.

Set Q



SECTION – II

5. Attempt **any four** questions : **20**
- 1) Explain how node and network lifetime and effective transport capacity will help to improve performance matrix of AWN.
 - 2) Explain ONRBS and RBS switching model in detail.
 - 3) What are the switching schemes in route reservation ? Explain any one of them in detail.
 - 4) Write a short note on average sustainable number of hops for transport capacity.
 - 5) What is effective transport capacity with its model and assumptions ?
 - 6) Derive and explain the equation for BER at the end of multi-hop route for random topology.
6. How route evolution happens during a message transmission in case of RBS of Direction Persistent Mobility Models ? **10**
7. Write a short note on optimal common transmit power with square grid topology and with random topology. **10**

OR

7. Explain aggregate effective transport capacity.
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Seat No.	
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Assume necessary data if required and state it.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) In Poisson distribution method L/R_p is used for
 - a) Packet duration
 - b) Delay
 - c) Inter-arrival time of packet
 - d) None of these
- 2) In physical model, the signal power is _____ noise.
 - a) Lower than
 - b) Equal to
 - c) Higher than
 - d) None
- 3) Quality of service constraints given in terms of maximum acceptable _____ at the end of multi-hop route.
 - a) BER
 - b) SNR
 - c) ONRBS
 - d) RBS
- 4) In _____ model, error free transmission is provided if the distance is suitably lower than the distance from the destination node to any other node in network.
 - a) Physical
 - b) Protocol
 - c) RBS
 - d) None
- 5) In _____ , tentative multi-hop route from source to destination is created.
 - a) RBS
 - b) DP
 - c) ONRBS
 - d) None
- 6) The mobility status of a node can be described in terms of its
 - a) Mobility direction
 - b) Speed
 - c) Range
 - d) None
- 7) In direction persistent model, the speed of node is
 - a) Constant
 - b) Non-constant
 - c) Varies
 - d) None
- 8) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
 - a) Average
 - b) Signal
 - c) Both a) and b)
 - d) Detected



- 9) The optimal transmit power is the _____ power sufficient to guarantee network connectivity.
 a) Minimum b) Maximum c) Average d) None
- 10) In transmission power, N/A will be considered as
 a) Traffic b) Power c) Average power d) Special density
- 11) Zone routing protocol is example of
 a) Reactive protocol b) Proactive protocol
 c) Both a) and b) d) None of these
- 12) Bluetooth unit will change the _____ 1600 times in second.
 a) Destination b) Source
 c) Carrier frequency d) Signal
- 13) The regulatory body in charge of the national radio frequency resources is the
 a) Frequency Committee of Communication
 b) Federal Communications Commission
 c) Federal Committee of Communication
 d) Frequency Communication Commission
- 14) Distance between two neighboring nodes of regular grid topology is
 a) Spatial density b) d_{link} c) Theta d) None of these
- 15) SDP stands for
 a) Service Datagram Protocol
 b) Standard Discovery Protocol
 c) Standard Datagram Protocol
 d) Service Discovery Protocol
- 16) Link communication model in Ad-hoc wireless scenario without INI is defined as
 a) $r(t) = f(t) + s(a) + w_{thermal} + w_{int}(t)$ b) $r(t) = f(t) s(a) + w_{thermal}$
 c) $r(t) = f(t) s(a) + w_{thermal} + w_{int}(t)$ d) $r(t) = f(t) + s(a) + w_{thermal}$
- 17) Time dispersion could cause the reception of contradicting information, called
 a) Inter node interference b) Reyleigh fading
 c) Inter-symbol interference d) None of these
- 18) A Piconet can consist of a maximum of _____ active nodes.
 a) 10 b) 8 c) 9 d) 7
- 19) The average number of hops can be defined as
 a) $2\pi N$ b) $2 N$ c) $n_h^{max}/2$ d) None of these
- 20) In Poisson distribution method the λ indicates
 a) Inter-arrival time of packet b) Delay in network
 c) Throughput d) None of these



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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions:** 1) **All** questions are **compulsory**.
2) **Assume** necessary data if required and state it.

SECTION – I

2. Attempt **any four** questions : **20**
- 1) Show that $BER_{route} = 1 - (1 - BER_{link})^n$.
 - 2) Write a short note on MAC protocols.
 - 3) What is fading ? Explain its types with neat diagram.
 - 4) What are the new perspectives for the design of Ad-hoc Wireless network ?
 - 5) Derive and explain the average number of hops in ideal scenario of theoretic framework for multi-hop Ad-hoc Wireless Network.
 - 6) Explain routing based approaches in WAN.
3. Differentiate Regular, Quasi-Regular and Random Topology with neat diagram. **10**
4. Explain with neat diagram Bluetooth Technological Design. **10**

OR

4. Explain link signal to noise ratio with INI and without INI.

Set R



SECTION – II

5. Attempt **any four** questions : **20**
- 1) Explain how node and network lifetime and effective transport capacity will help to improve performance matrix of AWN.
 - 2) Explain ONRBS and RBS switching model in detail.
 - 3) What are the switching schemes in route reservation ? Explain any one of them in detail.
 - 4) Write a short note on average sustainable number of hops for transport capacity.
 - 5) What is effective transport capacity with its model and assumptions ?
 - 6) Derive and explain the equation for BER at the end of multi-hop route for random topology.
6. How route evolution happens during a message transmission in case of RBS of Direction Persistent Mobility Models ? **10**
7. Write a short note on optimal common transmit power with square grid topology and with random topology. **10**

OR

7. Explain aggregate effective transport capacity.
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Seat No.	
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Assume necessary data if required and state it.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Link communication model in Ad-hoc wireless scenario without INI is defined as
 - a) $r(t) = f(t) + s(a) + w_{\text{thermal}} + w_{\text{int}}(t)$
 - b) $r(t) = f(t) s(a) + w_{\text{thermal}}$
 - c) $r(t) = f(t) s(a) + w_{\text{thermal}} + w_{\text{int}}(t)$
 - d) $r(t) = f(t) + s(a) + w_{\text{thermal}}$
- 2) Time dispersion could cause the reception of contradicting information, called
 - a) Inter node interference
 - b) Reyleigh fading
 - c) Inter-symbol interference
 - d) None of these
- 3) A Piconet can consist of a maximum of _____ active nodes.
 - a) 10
 - b) 8
 - c) 9
 - d) 7
- 4) The average number of hops can be defined as
 - a) $2 \Pi N$
 - b) $2 N$
 - c) $n_h^{\text{max}}/2$
 - d) None of these
- 5) In Poisson distribution method the λ indicates
 - a) Inter-arrival time of packet
 - b) Delay in network
 - c) Throughput
 - d) None of these
- 6) In Poisson distribution method L/R_p is used for
 - a) Packet duration
 - b) Delay
 - c) Inter-arrival time of packet
 - d) None of these
- 7) In physical model, the signal power is _____ noise.
 - a) Lower than
 - b) Equal to
 - c) Higher than
 - d) None



- 8) Quality of service constraints given in terms of maximum acceptable _____ at the end of multi-hop route.
a) BER b) SNR c) ONRBS d) RBS
- 9) In _____ model, error free transmission is provided if the distance is suitably lower than the distance from the destination node to any other node in network.
a) Physical b) Protocol c) RBS d) None
- 10) In _____, tentative multi-hop route from source to destination is created.
a) RBS b) DP c) ONRBS d) None
- 11) The mobility status of a node can be described in terms of its
a) Mobility direction b) Speed c) Range d) None
- 12) In direction persistent model, the speed of node is
a) Constant b) Non-constant
c) Varies d) None
- 13) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
a) Average b) Signal
c) Both a) and b) d) Detected
- 14) The optimal transmit power is the _____ power sufficient to guarantee network connectivity.
a) Minimum b) Maximum c) Average d) None
- 15) In transmission power, N/A will be considered as
a) Traffic b) Power c) Average power d) Special density
- 16) Zone routing protocol is example of
a) Reactive protocol b) Proactive protocol
c) Both a) and b) d) None of these
- 17) Bluetooth unit will change the _____ 1600 times in second.
a) Destination b) Source
c) Carrier frequency d) Signal
- 18) The regulatory body in charge of the national radio frequency resources is the
a) Frequency Committee of Communication
b) Federal Communications Commission
c) Federal Committee of Communication
d) Frequency Communication Commission
- 19) Distance between two neighboring nodes of regular grid topology is
a) Spatial density b) d_{link} c) Theta d) None of these
- 20) SDP stands for
a) Service Datagram Protocol b) Standard Discovery Protocol
c) Standard Datagram Protocol d) Service Discovery Protocol



Seat No.	
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B.E. CSE (Part – I) Examination, 2016
Elective – II : WIRELESS AD-HOC NETWORKS

Day and Date : Thursday, 8-12-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions:** 1) **All** questions are **compulsory**.
2) **Assume** necessary data if required and state it.

SECTION – I

2. Attempt **any four** questions : **20**
- 1) Show that $BER_{route} = 1 - (1 - BER_{link})^n$.
 - 2) Write a short note on MAC protocols.
 - 3) What is fading ? Explain its types with neat diagram.
 - 4) What are the new perspectives for the design of Ad-hoc Wireless network ?
 - 5) Derive and explain the average number of hops in ideal scenario of theoretic framework for multi-hop Ad-hoc Wireless Network.
 - 6) Explain routing based approaches in WAN.
3. Differentiate Regular, Quasi-Regular and Random Topology with neat diagram. **10**
4. Explain with neat diagram Bluetooth Technological Design. **10**

OR

4. Explain link signal to noise ratio with INI and without INI.

Set S



SECTION – II

5. Attempt **any four** questions : **20**
- 1) Explain how node and network lifetime and effective transport capacity will help to improve performance matrix of AWN.
 - 2) Explain ONRBS and RBS switching model in detail.
 - 3) What are the switching schemes in route reservation ? Explain any one of them in detail.
 - 4) Write a short note on average sustainable number of hops for transport capacity.
 - 5) What is effective transport capacity with its model and assumptions ?
 - 6) Derive and explain the equation for BER at the end of multi-hop route for random topology.
6. How route evolution happens during a message transmission in case of RBS of Direction Persistent Mobility Models ? **10**
7. Write a short note on optimal common transmit power with square grid topology and with random topology. **10**

OR

7. Explain aggregate effective transport capacity.
-



SLR-EP – 484

Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Is it possible activity without UI in android ?
A) No, it's not possible B) Yes, it's possible
C) We can't say D) None of the above
- 2) What is ADB in android ?
A) Image tool B) Development tool
C) Android Debug Bridge D) None of the above
- 3) How to replace earlier notification with recent notification in Android ?
A) Give same id for both notifications
B) Write notification code two times
C) It is not possible in android
D) A) and C)
- 4) What is a context in android ?
A) It is an interface to store global information about an application
B) It is used to create new components
C) Android has two contexts, those are getContext() and
 getApplicationContext()
D) All of above
- 5) Broadcast Receivers work on _____ threads in Android.
A) Worker Thread B) Main Thread
C) Activity Thread D) None of the above
- 6) Which of the following method is called after completion of AsyncTask in
 Android ?
A) onPreExecution() B) doInBackground()
C) onProgressUpdate() D) onPostExecute()

P.T.O.



- 7) View Group in Android as
 - A) Collection of views and other child views
 - B) Base class of building blocks
 - C) Layouts
 - D) None of the above
- 8) Application Not Responding (ANR) dialog prompts if app does not respond for more than _____ seconds.
 - A) 10 sec
 - B) 25 sec
 - C) 5 sec
 - D) 12 sec
- 9) Which of the following states of an Activity has highest priority assigned by Android runtime ?
 - A) Paused
 - B) Destroyed
 - C) Running
 - D) Active
- 10) R.java belongs to which of the following folder of Android project structure
 - A) src
 - B) bin
 - C) res
 - D) gen
- 11) Following is not type of animation
 - A) Drawable Animation
 - B) View Animation
 - C) Property Animation
 - D) None
- 12) Geocoding means converting _____ to _____.
 - A) Latitude/longitude to address
 - B) Address to latitude/longitude
 - C) Both A) and B)
 - D) None
- 13) _____ class instance is used to create database.
 - A) SQLiteOpenHelper
 - B) SQLiteDatabase
 - C) Cursor
 - D) ContentValues
- 14) _____ is adapter method to read database table contents.
 - A) Select
 - B) Query
 - C) RawQuery
 - D) Update
- 15) _____ animation can generate resizing (enlarging/compressing image size) effect on objects.
 - A) Drawable
 - B) View
 - C) Property
 - D) None
- 16) _____ Sensor is used to detect rotation and tilt.
 - A) Accelerometer
 - B) Proximity Sensor
 - C) Gyroscope
 - D) None
- 17) List of available sensors can be retrieved using _____ class.
 - A) SensorEventListener
 - B) SensorManager
 - C) SensorEvent
 - D) None
- 18) _____ is not a valid method in MediaPlayer class.
 - A) onPause()
 - B) onRelease()
 - C) onDestroy()
 - D) None
- 19) _____ property attributes need to be defined in order to change transparency of object.
 - A) Alpha
 - B) Rotate
 - C) Scale
 - D) Translate
- 20) _____ is testing tool for Android App.
 - A) Monkey talk
 - B) Robotium
 - C) JUnit
 - D) All



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- 1) Describe logical components of an Android App with a proper example.
 - 2) Illustrate the purpose of res folder in Android project structure.
 - 3) What is the role of Android manifest.xml file in an Android project ?
 - 4) Explain the method to create background threads in Android also state limitations of it with example.
 - 5) With a simple code explain how to trigger a notification.
 - 6) Explain Android ecosystem.
3. Answer **any one** of the following : **(1×10=10)**
- 1) Explain Intent and Intent Resolution.
 - 2) What is Fragment ? Outline the steps to build fragment.
4. With help of code snippet using AsyncTask simulate background operation and simultaneously use ProgressBar to show progress of background operation on UI. **10**

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
- 1) Explain JUnit testing tool.
 - 2) What is purpose of sensors ? Explain use of motion sensors.

Set P



- 3) Explain different types of animation in short.
 - 4) Explain important multimedia classes to play audio files.
 - 5) Explain use of Cursor and ContentValues class.
 - 6) Explain versioning, signaling and packaging steps for mobile app.
6. Answer **any one** of the following : **(1×10=10)**
- 1) What is relational data ? Explain how relational data is handled in Android using Sqlite package.
 - 2) What are Location Services ? Explain use of LocationManager, LocationProvider and Geocoder roles in Location Services.
7. What is testing ? Explain black box and white box testing with respect to testing mobile app. **10**
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- 1) Describe logical components of an Android App with a proper example.
 - 2) Illustrate the purpose of res folder in Android project structure.
 - 3) What is the role of Android manifest.xml file in an Android project ?
 - 4) Explain the method to create background threads in Android also state limitations of it with example.
 - 5) With a simple code explain how to trigger a notification.
 - 6) Explain Android ecosystem.
3. Answer **any one** of the following : **(1×10=10)**
- 1) Explain Intent and Intent Resolution.
 - 2) What is Fragment ? Outline the steps to build fragment.
4. With help of code snippet using AsyncTask simulate background operation and simultaneously use ProgressBar to show progress of background operation on UI. **10**

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
- 1) Explain JUnit testing tool.
 - 2) What is purpose of sensors ? Explain use of motion sensors.

Set Q



- 3) Explain different types of animation in short.
 - 4) Explain important multimedia classes to play audio files.
 - 5) Explain use of Cursor and ContentValues class.
 - 6) Explain versioning, signaling and packaging steps for mobile app.
6. Answer **any one** of the following : **(1×10=10)**
- 1) What is relational data ? Explain how relational data is handled in Android using Sqlite package.
 - 2) What are Location Services ? Explain use of LocationManager, LocationProvider and Geocoder roles in Location Services.
7. What is testing ? Explain black box and white box testing with respect to testing mobile app. **10**
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions : 1) Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.
2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Following is not type of animation
A) Drawable Animation B) View Animation
C) Property Animation D) None
- 2) Geocoding means converting _____ to _____
A) Latitude/longitude to address B) Address to latitude/longitude
C) Both A) and B) D) None
- 3) _____ class instance is used to create database.
A) SQLiteOpenHelper B) SQLiteDatabase
C) Cursor D) ContentValues
- 4) _____ is adapter method to read database table contents.
A) Select B) Query C) RawQuery D) Update
- 5) _____ animation can generate resizing (enlarging/compressing image size) effect on objects.
A) Drawable B) View C) Property D) None
- 6) _____ Sensor is used to detect rotation and tilt.
A) Accelerometer B) Proximity Sensor
C) Gyroscope D) None
- 7) List of available sensors can be retrieved using _____ class.
A) SensorEventListener B) SensorManager
C) SensorEvent D) None
- 8) _____ is not a valid method in MediaPlayer class.
A) onPause() B) onRelease() C) onDestroy() D) None
- 9) _____ property attributes need to be defined in order to change transparency of object.
A) Alpha B) Rotate C) Scale D) Translate



- 10) _____ is testing tool for Android App.
A) Monkey talk B) Robotium C) JUnit D) All
- 11) Is it possible activity without UI in android ?
A) No, it's not possible B) Yes, it's possible
C) We can't say D) None of the above
- 12) What is ADB in android ?
A) Image tool B) Development tool
C) Android Debug Bridge D) None of the above
- 13) How to replace earlier notification with recent notification in Android ?
A) Give same id for both notifications
B) Write notification code two times
C) It is not possible in android
D) A) and C)
- 14) What is a context in android ?
A) It is an interface to store global information about an application
B) It is used to create new components
C) Android has two contexts, those are getContext() and
getApplicationContext()
D) All of above
- 15) Broadcast Receivers work on _____ threads in Android.
A) Worker Thread B) Main Thread
C) Activity Thread D) None of the above
- 16) Which of the following method is called after completion of AsyncTask in
Android ?
A) onPreExecution() B) doInBackground()
C) onProgressUpdate() D) onPostExecute()
- 17) View Group in Android as
A) Collection of views and other child views
B) Base class of building blocks
C) Layouts
D) None of the above
- 18) Application Not Responding (ANR) dialog prompts if app does not respond
for more than _____ seconds.
A) 10 sec B) 25 sec C) 5 sec D) 12 sec
- 19) Which of the following states of an Activity has highest priority assigned by
Android runtime ?
A) Paused B) Destroyed C) Running D) Active
- 20) R.java belongs to which of the following folder of Android project structure
A) src B) bin C) res D) gen



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- 1) Describe logical components of an Android App with a proper example.
 - 2) Illustrate the purpose of res folder in Android project structure.
 - 3) What is the role of Android manifest.xml file in an Android project ?
 - 4) Explain the method to create background threads in Android also state limitations of it with example.
 - 5) With a simple code explain how to trigger a notification.
 - 6) Explain Android ecosystem.
3. Answer **any one** of the following : **(1×10=10)**
- 1) Explain Intent and Intent Resolution.
 - 2) What is Fragment ? Outline the steps to build fragment.
4. With help of code snippet using AsyncTask simulate background operation and simultaneously use ProgressBar to show progress of background operation on UI. **10**

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
- 1) Explain JUnit testing tool.
 - 2) What is purpose of sensors ? Explain use of motion sensors.

Set R



- 3) Explain different types of animation in short.
 - 4) Explain important multimedia classes to play audio files.
 - 5) Explain use of Cursor and ContentValues class.
 - 6) Explain versioning, signaling and packaging steps for mobile app.
6. Answer **any one** of the following : **(1×10=10)**
- 1) What is relational data ? Explain how relational data is handled in Android using Sqlite package.
 - 2) What are Location Services ? Explain use of LocationManager, LocationProvider and Geocoder roles in Location Services.
7. What is testing ? Explain black box and white box testing with respect to testing mobile app. **10**
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions : 1) Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.
2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : 20

- 1) Which of the following method is called after completion of AsyncTask in Android ?
A) onPreExecution() B) doInBackground()
C) onProgressUpdate() D) onPostExecute()
- 2) View Group in Android as
A) Collection of views and other child views
B) Base class of building blocks
C) Layouts
D) None of the above
- 3) Application Not Responding (ANR) dialog prompts if app does not respond for more than _____ seconds.
A) 10 sec B) 25 sec C) 5 sec D) 12 sec
- 4) Which of the following states of an Activity has highest priority assigned by Android runtime ?
A) Paused B) Destroyed C) Running D) Active
- 5) R.java belongs to which of the following folder of Android project structure
A) src B) bin C) res D) gen
- 6) Following is not type of animation
A) Drawable Animation B) View Animation
C) Property Animation D) None
- 7) Geocoding means converting _____ to _____
A) Latitude/longitude to address B) Address to latitude/longitude
C) Both A) and B) D) None
- 8) _____ class instance is used to create database.
A) SQLiteOpenHelper B) SQLiteDatabase
C) Cursor D) ContentValues



- 9) _____ is adapter method to read database table contents.
A) Select B) Query C) RawQuery D) Update
- 10) _____ animation can generate resizing (enlarging/compressing image size) effect on objects.
A) Drawable B) View C) Property D) None
- 11) _____ Sensor is used to detect rotation and tilt.
A) Accelerometer B) Proximity Sensor
C) Gyroscope D) None
- 12) List of available sensors can be retrieved using _____ class.
A) SensorEventListener B) SensorManager
C) SenorEvent D) None
- 13) _____ is not a valid method in MediaPlayer class.
A) onPause() B) OnRelease() C) OnDestroy() D) None
- 14) _____ property attributes need to be defined in order to change transparency of object.
A) Alpha B) Rotate C) Scale D) Translate
- 15) _____ is testing tool for Android App.
A) Monkey talk B) Robotium C) JUnit D) All
- 16) Is it possible activity without UI in android ?
A) No, it's not possible B) Yes, it's possible
C) We can't say D) None of the above
- 17) What is ADB in android ?
A) Image tool B) Development tool
C) Android Debug Bridge D) None of the above
- 18) How to replace earlier notification with recent notification in Android ?
A) Give same id for both notifications
B) Write notification code two times
C) It is not possible in android
D) A) and C)
- 19) What is a context in android ?
A) It is an interface to store global information about an application
B) It is used to create new components
C) Android has two contexts, those are getContext() and
getApplicationContext()
D) All of above
- 20) Broadcast Receivers work on _____ threads in Android.
A) Worker Thread B) Main Thread
C) Activity Thread D) None of the above



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – I) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II)**

Day and Date : Thursday, 8-12-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- 1) Describe logical components of an Android App with a proper example.
 - 2) Illustrate the purpose of res folder in Android project structure.
 - 3) What is the role of Android manifest.xml file in an Android project ?
 - 4) Explain the method to create background threads in Android also state limitations of it with example.
 - 5) With a simple code explain how to trigger a notification.
 - 6) Explain Android ecosystem.
3. Answer **any one** of the following : **(1×10=10)**
- 1) Explain Intent and Intent Resolution.
 - 2) What is Fragment ? Outline the steps to build fragment.
4. With help of code snippet using AsyncTask simulate background operation and simultaneously use ProgressBar to show progress of background operation on UI. **10**

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
- 1) Explain JUnit testing tool.
 - 2) What is purpose of sensors ? Explain use of motion sensors.

Set S



- 3) Explain different types of animation in short.
 - 4) Explain important multimedia classes to play audio files.
 - 5) Explain use of Cursor and ContentValues class.
 - 6) Explain versioning, signaling and packaging steps for mobile app.
6. Answer **any one** of the following : **(1×10=10)**
- 1) What is relational data ? Explain how relational data is handled in Android using Sqlite package.
 - 2) What are Location Services ? Explain use of LocationManager, LocationProvider and Geocoder roles in Location Services.
7. What is testing ? Explain black box and white box testing with respect to testing mobile app. **10**
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Seat No.	
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B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) _____ is the process of finding useful information and patterns in data.
A) Data mining B) KDD C) Multimedia D) None of the above
- 2) Association rules are alternatively referred as
A) Link analysis or affinity analysis B) KDD
C) Summarization D) None of the above
- 3) Which of the following method comes under the statistical-based classification algorithm ?
A) Regression B) K-nearest neighbor
C) K-means D) All
- 4) The classification scheme based on the use of distance measures is that of the K nearest neighbors (KNN).
A) True B) False C) Can't say D) None of the above
- 5) Which of the following comes under partitional algorithm used for clustering ?
A) K-means B) Agglomerative
C) Divisive D) All of the above
- 6) In rule-base classification, a DT can always be used to generate rules, but they are not equivalent.
A) False B) True C) Can't say D) All
- 7) _____ is a process of identifying errors in a set of data.
A) Outlier detection B) Outlier mining
C) Both A) and B) D) All



- 8) _____ is to split up clusters where some elements are not sufficiently close to other elements.
A) Agglomerative B) Divisive C) K-means D) None of the above
- 9) In DBSCAN, _____ is defined as a minimum number of points within a certain distance of each other.
A) Density B) Destiny C) Demand D) None of the above
- 10) Space complexity of BIRCH algorithm of clustering is
A) $O(n^2)$ B) $O(n)$ C) $O(n^2 \log n)$ D) None of the above
- 11) _____ for an association rule $X \Rightarrow Y$ is the ratio of the number for transactions that contains $X \cup Y$ to the number of transactions that contains X .
A) Support B) Confidence
C) Association rule D) None
- 12) To facilitate efficient counting of itemsets with large databases, sampling of the database may be used
A) True B) False C) Can't say D) None
- 13) _____ mining is mining of data related to World Wide Web.
A) Text B) Data C) Web D) None of the above
- 14) Traditional search engines must have _____ to search the web and gather information.
A) URL B) Crawlers C) Patterning D) Ranking
- 15) _____ system is based on the use of caching, indexing and crawling.
A) Urle's B) Harvest C) Virtual Web D) All
- 16) Web usage mining performs mining on web usage data called
A) Web pages B) Web logs C) Web sites D) Ranking
- 17) _____ data have location component.
A) Temporal B) Spatial C) Both A) and B) D) All
- 18) _____ series is a set of attributes or values over a period of time.
A) Data B) Time C) Spatial D) Analysis
- 19) The prediction of time series data can use
A) Cleansing B) Regression C) Reduction D) All
- 20) The _____ value for a page is based on the number of pages that point to it.
A) Ranking site B) Page Rank C) Crawler D) All
-



Seat No.	
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**B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction: All questions are compulsory.

SECTION – I

2. Solve **any four** : **20**
- A) What is data mining ? List and explain different data mining applications.
 - B) Write a note on – Data cleaning.
 - C) What is Data reduction ? List and explain different data reduction strategies.
 - D) Describe K-Nearest Algorithm.
 - E) What is Regression ? Explain.
3. Describe Data Integration and Transformation in detail. **10**
- OR
- List and explain data mining tools. Compare data mining with KDD. **10**
4. Describe Bayesian classification with example. **10**

SECTION – II

5. Solve **any four** : **20**
- A) Describe Agglomerative algorithm used for clustering.
 - B) Explain partitioning method used for association rules.
 - C) Write a note on – Divisive clustering.
 - D) Describe web structure mining.
 - E) Explain pattern detection of temporal mining.
6. Explain BIRCH and DBSCAN methods used for clustering large databases. **10**
- OR
- Describe multimedia data mining in detail. **10**
7. Describe Apriori algorithm of Association rules in detail. **10**

Set P



Seat No.	
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Set	Q
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B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Web usage mining performs mining on web usage data called
A) Web pages B) Web logs C) Web sites D) Ranking
- 2) _____ data have location component.
A) Temporal B) Spatial C) Both A) and B) D) All
- 3) _____ series is a set of attributes or values over a period of time.
A) Data B) Time C) Spatial D) Analysis
- 4) The prediction of time series data can use
A) Cleansing B) Regression C) Reduction D) All
- 5) The _____ value for a page is based on the number of pages that point to it.
A) Ranking site B) Page Rank C) Crawler D) All
- 6) _____ is the process of finding useful information and patterns in data.
A) Data mining B) KDD C) Multimedia D) None of the above
- 7) Association rules are alternatively referred as
A) Link analysis or affinity analysis B) KDD
C) Summarization D) None of the above
- 8) Which of the following method comes under the statistical-based classification algorithm ?
A) Regression B) K-nearest neighbor
C) K-means D) All



- 9) The classification scheme based on the use of distance measures is that of the K nearest neighbors (KNN).
A) True B) False C) Can't say D) None of the above
- 10) Which of the following comes under partitional algorithm used for clustering ?
A) K-means B) Agglomerative
C) Divisive D) All of the above
- 11) In rule-base classification, a DT can always be used to generate rules, but they are not equivalent.
A) False B) True C) Can't say D) All
- 12) _____ is a process of identifying errors in a set of data.
A) Outlier detection B) Outlier mining
C) Both A) and B) D) All
- 13) _____ is to split up clusters where some elements are not sufficiently close to other elements.
A) Agglomerative B) Divisive C) K-means D) None of the above
- 14) In DBSCAN, _____ is defined as a minimum number of points within a certain distance of each other.
A) Density B) Destiny C) Demand D) None of the above
- 15) Space complexity of BIRCH algorithm of clustering is
A) $O(n^2)$ B) $O(n)$ C) $O(n^2 \log n)$ D) None of the above
- 16) _____ for an association rule $X \Rightarrow Y$ is the ratio of the number for transactions that contains $X \cup Y$ to the number of transactions that contains X.
A) Support B) Confidence
C) Association rule D) None
- 17) To facilitate efficient counting of itemsets with large databases, sampling of the database may be used
A) True B) False C) Can't say D) None
- 18) _____ mining is mining of data related to World Wide Web.
A) Text B) Data C) Web D) None of the above
- 19) Traditional search engines must have _____ to search the web and gather information.
A) URL B) Crawlers C) Patterning D) Ranking
- 20) _____ system is based on the use of caching, indexing and crawling.
A) Urle's B) Harvest C) Virtual Web D) All



Seat No.	
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**B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction: All questions are compulsory.

SECTION – I

2. Solve **any four** : **20**
- A) What is data mining ? List and explain different data mining applications.
 - B) Write a note on – Data cleaning.
 - C) What is Data reduction ? List and explain different data reduction strategies.
 - D) Describe K-Nearest Algorithm.
 - E) What is Regression ? Explain.
3. Describe Data Integration and Transformation in detail. **10**
- OR
- List and explain data mining tools. Compare data mining with KDD. **10**
4. Describe Bayesian classification with example. **10**

SECTION – II

5. Solve **any four** : **20**
- A) Describe Agglomerative algorithm used for clustering.
 - B) Explain partitioning method used for association rules.
 - C) Write a note on – Divisive clustering.
 - D) Describe web structure mining.
 - E) Explain pattern detection of temporal mining.
6. Explain BIRCH and DBSCAN methods used for clustering large databases. **10**
- OR
- Describe multimedia data mining in detail. **10**
7. Describe Apriori algorithm of Association rules in detail. **10**

Set Q



- 9) The prediction of time series data can use
A) Cleansing B) Regression C) Reduction D) All
- 10) The _____ value for a page is based on the number of pages that point to it.
A) Ranking site B) Page Rank C) Crawler D) All
- 11) _____ is the process of finding useful information and patterns in data.
A) Data mining B) KDD C) Multimedia D) None of the above
- 12) Association rules are alternatively referred as
A) Link analysis or affinity analysis B) KDD
C) Summarization D) None of the above
- 13) Which of the following method comes under the statistical-based classification algorithm ?
A) Regression B) K-nearest neighbor
C) K-means D) All
- 14) The classification scheme based on the use of distance measures is that of the K nearest neighbors (KNN).
A) True B) False C) Can't say D) None of the above
- 15) Which of the following comes under partitional algorithm used for clustering ?
A) K-means B) Agglomerative
C) Divisive D) All of the above
- 16) In rule-based classification, a DT can always be used to generate rules, but they are not equivalent.
A) False B) True C) Can't say D) All
- 17) _____ is a process of identifying errors in a set of data.
A) Outlier detection B) Outlier mining
C) Both A) and B) D) All
- 18) _____ is to split up clusters where some elements are not sufficiently close to other elements.
A) Agglomerative B) Divisive C) K-means D) None of the above
- 19) In DBSCAN, _____ is defined as a minimum number of points within a certain distance of each other.
A) Density B) Destiny C) Demand D) None of the above
- 20) Space complexity of BIRCH algorithm of clustering is
A) $O(n^2)$ B) $O(n)$ C) $O(n^2 \log n)$ D) None of the above
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**B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction: All questions are compulsory.

SECTION – I

2. Solve **any four** : **20**
- A) What is data mining ? List and explain different data mining applications.
 - B) Write a note on – Data cleaning.
 - C) What is Data reduction ? List and explain different data reduction strategies.
 - D) Describe K-Nearest Algorithm.
 - E) What is Regression ? Explain.
3. Describe Data Integration and Transformation in detail. **10**
- OR
- List and explain data mining tools. Compare data mining with KDD. **10**
4. Describe Bayesian classification with example. **10**

SECTION – II

5. Solve **any four** : **20**
- A) Describe Agglomerative algorithm used for clustering.
 - B) Explain partitioning method used for association rules.
 - C) Write a note on – Divisive clustering.
 - D) Describe web structure mining.
 - E) Explain pattern detection of temporal mining.
6. Explain BIRCH and DBSCAN methods used for clustering large databases. **10**
- OR
- Describe multimedia data mining in detail. **10**
7. Describe Apriori algorithm of Association rules in detail. **10**

Set R



Seat No.	
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Set	S
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B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) In rule-based classification, a DT can always be used to generate rules, but they are not equivalent.
A) False B) True C) Can't say D) All
- 2) _____ is a process of identifying errors in a set of data.
A) Outlier detection B) Outlier mining
C) Both A) and B) D) All
- 3) _____ is to split up clusters where some elements are not sufficiently close to other elements.
A) Agglomerative B) Divisive C) K-means D) None of the above
- 4) In DBSCAN, _____ is defined as a minimum number of points within a certain distance of each other.
A) Density B) Destiny C) Demand D) None of the above
- 5) Space complexity of BIRCH algorithm of clustering is
A) $O(n^2)$ B) $O(n)$ C) $O(n^2 \log n)$ D) None of the above
- 6) _____ for an association rule $X \Rightarrow Y$ is the ratio of the number for transactions that contains $X \cup Y$ to the number of transactions that contains X.
A) Support B) Confidence
C) Association rule D) None
- 7) To facilitate efficient counting of itemsets with large databases, sampling of the database may be used
A) True B) False C) Can't say D) None



- 8) _____ mining is mining of data related to World Wide Web.
A) Text B) Data C) Web D) None of the above
- 9) Traditional search engines must have _____ to search the web and gather information.
A) URL B) Crawlers C) Patterning D) Ranking
- 10) _____ system is based on the use of caching, indexing and crawling.
A) Urle's B) Harvest C) Virtual Web D) All
- 11) Web usage mining performs mining on web usage data called
A) Web pages B) Web logs C) Web sites D) Ranking
- 12) _____ data have location component.
A) Temporal B) Spatial C) Both A) and B) D) All
- 13) _____ series is a set of attributes or values over a period of time.
A) Data B) Time C) Spatial D) Analysis
- 14) The prediction of time series data can use
A) Cleansing B) Regression C) Reduction D) All
- 15) The _____ value for a page is based on the number of pages that point to it.
A) Ranking site B) Page Rank C) Crawler D) All
- 16) _____ is the process of finding useful information and patterns in data.
A) Data mining B) KDD C) Multimedia D) None of the above
- 17) Association rules are alternatively referred as
A) Link analysis or affinity analysis B) KDD
C) Summarization D) None of the above
- 18) Which of the following method comes under the statistical-based classification algorithm ?
A) Regression B) K-nearest neighbor
C) K-means D) All
- 19) The classification scheme based on the use of distance measures is that of the K nearest neighbors (KNN).
A) True B) False C) Can't say D) None of the above
- 20) Which of the following comes under partitional algorithm used for clustering ?
A) K-means B) Agglomerative
C) Divisive D) All of the above
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**B.E. (CSE) (Part – II) (Old) Examination, 2016
Elective – II : DATA MINING**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction: All questions are compulsory.

SECTION – I

2. Solve **any four** : **20**
- A) What is data mining ? List and explain different data mining applications.
 - B) Write a note on – Data cleaning.
 - C) What is Data reduction ? List and explain different data reduction strategies.
 - D) Describe K-Nearest Algorithm.
 - E) What is Regression ? Explain.
3. Describe Data Integration and Transformation in detail. **10**
- OR
- List and explain data mining tools. Compare data mining with KDD. **10**
4. Describe Bayesian classification with example. **10**

SECTION – II

5. Solve **any four** : **20**
- A) Describe Agglomerative algorithm used for clustering.
 - B) Explain partitioning method used for association rules.
 - C) Write a note on – Divisive clustering.
 - D) Describe web structure mining.
 - E) Explain pattern detection of temporal mining.
6. Explain BIRCH and DBSCAN methods used for clustering large databases. **10**
- OR
- Describe multimedia data mining in detail. **10**
7. Describe Apriori algorithm of Association rules in detail. **10**

Set S



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Seat No.	
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P

B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) Assume **suitable** data if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative : **(1×20=20)**
- 1) Testers can test quality of product at the end of development process.
a) True b) False c) Can't say d) None
 - 2) Test methodologies are
a) Black box b) White box c) Gray box d) All
 - 3) Alpha testing is done at
a) Customers site b) Developers site
c) Both a) and b) d) None
 - 4) Quality views are
a) Transcendental b) Users c) Manufacturers d) All
 - 5) Quality Assurance is
a) Quality control activity b) Quality management activity
c) Both a) and b) d) None
 - 6) Which is the reputed testing standard ?
a) M bridge awards b) QAI
c) ISO d) Microsoft
 - 7) What is correct Software Process Cycle ?
a) Plan (P) → Check (C) → Act (A) → Do (D)
b) Plan (P) → Do (D) → Check (C) → Act (A)
c) Plan (P) → Do (D) → Act (A) → Check (C)
d) Plan (P) → D (D) → At (A) → Check (C)

P.T.O.



- 8) _____ is the physical size of the product in software engineering.
a) Length b) Functionality c) Complexity d) None
- 9) The control flow measures are usually modeled with
a) Directed graph b) Undirected graph
c) Both a) and b) d) None
- 10) _____ occurs when human error results in mistake.
a) Failure b) Fault c) Error d) Bug
- 11) Software measures are
a) Processes b) Products c) Resources d) All
- 12) Reliability can be represented as
a) Failure free operation b) Failure free intensity
c) Both a) and b) d) None
- 13) An operation profile can be represented in a _____ form in software reliability.
a) Mathematical b) Logical c) Tabular d) None
- 14) Quality Assurance groups are
a) System test b) Quality management
c) Both a) and b) d) None
- 15) McCall's quality factors are
a) Product operation b) Product revision
c) Product transition d) All
- 16) Customer focus is a principle of _____ quality standard.
a) ISO 9000 : 2000 b) McCall's quality criteria
c) ISO 9126 standard d) ISO 9000
- 17) In _____ all components or modules are integrated simultaneously, after which everything is tested as a whole.
a) Sandwich testing b) Smoke testing
c) Big bang integration testing d) None
- 18) User acceptance testing is
a) White box testing b) Black box testing
c) Gray box testing d) None
- 19) A _____ is a graphical representation of program unit.
a) CFG b) CFS c) COF d) None
- 20) In _____ a program unit is tested in isolation.
a) Acceptance testing b) Unit testing
c) Integration testing d) System testing



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B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) Assume **suitable** data if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Solve **any four** : **(5×4=20)**
- a) Write note on V model.
 - b) Explain aspects of software size in software engineering.
 - c) Write note on error, defect, bug, failure and fault.
 - d) Explain global modularity and morphology from modularity.
 - e) Explain object oriented metric in software engineering.
 - f) Explain statistical tests in data collection and measurement.
3. Write note on : **10**
- 1) Role of testing.
 - 2) Software reliability.
 - 3) Test case.
 - 4) Complete testing.
 - 5) Testing objectives.

OR

Explain test planning and automation testing tool.

4. Write note on software measurement techniques : **10**
- 1) Box plots
 - 2) Scatter plots.

Set P



SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain acceptance testing.
 - b) What is Software Quality Assurance group for providing software reliability ?
 - c) Write note on team building in software reliability.
 - d) Explain ISO 9126 quality characteristics.
 - e) Explain 5 views of software quality.
 - f) Explain applications of software reliability.
6. Solve **any one** : **10**
- Write note on ISO 9000 : 2000 fundamentals and ISO 9001 : 2000 requirements.
- OR
- Write note on recruiting test engineers and retaining test engineers.
7. Explain integration testing with approaches in detail. **10**
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Seat No.	
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Set

Q

B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) Assume **suitable** data if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative : (1×20=20)
- 1) Customer focus is a principle of _____ quality standard.
a) ISO 9000 : 2000 b) McCall's quality criteria
c) ISO 9126 standard d) ISO 9000
 - 2) In _____ all components or modules are integrated simultaneously, after which everything is tested as a whole.
a) Sandwich testing b) Smoke testing
c) Big bang integration testing d) None
 - 3) User acceptance testing is
a) White box testing b) Black box testing
c) Gray box testing d) None
 - 4) A _____ is a graphical representation of program unit.
a) CFG b) CFS c) COF d) None
 - 5) In _____ a program unit is tested in isolation.
a) Acceptance testing b) Unit testing
c) Integration testing d) System testing
 - 6) Testers can test quality of product at the end of development process.
a) True b) False c) Can't say d) None
 - 7) Test methodologies are
a) Black box b) White box c) Gray box d) All

P.T.O.



- 8) Alpha testing is done at
a) Customers site
b) Developers site
c) Both a) and b)
d) None
- 9) Quality views are
a) Transcendental b) Users
c) Manufacturers d) All
- 10) Quality Assurance is
a) Quality control activity
b) Quality management activity
c) Both a) and b)
d) None
- 11) Which is the reputed testing standard ?
a) M bridge awards
b) QAI
c) ISO
d) Microsoft
- 12) What is correct Software Process Cycle ?
a) Plan (P) → Check (C) → Act (A) → Do (D)
b) Plan (P) → Do (D) → Check (C) → Act (A)
c) Plan (P) → Do (D) → Act (A) → Check (C)
d) Plan (P) → D (D) → At (A) → Check (C)
- 13) _____ is the physical size of the product in software engineering.
a) Length
b) Functionality
c) Complexity
d) None
- 14) The control flow measures are usually modeled with
a) Directed graph
b) Undirected graph
c) Both a) and b)
d) None
- 15) _____ occurs when human error results in mistake.
a) Failure
b) Fault
c) Error
d) Bug
- 16) Software measures are
a) Processes
b) Products
c) Resources
d) All
- 17) Reliability can be represented as
a) Failure free operation
b) Failure free intensity
c) Both a) and b)
d) None
- 18) An operation profile can be represented in a _____ form in software reliability.
a) Mathematical
b) Logical
c) Tabular
d) None
- 19) Quality Assurance groups are
a) System test
b) Quality management
c) Both a) and b)
d) None
- 20) McCall's quality factors are
a) Product operation
b) Product revision
c) Product transition
d) All
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Seat No.	
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B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) Assume **suitable** data if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Solve **any four** : **(5×4=20)**

- a) Write note on V model.
- b) Explain aspects of software size in software engineering.
- c) Write note on error, defect, bug, failure and fault.
- d) Explain global modularity and morphology from modularity.
- e) Explain object oriented metric in software engineering.
- f) Explain statistical tests in data collection and measurement.

3. Write note on : **10**

- 1) Role of testing.
- 2) Software reliability.
- 3) Test case.
- 4) Complete testing.
- 5) Testing objectives.

OR

Explain test planning and automation testing tool.

4. Write note on software measurement techniques : **10**

- 1) Box plots
- 2) Scatter plots.

Set Q



SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain acceptance testing.
 - b) What is Software Quality Assurance group for providing software reliability ?
 - c) Write note on team building in software reliability.
 - d) Explain ISO 9126 quality characteristics.
 - e) Explain 5 views of software quality.
 - f) Explain applications of software reliability.
6. Solve **any one** : **10**
- Write note on ISO 9000 : 2000 fundamentals and ISO 9001 : 2000 requirements.
- OR
- Write note on recruiting test engineers and retaining test engineers.
7. Explain integration testing with approaches in detail. **10**
-



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Seat No.	
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Set **R**

B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:**
- 1) Figures to the **right** indicate **full** marks.
 - 2) Assume **suitable** data if necessary.
 - 3) Figures must be drawn **wherever** necessary.
 - 4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
 - 5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative : (1×20=20)
- 1) Software measures are
a) Processes b) Products c) Resources d) All
 - 2) Reliability can be represented as
a) Failure free operation b) Failure free intensity
c) Both a) and b) d) None
 - 3) An operation profile can be represented in a _____ form in software reliability.
a) Mathematical b) Logical c) Tabular d) None
 - 4) Quality Assurance groups are
a) System test b) Quality management
c) Both a) and b) d) None
 - 5) McCall's quality factors are
a) Product operation b) Product revision
c) Product transition d) All
 - 6) Customer focus is a principle of _____ quality standard.
a) ISO 9000 : 2000 b) McCall's quality criteria
c) ISO 9126 standard d) ISO 9000
 - 7) In _____ all components or modules are integrated simultaneously, after which everything is tested as a whole.
a) Sandwich testing b) Smoke testing
c) Big bang integration testing d) None

P.T.O.



- 8) User acceptance testing is
- a) White box testing
 - b) Black box testing
 - c) Gray box testing
 - d) None
- 9) A _____ is a graphical representation of program unit.
- a) CFG
 - b) CFS
 - c) COF
 - d) None
- 10) In _____ a program unit is tested in isolation.
- a) Acceptance testing
 - b) Unit testing
 - c) Integration testing
 - d) System testing
- 11) Testers can test quality of product at the end of development process.
- a) True
 - b) False
 - c) Can't say
 - d) None
- 12) Test methodologies are
- a) Black box
 - b) White box
 - c) Gray box
 - d) All
- 13) Alpha testing is done at
- a) Customers site
 - b) Developers site
 - c) Both a) and b)
 - d) None
- 14) Quality views are
- a) Transcendental
 - b) Users
 - c) Manufacturers
 - d) All
- 15) Quality Assurance is
- a) Quality control activity
 - b) Quality management activity
 - c) Both a) and b)
 - d) None
- 16) Which is the reputed testing standard ?
- a) M bridge awards
 - b) QAI
 - c) ISO
 - d) Microsoft
- 17) What is correct Software Process Cycle ?
- a) Plan (P) → Check (C) → Act (A) → Do (D)
 - b) Plan (P) → Do (D) → Check (C) → Act (A)
 - c) Plan (P) → Do (D) → Act (A) → Check (C)
 - d) Plan (P) → D (D) → At (A) → Check (C)
- 18) _____ is the physical size of the product in software engineering.
- a) Length
 - b) Functionality
 - c) Complexity
 - d) None
- 19) The control flow measures are usually modeled with
- a) Directed graph
 - b) Undirected graph
 - c) Both a) and b)
 - d) None
- 20) _____ occurs when human error results in mistake.
- a) Failure
 - b) Fault
 - c) Error
 - d) Bug
-



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B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) Assume **suitable** data if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Solve **any four** : **(5×4=20)**
- a) Write note on V model.
 - b) Explain aspects of software size in software engineering.
 - c) Write note on error, defect, bug, failure and fault.
 - d) Explain global modularity and morphology from modularity.
 - e) Explain object oriented metric in software engineering.
 - f) Explain statistical tests in data collection and measurement.
3. Write note on : **10**
- 1) Role of testing.
 - 2) Software reliability.
 - 3) Test case.
 - 4) Complete testing.
 - 5) Testing objectives.

OR

Explain test planning and automation testing tool.

4. Write note on software measurement techniques : **10**
- 1) Box plots
 - 2) Scatter plots.

Set R



SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain acceptance testing.
 - b) What is Software Quality Assurance group for providing software reliability ?
 - c) Write note on team building in software reliability.
 - d) Explain ISO 9126 quality characteristics.
 - e) Explain 5 views of software quality.
 - f) Explain applications of software reliability.
6. Solve **any one** : **10**
- Write note on ISO 9000 : 2000 fundamentals and ISO 9001 : 2000 requirements.
- OR
- Write note on recruiting test engineers and retaining test engineers.
7. Explain integration testing with approaches in detail. **10**
-



- 8) An operation profile can be represented in a _____ form in software reliability.
a) Mathematical b) Logical c) Tabular d) None
- 9) Quality Assurance groups are
a) System test b) Quality management
c) Both a) and b) d) None
- 10) McCall's quality factors are
a) Product operation b) Product revision
c) Product transition d) All
- 11) Customer focus is a principle of _____ quality standard.
a) ISO 9000 : 2000 b) McCall's quality criteria
c) ISO 9126 standard d) ISO 9000
- 12) In _____ all components or modules are integrated simultaneously, after which everything is tested as a whole.
a) Sandwich testing b) Smoke testing
c) Big bang integration testing d) None
- 13) User acceptance testing is
a) White box testing b) Black box testing
c) Gray box testing d) None
- 14) A _____ is a graphical representation of program unit.
a) CFG b) CFS c) COF d) None
- 15) In _____ a program unit is tested in isolation.
a) Acceptance testing b) Unit testing
c) Integration testing d) System testing
- 16) Testers can test quality of product at the end of development process.
a) True b) False c) Can't say d) None
- 17) Test methodologies are
a) Black box b) White box c) Gray box d) All
- 18) Alpha testing is done at
a) Customers site b) Developers site
c) Both a) and b) d) None
- 19) Quality views are
a) Transcendental b) Users c) Manufacturers d) All
- 20) Quality Assurance is
a) Quality control activity b) Quality management activity
c) Both a) and b) d) None
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B.E. (CSE) Part – II (Old) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – II)

Day and Date : Thursday, 24-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) Assume **suitable** data if necessary.
3) Figures must be drawn **wherever** necessary.

SECTION – I

2. Solve **any four** : **(5×4=20)**
- a) Write note on V model.
 - b) Explain aspects of software size in software engineering.
 - c) Write note on error, defect, bug, failure and fault.
 - d) Explain global modularity and morphology from modularity.
 - e) Explain object oriented metric in software engineering.
 - f) Explain statistical tests in data collection and measurement.
3. Write note on : **10**
- 1) Role of testing.
 - 2) Software reliability.
 - 3) Test case.
 - 4) Complete testing.
 - 5) Testing objectives.

OR

Explain test planning and automation testing tool.

4. Write note on software measurement techniques : **10**
- 1) Box plots
 - 2) Scatter plots.

Set S



SECTION – II

5. Attempt **any four** : **(5×4=20)**
- a) Explain acceptance testing.
 - b) What is Software Quality Assurance group for providing software reliability ?
 - c) Write note on team building in software reliability.
 - d) Explain ISO 9126 quality characteristics.
 - e) Explain 5 views of software quality.
 - f) Explain applications of software reliability.
6. Solve **any one** : **10**
- Write note on ISO 9000 : 2000 fundamentals and ISO 9001 : 2000 requirements.
- OR
- Write note on recruiting test engineers and retaining test engineers.
7. Explain integration testing with approaches in detail. **10**
-



Seat No.	
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**B.E. (CSE) (Part – II) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II) (Old)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) ADT generates .apk (android application package) in _____ directory of Project directory structure.
a) res b) assets c) bin d) lib
- 2) _____ displays messages generated during running of app on emulator or a connected device in ADT.
a) Output view b) Package explorer view
c) LogCat view d) Project explorer view
- 3) Which of the following is not a Android Platform tool ?
a) DDMS b) adb c) aapt d) dx
- 4) During transition form Paused state to Stopped state _____ callback method is called.
a) onResume() b) onStop() c) onDestroy() d) onStart()
- 5) Upon creating a layout resource, Android framework generates a unique id for it in the _____ file.
a) R.java b) AndroidManifest.xml
c) strings.xml d) In Activity java file corresponding to the Main activity of an app.
- 6) Each view in Android is an
a) Event listener b) Event source
c) Event handler d) Event Object
- 7) A Bundle object stores values in form of
a) List b) Array c) Key-value pairs d) Tree
- 8) Android mandates that the UI of an app should be updated in the
a) Worker Thread only b) Daemon Thread only
c) Main Thread only d) None of the above



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**B.E. (CSE) (Part – II) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II) (Old)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four (Each question carries 5 marks)** : **20**
- a) State and explain features and characteristics of Android Operating System.
 - b) What are hardware requirements for Android OS considering version Gingerbread version ?
 - c) Illustrate three approaches to develop a mobile app along with the scenarios where we need to apply these approaches.
 - d) Explain the purpose of AndroidManifest.xml.
 - e) Define layouts with examples.
3. What are logical components of an Android app also explain their purpose ? **10**

OR

- Illustrate Activity life-cycle states and respective callback methods. **10**
4. Illustrate the benefits of AsyncTask over Threads for implementing long-running tasks. **10**

SECTION – II

5. Attempt **any four (Each question carries 5 marks)** : **20**
- a) Write a short note on Shared Preferences in Android.
 - b) Explain following terms in Android :
 - 1) Drawable Animation
 - 2) View Animation.
 - c) Write a short note on Google Play Store.
 - d) Compare Internal Storage and External Storage in Android.
 - e) Write a short note on SQLite in Android.



6. Explain the purpose of different types of testing for a mobile app. **10**

OR

Briefly discuss following common device sensors : **10**

- 1) Accelerometer
- 2) Gyroscope
- 3) Proximity sensor
- 4) Magnetometer
- 5) Light Sensor.

7. Enlist various mechanisms of data persistence and access in mobile apps. Highlight the pros and cons of each mechanism. **10**



- 9) During transition from Paused state to Stopped state _____ callback method is called.
a) onResume() b) onStop() c) onDestroy() d) onStart()
- 10) Upon creating a layout resource, Android framework generates a unique id for it in the _____ file.
a) R.java b) AndroidManifest.xml
c) strings.xml d) In Activity java file corresponding to the Main activity of an app.
- 11) Each view in Android is an
a) Event listener b) Event source
c) Event handler d) Event Object
- 12) A Bundle object stores values in form of
a) List b) Array c) Key-value pairs d) Tree
- 13) Android mandates that the UI of an app should be updated in the
a) Worker Thread only b) Daemon Thread only
c) Main Thread only d) None of the above
- 14) Long running background tasks are written in _____ method of AsyncTask.
a) onProgressUpdate b) doInBackground
c) onPostExecute d) None of the above
- 15) Which of the following is not a state in Life cycle of Service ?
a) Running b) Paused c) Destroyed d) None of the above
- 16) Which Storage is always available for storing and retrieval in context of Android device ?
a) External Storage b) Internal storage
c) Network storage d) None of the above
- 17) Shared preferences stores data in an _____ file in the internal memory of the device.
a) Java b) Text c) DAT d) XML
- 18) Which of the following is not a Category for Sensors in Android ?
a) Position b) Motion c) Environment d) Atmospheric
- 19) Which class lets you access device's sensors ?
a) Sensor b) SensorEvent
c) SensorManager d) SensorEventListener
- 20) Android JUnit framework is used to perform _____ testing of android apps.
a) Unit testing b) Functional testing
c) Black box testing d) White box testing
-



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**B.E. (CSE) (Part – II) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II) (Old)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four (Each question carries 5 marks)** : **20**
- a) State and explain features and characteristics of Android Operating System.
 - b) What are hardware requirements for Android OS considering version Gingerbread version ?
 - c) Illustrate three approaches to develop a mobile app along with the scenarios where we need to apply these approaches.
 - d) Explain the purpose of AndroidManifest.xml.
 - e) Define layouts with examples.
3. What are logical components of an Android app also explain their purpose ? **10**

OR

- Illustrate Activity life-cycle states and respective callback methods. **10**
4. Illustrate the benefits of AsyncTask over Threads for implementing long-running tasks. **10**

SECTION – II

5. Attempt **any four (Each question carries 5 marks)** : **20**
- a) Write a short note on Shared Preferences in Android.
 - b) Explain following terms in Android :
 - 1) Drawable Animation
 - 2) View Animation.
 - c) Write a short note on Google Play Store.
 - d) Compare Internal Storage and External Storage in Android.
 - e) Write a short note on SQLite in Android.

Set Q



6. Explain the purpose of different types of testing for a mobile app. **10**

OR

Briefly discuss following common device sensors : **10**

- 1) Accelerometer
- 2) Gyroscope
- 3) Proximity sensor
- 4) Magnetometer
- 5) Light Sensor.

7. Enlist various mechanisms of data persistence and access in mobile apps. Highlight the pros and cons of each mechanism. **10**



- 9) If application's Main thread takes more than _____ seconds to respond, then ANR is popped up.
a) 3 sec. b) 5 sec. c) 7 sec. d) 10 sec.
- 10) MoneyTalk automates _____ testing of an app.
a) Quality b) Unit c) Functionality d) None of the above
- 11) ADT generates .apk (android application package) in _____ directory of Project directory structure.
a) res b) assets c) bin d) lib
- 12) _____ displays messages generated during running of app on emulator or a connected device in ADT.
a) Output view b) Package explorer view
c) LogCat view d) Project explorer view
- 13) Which of the following is not a Android Platform tool ?
a) DDMS b) adb c) aapt d) dx
- 14) During transition form Paused state to Stopped state _____ callback method is called.
a) onResume() b) onStop() c) onDestroy() d) onStart()
- 15) Upon creating a layout resource, Android framework generates a unique id for it in the _____ file.
a) R.java b) AndroidManifest.xml
c) strings.xml d) In Activity java file corresponding to the Main activity of an app.
- 16) Each view in Android is an
a) Event listener b) Event source
c) Event handler d) Event Object
- 17) A Bundle object stores values in form of
a) List b) Array c) Key-value pairs d) Tree
- 18) Android mandates that the UI of an app should be updated in the
a) Worker Thread only b) Daemon Thread only
c) Main Thread only d) None of the above
- 19) Long running background tasks are written in _____ method of AsyncTask.
a) onProgressUpdate b) doInBackground
c) onPostExecute d) None of the above
- 20) Which of the following is not a state in Life cycle of Service ?
a) Running b) Paused c) Destroyed d) None of the above
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**B.E. (CSE) (Part – II) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II) (Old)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four (Each question carries 5 marks)** : **20**
- a) State and explain features and characteristics of Android Operating System.
 - b) What are hardware requirements for Android OS considering version Gingerbread version ?
 - c) Illustrate three approaches to develop a mobile app along with the scenarios where we need to apply these approaches.
 - d) Explain the purpose of AndroidManifest.xml.
 - e) Define layouts with examples.
3. What are logical components of an Android app also explain their purpose ? **10**

OR

- Illustrate Activity life-cycle states and respective callback methods. **10**
4. Illustrate the benefits of AsyncTask over Threads for implementing long-running tasks. **10**

SECTION – II

5. Attempt **any four (Each question carries 5 marks)** : **20**
- a) Write a short note on Shared Preferences in Android.
 - b) Explain following terms in Android :
 - 1) Drawable Animation
 - 2) View Animation.
 - c) Write a short note on Google Play Store.
 - d) Compare Internal Storage and External Storage in Android.
 - e) Write a short note on SQLite in Android.

Set R



6. Explain the purpose of different types of testing for a mobile app. **10**

OR

Briefly discuss following common device sensors : **10**

- 1) Accelerometer
- 2) Gyroscope
- 3) Proximity sensor
- 4) Magnetometer
- 5) Light Sensor.

7. Enlist various mechanisms of data persistence and access in mobile apps. Highlight the pros and cons of each mechanism. **10**



SLR-EP – 487

Seat No.	
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**B.E. (CSE) (Part – II) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II) (Old)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Each view in Android is an
 - a) Event listener
 - b) Event source
 - c) Event handler
 - d) Event Object
- 2) A Bundle object stores values in form of
 - a) List
 - b) Array
 - c) Key-value pairs
 - d) Tree
- 3) Android mandates that the UI of an app should be updated in the
 - a) Worker Thread only
 - b) Daemon Thread only
 - c) Main Thread only
 - d) None of the above
- 4) Long running background tasks are written in _____ method of AsyncTask.
 - a) onProgressUpdate
 - b) doInBackground
 - c) onPostExecute
 - d) None of the above
- 5) Which of the following is not a state in Life cycle of Service ?
 - a) Running
 - b) Paused
 - c) Destroyed
 - d) None of the above
- 6) Which Storage is always available for storing and retrieval in context of Android device ?
 - a) External Storage
 - b) Internal storage
 - c) Network storage
 - d) None of the above
- 7) Shared preferences stores data in an _____ file in the internal memory of the device.
 - a) Java
 - b) Text
 - c) DAT
 - d) XML
- 8) Which of the following is not a Category for Sensors in Android ?
 - a) Position
 - b) Motion
 - c) Environment
 - d) Atmospheric
- 9) Which class lets you access device's sensors ?
 - a) Sensor
 - b) SensorEvent
 - c) SensorManager
 - d) SensorEventListener

P.T.O.



- 10) Android JUnit framework is used to perform _____ testing of android apps.
 - a) Unit testing
 - b) Functional testing
 - c) Black box testing
 - d) White box testing
- 11) Usability testing of an app is a _____ to ensure that the app is easy to understand and use.
 - a) White box testing
 - b) Black box testing
 - c) Unit testing
 - d) Quality testing
- 12) Before distributing an app online, it has to be signed by the developer/organization to ensure its
 - a) integrity
 - b) credibility
 - c) authenticity
 - d) originality
- 13) In app Audio Video Playback is achieved with help of _____ API.
 - a) MediaPlayer
 - b) MediaRecorder
 - c) MediaPlayer
 - d) None of the above
- 14) If application's Main thread takes more than _____ seconds to respond, then ANR is popped up.
 - a) 3 sec.
 - b) 5 sec.
 - c) 7 sec.
 - d) 10 sec.
- 15) MoneyTalk automates _____ testing of an app.
 - a) Quality
 - b) Unit
 - c) Functionality
 - d) None of the above
- 16) ADT generates .apk (android application package) in _____ directory of Project directory structure.
 - a) res
 - b) assets
 - c) bin
 - d) lib
- 17) _____ displays messages generated during running of app on emulator or a connected device in ADT.
 - a) Output view
 - b) Package explorer view
 - c) LogCat view
 - d) Project explorer view
- 18) Which of the following is not a Android Platform tool ?
 - a) DDMS
 - b) adb
 - c) aapt
 - d) dx
- 19) During transition form Paused state to Stopped state _____ callback method is called.
 - a) onResume()
 - b) onStop()
 - c) onDestroy()
 - d) onStart()
- 20) Upon creating a layout resource, Android framework generates a unique id for it in the _____ file.
 - a) R.java
 - b) AndroidManifest.xml
 - c) strings.xml
 - d) In Activity java file corresponding to the Main activity of an app.



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**B.E. (CSE) (Part – II) Examination, 2016
MOBILE APPLICATION DEVELOPMENT (Elective – II) (Old)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four (Each question carries 5 marks)** : **20**
- a) State and explain features and characteristics of Android Operating System.
 - b) What are hardware requirements for Android OS considering version Gingerbread version ?
 - c) Illustrate three approaches to develop a mobile app along with the scenarios where we need to apply these approaches.
 - d) Explain the purpose of AndroidManifest.xml.
 - e) Define layouts with examples.
3. What are logical components of an Android app also explain their purpose ? **10**

OR

- Illustrate Activity life-cycle states and respective callback methods. **10**
4. Illustrate the benefits of AsyncTask over Threads for implementing long-running tasks. **10**

SECTION – II

5. Attempt **any four (Each question carries 5 marks)** : **20**
- a) Write a short note on Shared Preferences in Android.
 - b) Explain following terms in Android :
 - 1) Drawable Animation
 - 2) View Animation.
 - c) Write a short note on Google Play Store.
 - d) Compare Internal Storage and External Storage in Android.
 - e) Write a short note on SQLite in Android.



6. Explain the purpose of different types of testing for a mobile app. **10**

OR

Briefly discuss following common device sensors : **10**

- 1) Accelerometer
- 2) Gyroscope
- 3) Proximity sensor
- 4) Magnetometer
- 5) Light Sensor.

7. Enlist various mechanisms of data persistence and access in mobile apps. Highlight the pros and cons of each mechanism. **10**



SLR-EP – 488

Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016

Max. Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) **All questions are compulsory.**
2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose the correct answer : **(20×1=20)**

- 1) Which are the following are data mining task ?
 - a) Classification
 - b) Regression
 - c) Inference of associative rule
 - d) a, b, c
- 2) The process of removing the deficiencies and loopholes in the data is called
 - a) Aggregation of data
 - b) Extraction of data
 - c) Cleaning up of data
 - d) Loading of data
- 3) Which one manages both current and historical transaction ?
 - a) OLAP
 - b) OLTP
 - c) XML
 - d) Spread Sheet
- 4) Data mining application domain are
 - a) Biomedical
 - b) DNA Data Analysis
 - c) Financial Data Analysis
 - d) All
- 5) _____ algorithm of clustering large databases handles outlier well.
 - a) DBSCAN
 - b) CURE
 - c) BIRCH
 - d) All
- 6) Which of the following is collection of data object that are similar to one another within same group ?
 - a) Partition
 - b) Grid
 - c) Cluster
 - d) Table
- 7) Classification rules are extracted from
 - a) Root node
 - b) Decision tree
 - c) Siblings
 - d) Branches
- 8) In _____ groups are not predefined.
 - a) Clustering
 - b) Classification
 - c) Both a) and b)
 - d) None

P.T.O.



- 9) A _____ model identifies patterns or relationships.
- a) Descriptive
 - b) Predictive
 - c) Regression
 - d) Time series analysis
- 10) The synonyms for data mining.
- a) Data warehouse
 - b) KDD
 - c) ETL
 - d) Business intelligence
- 11) The “IF” part of a rule is known as
- a) Rule Antecedent
 - b) Rule consequent
 - c) Action
 - d) None of these
- 12) Which algorithm is used to build decision tree classifier in given set of training instance ?
- a) Greedy algorithm
 - b) K-means
 - c) BIRCH algorithm
 - d) None
- 13) At which level we can create dimension model ?
- a) Business requirement level
 - b) Architectural model level
 - c) Detailed model level
 - d) Implementation level
- 14) Converting data from different sources into a common format for processing is called as
- a) Selection
 - b) Preprocessing
 - c) Transformation
 - d) Interpretation
- 15) Social network mining can be done by
- a) Graph mining
 - b) Tree mining
 - c) Tree pruning
 - d) None
- 16) In _____ clustering also the minimum distance $d_{min}(C_i, C_j)$ is used to measure the distance between clusters.
- a) BIRCH
 - b) DBSCAN
 - c) Nearest neighbour
 - d) None
- 17) _____ is a spatial database primitive.
- a) Time
 - b) Direction
 - c) Transaction item
 - d) None
- 18) _____ is a height balanced tree that stores the clustering features for a hierarchical clustering.
- a) HB Tree
 - b) B+ Tree
 - c) NF Tree
 - d) CF Tree
- 19) _____ deal with prediction of value rather than a class.
- a) Classification
 - b) Regression
 - c) Precision
 - d) Multiway splits
- 20) For cube with n dimensions, there are total of _____ cuboid.
- a) 2^n
 - b) 2^{n+1}
 - c) n
 - d) n^2
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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Note : All questions are compulsory.

SECTION – I

- II. Answer **any four** : **(4×5=20)**
- a) Explain time series analysis with real time example.
 - b) Explain major issues in data mining.
 - c) Write a note on Apriori Algorithm.
 - d) Explain the difference between OLTP and OLAP.
 - e) Draw three tier data warehouse architecture and list function of three tiers.
- III. Answer **any one** : **(1×10=10)**
- a) Explain classification by decision tree induction.
 - b) Explain data warehouse schemas.
- IV. Describe the steps involved in KDD process. **10**

SECTION – II

- V. Answer **any four** : **(4×5=20)**
- a) How does DBSCAN clustering method work ? Explain with example.
 - b) Explain in brief spatial data mining.
 - c) Describe multimedia data mining.
 - d) Write a short on two data mining tools.
 - e) Write BIRCH clustering algorithm.
- VI. Answer **any one** : **(1×10=10)**
- 1) List out various application of data mining.
 - 2) Write K-means and K-medoid algorithm and explain with an example.
- VII. Write a short note on following : **10**
- a) Web mining
 - b) Graph mining

Set P



- 8) Which one manages both current and historical transaction ?
a) OLAP b) OLTP c) XML d) Spread Sheet
- 9) Data mining application domain are
a) Biomedical b) DNA Data Analysis
c) Financial Data Analysis d) All
- 10) _____ algorithm of clustering large databases handles outlier well.
a) DBSCAN b) CURE c) BIRCH d) All
- 11) Which of the following is collection of data object that are similar to one another within same group ?
a) Partition b) Grid c) Cluster d) Table
- 12) Classification rules are extracted from
a) Root node b) Decision tree c) Siblings d) Branches
- 13) In _____ groups are not predefined.
a) Clustering b) Classification c) Both a) and b) d) None
- 14) A _____ model identifies patterns or relationships.
a) Descriptive b) Predictive
c) Regression d) Time series analysis
- 15) The synonyms for data mining.
a) Data warehouse b) KDD
c) ETL d) Business intelligence
- 16) The “IF” part of a rule is known as
a) Rule Antecedent b) Rule consequent
c) Action d) None of these
- 17) Which algorithm is used to build decision tree classifier in given set of training instance ?
a) Greedy algorithm b) K-means
c) BIRCH algorithm d) None
- 18) At which level we can create dimension model ?
a) Business requirement level b) Architectural model level
c) Detailed model level d) Implementation level
- 19) Converting data from different sources into a common format for processing is called as
a) Selection b) Preprocessing c) Transformation d) Interpretation
- 20) Social network mining can be done by
a) Graph mining b) Tree mining c) Tree pruning d) None
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Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Note : All questions are compulsory.

SECTION – I

- II. Answer **any four** : **(4×5=20)**
- a) Explain time series analysis with real time example.
 - b) Explain major issues in data mining.
 - c) Write a note on Apriori Algorithm.
 - d) Explain the difference between OLTP and OLAP.
 - e) Draw three tier data warehouse architecture and list function of three tiers.
- III. Answer **any one** : **(1×10=10)**
- a) Explain classification by decision tree induction.
 - b) Explain data warehouse schemas.
- IV. Describe the steps involved in KDD process. **10**

SECTION – II

- V. Answer **any four** : **(4×5=20)**
- a) How does DBSCAN clustering method work ? Explain with example.
 - b) Explain in brief spatial data mining.
 - c) Describe multimedia data mining.
 - d) Write a short on two data mining tools.
 - e) Write BIRCH clustering algorithm.
- VI. Answer **any one** : **(1×10=10)**
- 1) List out various application of data mining.
 - 2) Write K-means and K-medoid algorithm and explain with an example.
- VII. Write a short note on following : **10**
- a) Web mining
 - b) Graph mining

Set Q



SLR-EP – 488

Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016

Max. Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) **All questions are compulsory.**
2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose the correct answer :

(20×1=20)

- 1) The "IF" part of a rule is known as
 - a) Rule Antecedent
 - b) Rule consequent
 - c) Action
 - d) None of these
- 2) Which algorithm is used to build decision tree classifier in given set of training instance ?
 - a) Greedy algorithm
 - b) K-means
 - c) BIRCH algorithm
 - d) None
- 3) At which level we can create dimension model ?
 - a) Business requirement level
 - b) Architectural model level
 - c) Detailed model level
 - d) Implementation level
- 4) Converting data from different sources into a common format for processing is called as
 - a) Selection
 - b) Preprocessing
 - c) Transformation
 - d) Interpretation
- 5) Social network mining can be done by
 - a) Graph mining
 - b) Tree mining
 - c) Tree pruning
 - d) None
- 6) In _____ clustering also the minimum distance $d_{min}(C_i, C_j)$ is used to measure the distance between clusters.
 - a) BIRCH
 - b) DBSCAN
 - c) Nearest neighbour
 - d) None

P.T.O.



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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Note : All questions are compulsory.

SECTION – I

- II. Answer **any four** : (4×5=20)
- a) Explain time series analysis with real time example.
 - b) Explain major issues in data mining.
 - c) Write a note on Apriori Algorithm.
 - d) Explain the difference between OLTP and OLAP.
 - e) Draw three tier data warehouse architecture and list function of three tiers.
- III. Answer **any one** : (1×10=10)
- a) Explain classification by decision tree induction.
 - b) Explain data warehouse schemas.
- IV. Describe the steps involved in KDD process. 10

SECTION – II

- V. Answer **any four** : (4×5=20)
- a) How does DBSCAN clustering method work ? Explain with example.
 - b) Explain in brief spatial data mining.
 - c) Describe multimedia data mining.
 - d) Write a short on two data mining tools.
 - e) Write BIRCH clustering algorithm.
- VI. Answer **any one** : (1×10=10)
- 1) List out various application of data mining.
 - 2) Write K-means and K-medoid algorithm and explain with an example.
- VII. Write a short note on following : 10
- a) Web mining
 - b) Graph mining

Set R



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Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016

Max. Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) **All questions are compulsory.**
2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

I. Choose the correct answer : **(20×1=20)**

- 1) Which of the following is collection of data object that are similar to one another within same group ?
a) Partition b) Grid c) Cluster d) Table
- 2) Classification rules are extracted from
a) Root node b) Decision tree c) Siblings d) Branches
- 3) In _____ groups are not predefined.
a) Clustering b) Classification c) Both a) and b) d) None
- 4) A _____ model identifies patterns or relationships.
a) Descriptive b) Predictive
c) Regression d) Time series analysis
- 5) The synonyms for data mining.
a) Data warehouse b) KDD
c) ETL d) Business intelligence
- 6) The "IF" part of a rule is known as
a) Rule Antecedent b) Rule consequent
c) Action d) None of these
- 7) Which algorithm is used to build decision tree classifier in given set of training instance ?
a) Greedy algorithm b) K-means
c) BIRCH algorithm d) None

P.T.O.



- 8) At which level we can create dimension model ?
a) Business requirement level b) Architectural model level
c) Detailed model level d) Implementation level
- 9) Converting data from different sources into a common format for processing is called as
a) Selection b) Preprocessing c) Transformation d) Interpretation
- 10) Social network mining can be done by
a) Graph mining b) Tree mining c) Tree pruning d) None
- 11) In _____ clustering also the minimum distance $d_{min}(C_i, C_j)$ is used to measure the distance between clusters.
a) BIRCH b) DBSCAN
c) Nearest neighbour d) None
- 12) _____ is a spatial database primitive.
a) Time b) Direction
c) Transaction item d) None
- 13) _____ is a height balanced tree that stores the clustering features for a hierarchical clustering.
a) HB Tree b) B+ Tree c) NF Tree d) CF Tree
- 14) _____ deal with prediction of value rather than a class.
a) Classification b) Regression c) Precision d) Multiway splits
- 15) For cube with n dimensions, there are total of _____ cuboid.
a) 2^n b) 2^{n+1} c) n d) n^2
- 16) Which of the following are data mining tasks ?
a) Classification b) Regression
c) Inference of associative rule d) a, b, c
- 17) The process of removing the deficiencies and loopholes in the data is called
a) Aggregation of data b) Extraction of data
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- 18) Which one manages both current and historical transactions ?
a) OLAP b) OLTP c) XML d) Spread Sheet
- 19) Data mining application domains are
a) Biomedical b) DNA Data Analysis
c) Financial Data Analysis d) All
- 20) _____ algorithm of clustering large databases handles outliers well.
a) DBSCAN b) CURE c) BIRCH d) All



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
DATA WAREHOUSING AND MINING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Note : All questions are compulsory.

SECTION – I

- II. Answer **any four** : **(4×5=20)**
- a) Explain time series analysis with real time example.
 - b) Explain major issues in data mining.
 - c) Write a note on Apriori Algorithm.
 - d) Explain the difference between OLTP and OLAP.
 - e) Draw three tier data warehouse architecture and list function of three tiers.
- III. Answer **any one** : **(1×10=10)**
- a) Explain classification by decision tree induction.
 - b) Explain data warehouse schemas.
- IV. Describe the steps involved in KDD process. **10**

SECTION – II

- V. Answer **any four** : **(4×5=20)**
- a) How does DBSCAN clustering method work ? Explain with example.
 - b) Explain in brief spatial data mining.
 - c) Describe multimedia data mining.
 - d) Write a short on two data mining tools.
 - e) Write BIRCH clustering algorithm.
- VI. Answer **any one** : **(1×10=10)**
- 1) List out various application of data mining.
 - 2) Write K-means and K-medoid algorithm and explain with an example.
- VII. Write a short note on following : **10**
- a) Web mining
 - b) Graph mining

Set S



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. Each question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) The lens is made up of concentric layers of
a) strong cells b) inner cells c) fibrous cells d) outer cells
- 2) The cornea is the tough transparent tissues that covers eye's
a) eye lid b) lashes c) anterior d) exterior
- 3) Digital images are displayed as a discrete set if
a) values b) numbers c) frequencies d) intensities
- 4) Digitizing the coordinate values is called
a) radiance b) illuminance c) sampling d) quantization
- 5) Digitizing the amplitude values is called
a) radiance b) illuminance c) sampling d) quantization
- 6) Discernible change in intensity level of image is
a) wide domain b) spatial domain
c) frequency domain d) algebraic domain
- 7) Black and white pixels of image are represented in matrix as
a) 1 and 2 b) 0 and 1 c) 0 and 2 d) 0 and -1
- 8) Digitizing the image requires
a) reflection b) sampling c) quantization d) both b and c
- 9) The horizontal gradient pixels are denoted by
a) G_x b) G_y c) G_t d) G_s
- 10) Image having gradient pixels is called
a) sharp image b) blur image c) gradient image d) binary image

P.T.O.



- 11) The _____ of the image is directly represented by the region it occupies.
a) shape b) text c) color d) none of these
- 12) Image _____ is the art and science of reducing the amount of data required to represent an image.
a) Enhancement b) Compression c) Restoration d) Smoothing
- 13) The type of redundancy used in Data compression.
a) Coding b) Spatial and Temporal
c) Irrelevant Information d) All above
- 14) Moment representation method uses
a) Moment matching b) Orthogonal moment
c) Moment Invariants d) All of above
- 15) One of the most popular method for removing coding redundancy is
a) Huffman coding b) Golomb coding
c) Arithmetic coding d) None of above
- 16) The cosine transform is a fast transform
a) True b) False c) Cant' say d) None of above
- 17) Two Dimensional DFT is symmetric and unitary
a) True b) False c) Cant' say d) None of above
- 18) Which of the following transform is Real, Symmetric and Orthogonal ?
a) 1D DFT b) 2D DFT c) Hadamard d) None of above
- 19) Sine Transform is about twice as fast as the fast cosine transform
a) True b) False c) Cant' say d) None of above
- 20) Which of the following criteria is used as Fidelity criteria ?
a) Objective fidelity criteria b) Subjective fidelity criteria
c) Both a and b d) None of above
-



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four**. **(4×5=20)**
- a) How analog signal is converted into digital signal ?
 - b) What is Iconic images and Segmented images ? Differentiate both images.
 - c) Define any five traditional image data structure.
 - d) Explain threshold method of segmentation.
 - e) How Hough transform technique is used in Image analyses ?
3. Attempt **any one**. **10**
- 1) What are the important geometric transformations ? Explain bilinear transformation and affine transformation.
 - 2) How region segmentation takes place by splitting and merging ?
4. Explain the concept of statistical principle of noise suppression. **10**

SECTION – II

5. Answer **any four** of the following. **(4×5=20)**
- 1) Write a note on – Wavelet Transform.
 - 2) Describe Convex Hull.
 - 3) What is Chain Codes ? Explain.
 - 4) What is meant by error free compression ? Explain.
 - 5) Describe fidelity criteria.
6. Attempt **any two**. **(2×10=20)**
- 1) Explain DFT in detail.
 - 2) Describe the concept of B-Spline reorientation.
 - 3) List different methods used for image compression. Explain any one method in details.

Set P



SLR-EP – 489

Seat No.	
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Set **Q**

**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) The cosine transform is a fast transform
 - a) True
 - b) False
 - c) Cant' say
 - d) None of above
- 2) Two Dimensional DFT is symmetric and unitary
 - a) True
 - b) False
 - c) Cant' say
 - d) None of above
- 3) Which of the following transform is Real, Symmetric and Orthogonal ?
 - a) 1D DFT
 - b) 2D DFT
 - c) Hadamard
 - d) None of above
- 4) Sine Transform is about twice as fast as the fast cosine transform
 - a) True
 - b) False
 - c) Cant' say
 - d) None of above
- 5) Which of the following criteria is used as Fidelity criteria ?
 - a) Objective fidelity criteria
 - b) Subjective fidelity criteria
 - c) Both a and b
 - d) None of above
- 6) The lens is made up of concentric layers of
 - a) strong cells
 - b) inner cells
 - c) fibrous cells
 - d) outer cells
- 7) The cornea is the tough transparent tissues that covers eye's
 - a) eye lid
 - b) lashes
 - c) anterior
 - d) exterior
- 8) Digital images are displayed as a discrete set if
 - a) values
 - b) numbers
 - c) frequencies
 - d) intensities
- 9) Digitizing the coordinate values is called
 - a) radiance
 - b) illuminance
 - c) sampling
 - d) quantization

P.T.O.



- 10) Digitizing the amplitude values is called
a) radiance b) illuminance c) sampling d) quantization
- 11) Discernible change in intensity level of image is
a) wide domain b) spatial domain
c) frequency domain d) algebraic domain
- 12) Black and white pixels of image are represented in matrix as
a) 1 and 2 b) 0 and 1 c) 0 and 2 d) 0 and -1
- 13) Digitizing the image requires
a) reflection b) sampling c) quantization d) both b and c
- 14) The horizontal gradient pixels are denoted by
a) G_x b) G_y c) G_t d) G_s
- 15) Image having gradient pixels is called
a) sharp image b) blur image c) gradient image d) binary image
- 16) The _____ of the image is directly represented by the region it occupies.
a) shape b) text c) color d) none of these
- 17) Image _____ is the art and science of reducing the amount of data required to represent an image.
a) Enhancement b) Compression c) Restoration d) Smoothing
- 18) The type of redundancy used in Data compression.
a) Coding b) Spatial and Temporal
c) Irrelevant Information d) All above
- 19) Moment representation method uses
a) Moment matching b) Orthogonal moment
c) Moment Invariants d) All of above
- 20) One of the most popular method for removing coding redundancy is
a) Huffman coding b) Golomb coding
c) Arithmetic coding d) None of above
-



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four**. **(4×5=20)**
- a) How analog signal is converted into digital signal ?
 - b) What is Iconic images and Segmented images ? Differentiate both images.
 - c) Define any five traditional image data structure.
 - d) Explain threshold method of segmentation.
 - e) How Hough transform technique is used in Image analyses ?
3. Attempt **any one**. **10**
- 1) What are the important geometric transformations ? Explain bilinear transformation and affine transformation.
 - 2) How region segmentation takes place by splitting and merging ?
4. Explain the concept of statistical principle of noise suppression. **10**

SECTION – II

5. Answer **any four** of the following. **(4×5=20)**
- 1) Write a note on – Wavelet Transform.
 - 2) Describe Convex Hull.
 - 3) What is Chain Codes ? Explain.
 - 4) What is meant by error free compression ? Explain.
 - 5) Describe fidelity criteria.
6. Attempt **any two**. **(2×10=20)**
- 1) Explain DFT in detail.
 - 2) Describe the concept of B-Spline reorientation.
 - 3) List different methods used for image compression. Explain any one method in details.

Set Q



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Seat No.	
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Set **R**

**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **20**
- 1) The _____ of the image is directly represented by the region it occupies.
a) shape b) text c) color d) none of these
 - 2) Image _____ is the art and science of reducing the amount of data required to represent an image.
a) Enhancement b) Compression c) Restoration d) Smoothing
 - 3) The type of redundancy used in Data compression.
a) Coding b) Spatial and Temporal
c) Irrelevant Information d) All above
 - 4) Moment representation method uses
a) Moment matching b) Orthogonal moment
c) Moment Invariants d) All of above
 - 5) One of the most popular method for removing coding redundancy is
a) Huffman coding b) Golomb coding
c) Arithmetic coding d) None of above
 - 6) The cosine transform is a fast transform
a) True b) False c) Cant' say d) None of above
 - 7) Two Dimensional DFT is symmetric and unitary
a) True b) False c) Cant' say d) None of above

P.T.O.



- 8) Which of the following transform is Real, Symmetric and Orthogonal ?
a) 1D DFT b) 2D DFT c) Hadamard d) None of above
- 9) Sine Transform is about twice as fast as the fast cosine transform
a) True b) False c) Cant' say d) None of above
- 10) Which of the following criteria is used as Fidelity criteria ?
a) Objective fidelity criteria b) Subjective fidelity criteria
c) Both a and b d) None of above
- 11) The lens is made up of concentric layers of
a) strong cells b) inner cells c) fibrous cells d) outer cells
- 12) The cornea is the tough transparent tissues that covers eye's
a) eye lid b) lashes c) anterior d) exterior
- 13) Digital images are displayed as a discrete set if
a) values b) numbers c) frequencies d) intensities
- 14) Digitizing the coordinate values is called
a) radiance b) illuminance c) sampling d) quantization
- 15) Digitizing the amplitude values is called
a) radiance b) illuminance c) sampling d) quantization
- 16) Discernible change in intensity level of image is
a) wide domain b) spatial domain
c) frequency domain d) algebraic domain
- 17) Black and white pixels of image are represented in matrix as
a) 1 and 2 b) 0 and 1 c) 0 and 2 d) 0 and -1
- 18) Digitizing the image requires
a) reflection b) sampling c) quantization d) both b and c
- 19) The horizontal gradient pixels are denoted by
a) G_x b) G_y c) G_t d) G_s
- 20) Image having gradient pixels is called
a) sharp image b) blur image c) gradient image d) binary image
-



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four**. **(4×5=20)**
- a) How analog signal is converted into digital signal ?
 - b) What is Iconic images and Segmented images ? Differentiate both images.
 - c) Define any five traditional image data structure.
 - d) Explain threshold method of segmentation.
 - e) How Hough transform technique is used in Image analyses ?
3. Attempt **any one**. **10**
- 1) What are the important geometric transformations ? Explain bilinear transformation and affine transformation.
 - 2) How region segmentation takes place by splitting and merging ?
4. Explain the concept of statistical principle of noise suppression. **10**

SECTION – II

5. Answer **any four** of the following. **(4×5=20)**
- 1) Write a note on – Wavelet Transform.
 - 2) Describe Convex Hull.
 - 3) What is Chain Codes ? Explain.
 - 4) What is meant by error free compression ? Explain.
 - 5) Describe fidelity criteria.
6. Attempt **any two**. **(2×10=20)**
- 1) Explain DFT in detail.
 - 2) Describe the concept of B-Spline reorientation.
 - 3) List different methods used for image compression. Explain any one method in details.

Set R



SLR-EP – 489

Seat No.	
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Set

S

**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

20

- 1) Discernible change in intensity level of image is
 - a) wide domain
 - b) spatial domain
 - c) frequency domain
 - d) algebraic domain
- 2) Black and white pixels of image are represented in matrix as
 - a) 1 and 2
 - b) 0 and 1
 - c) 0 and 2
 - d) 0 and -1
- 3) Digitizing the image requires
 - a) reflection
 - b) sampling
 - c) quantization
 - d) both b and c
- 4) The horizontal gradient pixels are denoted by
 - a) G_x
 - b) G_y
 - c) G_t
 - d) G_s
- 5) Image having gradient pixels is called
 - a) sharp image
 - b) blur image
 - c) gradient image
 - d) binary image
- 6) The _____ of the image is directly represented by the region it occupies.
 - a) shape
 - b) text
 - c) color
 - d) none of these
- 7) Image _____ is the art and science of reducing the amount of data required to represent an image.
 - a) Enhancement
 - b) Compression
 - c) Restoration
 - d) Smoothing
- 8) The type of redundancy used in Data compression.
 - a) Coding
 - b) Spatial and Temporal
 - c) Irrelevant Information
 - d) All above

P.T.O.



- 9) Moment representation method uses
- a) Moment matching
 - b) Orthogonal moment
 - c) Moment Invariants
 - d) All of above
- 10) One of the most popular method for removing coding redundancy is
- a) Huffman coding
 - b) Golomb coding
 - c) Arithmetic coding
 - d) None of above
- 11) The cosine transform is a fast transform
- a) True
 - b) False
 - c) Cant' say
 - d) None of above
- 12) Two Dimensional DFT is symmetric and unitary
- a) True
 - b) False
 - c) Cant' say
 - d) None of above
- 13) Which of the following transform is Real, Symmetric and Orthogonal ?
- a) 1D DFT
 - b) 2D DFT
 - c) Hadamard
 - d) None of above
- 14) Sine Transform is about twice as fast as the fast cosine transform
- a) True
 - b) False
 - c) Cant' say
 - d) None of above
- 15) Which of the following criteria is used as Fidelity criteria ?
- a) Objective fidelity criteria
 - b) Subjective fidelity criteria
 - c) Both a and b
 - d) None of above
- 16) The lens is made up of concentric layers of
- a) strong cells
 - b) inner cells
 - c) fibrous cells
 - d) outer cells
- 17) The cornea is the tough transparent tissues that covers eye's
- a) eye lid
 - b) lashes
 - c) anterior
 - d) exterior
- 18) Digital images are displayed as a discrete set if
- a) values
 - b) numbers
 - c) frequencies
 - d) intensities
- 19) Digitizing the coordinate values is called
- a) radiance
 - b) illuminance
 - c) sampling
 - d) quantization
- 20) Digitizing the amplitude values is called
- a) radiance
 - b) illuminance
 - c) sampling
 - d) quantization
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) (New) Examination, 2016
IMAGE PROCESSING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four**. **(4×5=20)**
- a) How analog signal is converted into digital signal ?
 - b) What is Iconic images and Segmented images ? Differentiate both images.
 - c) Define any five traditional image data structure.
 - d) Explain threshold method of segmentation.
 - e) How Hough transform technique is used in Image analyses ?
3. Attempt **any one**. **10**
- 1) What are the important geometric transformations ? Explain bilinear transformation and affine transformation.
 - 2) How region segmentation takes place by splitting and merging ?
4. Explain the concept of statistical principle of noise suppression. **10**

SECTION – II

5. Answer **any four** of the following. **(4×5=20)**
- 1) Write a note on – Wavelet Transform.
 - 2) Describe Convex Hull.
 - 3) What is Chain Codes ? Explain.
 - 4) What is meant by error free compression ? Explain.
 - 5) Describe fidelity criteria.
6. Attempt **any two**. **(2×10=20)**
- 1) Explain DFT in detail.
 - 2) Describe the concept of B-Spline reorientation.
 - 3) List different methods used for image compression. Explain any one method in details.

Set S



SLR-EP – 490

Seat No.	
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Set	P
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B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(1×20=20)

- 1) A string which must form the beginning of a text word, is called _____
a) Substring b) Suffix c) Word d) Prefix
- 2) An intermediate structuring model lies between fixed structure and hypertext structure is _____
a) Hierarchical structure b) Boolean structure
c) Vector structure d) Natural structure
- 3) The query select all documents, which satisfy condition is _____
a) (e1 OR e2) b) (e1 AND e2) c) (e1 BUT e2) d) None of these
- 4) The inverted file structure is composed of two elements, which are _____
a) Phrase and proximity b) Words and substring
c) Vocabulary and occurrences d) Patterns expression
- 5) According to Heap's law, the Vocabulary grows as _____
a) $O(\log n)$ b) $O(n^B)$ c) $O(mn)$ d) $O(n^2)$
- 6) Shift-or algorithm is based on _____
a) Suffix automaton b) Bit-parallelism
c) Prefix automaton d) None of these
- 7) Multimedia system contain _____
a) Only text b) Images and graphics
c) Sound and video d) All above '3' options
- 8) Which data type, Oracle DBMS provide to Represent variable length char string ?
a) Varchar 2 b) LOB c) BLOB d) CLOB
- 9) The main goal of Multimedia IR System is to efficiently perform _____
a) Uploading data b) Manipulation data
c) Retrieval of data d) Verify data

P.T.O.



- 10) Sequential scanning may be slow, because _____
i) Distance computation might be expensive
ii) The database size 'N' might be huge
iii) It uses spatial access method
iv) None of these
a) ii) and iii) b) i) and ii) c) i) and iii) d) Only iv)
- 11) GEMINI approach is based on _____
a) 'Quick-and-dirty' test b) 'Quick' test
c) SGML d) HTML
- 12) GEMINI approach means _____
a) Geometric Multimedia Object Indexing
b) Generic Multimedia Object Indexing
c) Generate Multimedia Object Indexing
d) None of these
- 13) Crawlers are also known as _____
a) Robots b) Spiders and walkers
c) Wanders and Knowbots d) All above '3' options
- 14) Harvest uses a _____ architecture, to gather and distribute data.
a) Distributed b) Hybrid c) Centralized d) None of these
- 15) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
a) Crawlers b) Gatherers c) Brokers d) Metasearches
- 16) IBM developed the _____ system for searching images and video.
a) Content Based Image Retrieval (CBIR)
b) Video Watermark
c) Query By Image Content (QBIC)
d) None of these
- 17) One social issue with documents relates to _____
a) Language b) Culture
c) Culture and language d) None of these
- 18) Unicode provides a single _____ coding scheme, suitable for all natural languages.
a) 32-bit b) 64-bit c) 48-bit d) 16-bit
- 19) The user of IR System is concerned more with retrieving _____ about a subject than with retrieving _____ which satisfies a given query.
a) Data, Data b) Information, Data
c) Data, Information d) Information, Information
- 20) Due to historical reasons, documents in a collection are frequently represented through a set of _____
a) Index term (Keywords) b) Substring
c) Phrase d) Proximity



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)**

Day and Date : Wednesday, 23-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Attempt **any four** : **(4x5=20)**

- a) Explain pattern matching and what are the types of patterns mostly used ?
- b) What is Inverted Files and what are the three general steps, the search algorithm on an inverted index follow ?
- c) Explain Boolean Queries with its most commonly operators.
- d) Explain Information Versus Data Retrieval.
- e) Explain the Retrieval process in details.

3. Attempt **any one** : **10**

- a) Explain structural queries in detail, with its three main structures.
- b) Explain inverted file/index, along with suitable example.

4. Attempt following question : **10**

Explain Sequential Searching with Brute Force (BM) algorithm, Knuth-Morris-Pratt (KMP) algorithm and Boyer-Moore algorithm.



SECTION – II

5. Attempt **any four** : **(4×5=20)**

- a) What is Data Retrieval and what are the four basic steps of Data Retrieval ?
- b) Explain GEMINI algorithm (approach) in detail.
- c) Explain Web Crawling and Metasearches.
- d) Explain Multilingual Documents with respect to Digital Libraries.
- e) Explain Multimedia Data Support in commercial DBMS and the MULTOS Data Model.

6. Attempt **any one** : **10**

- a) Explain Query Language in detail with its three main aspects (characteristics).

OR

- b) Explain Centralized Architecture and Distributed Architecture of Search Engine in detail.

7. Attempt following question : **10**

Explain the Architectural issues in the Digital Libraries in details.



SLR-EP – 490

Seat No.	
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Set	Q
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B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(1×20=20)

- 1) IBM developed the _____ system for searching images and video.
a) Content Based Image Retrieval (CBIR)
b) Video Watermark
c) Query By Image Content (QBIC)
d) None of these
- 2) One social issue with documents relates to _____
a) Language
b) Culture
c) Culture and language
d) None of these
- 3) Unicode provides a single _____ coding scheme, suitable for all natural languages.
a) 32-bit
b) 64-bit
c) 48-bit
d) 16-bit
- 4) The user of IR System is concerned more with retrieving _____ about a subject than with retrieving _____ which satisfies a given query.
a) Data, Data
b) Information, Data
c) Data, Information
d) Information, Information
- 5) Due to historical reasons, documents in a collection are frequently represented through a set of _____
a) Index term (Keywords)
b) Substring
c) Phrase
d) Proximity
- 6) A string which must form the beginning of a text word, is called _____
a) Substring
b) Suffix
c) Word
d) Prefix
- 7) An intermediate structuring model lies between fixed structure and hypertext structure is _____
a) Hierarchical structure
b) Boolean structure
c) Vector structure
d) Natural structure

P.T.O.



- 8) The query select all documents, which satisfy condition is _____
a) (e1 OR e2) b) (e1 AND e2) c) (e1 BUT e2) d) None of these
- 9) The inverted file structure is composed of two elements, which are _____
a) Phrase and proximity b) Words and substring
c) Vocabulary and occurrences d) Patterns expression
- 10) According to Heap's law, the Vocabulary grows as _____
a) $O(\log n)$ b) $O(n^B)$ c) $O(mn)$ d) $O(n^2)$
- 11) Shift-or algorithm is based on _____
a) Suffix automaton b) Bit-parallelism
c) Prefix automaton d) None of these
- 12) Multimedia system contain _____
a) Only text b) Images and graphics
c) Sound and video d) All above '3' options
- 13) Which data type, Oracle DBMS provide to Represent variable length char string ?
a) Varchar 2 b) LOB c) BLOB d) CLOB
- 14) The main goal of Multimedia IR System is to efficiently perform _____
a) Uploading data b) Manipulation data
c) Retrieval of data d) Verify data
- 15) Sequential scanning may be slow, because _____
i) Distance computation might be expensive
ii) The database size 'N' might be huge
iii) It uses spatial access method
iv) None of these
a) ii) and iii) b) i) and ii) c) i) and iii) d) Only iv)
- 16) GEMINI approach is based on _____
a) 'Quick-and-dirty' test b) 'Quick' test
c) SGML d) HTML
- 17) GEMINI approach means _____
a) Geometric Multimedia Object Indexing
b) Generic Multimedia Object Indexing
c) Generate Multimedia Object Indexing
d) None of these
- 18) Crawlers are also known as _____
a) Robots b) Spiders and walkers
c) Wanders and Knowbots d) All above '3' options
- 19) Harvest uses a _____ architecture, to gather and distribute data.
a) Distributed b) Hybrid c) Centralized d) None of these
- 20) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
a) Crawlers b) Gatherers c) Brokers d) Metasearches



Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)**

Day and Date : Wednesday, 23-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Attempt **any four** : **(4x5=20)**

- a) Explain pattern matching and what are the types of patterns mostly used ?
- b) What is Inverted Files and what are the three general steps, the search algorithm on an inverted index follow ?
- c) Explain Boolean Queries with its most commonly operators.
- d) Explain Information Versus Data Retrieval.
- e) Explain the Retrieval process in details.

3. Attempt **any one** : **10**

- a) Explain structural queries in detail, with its three main structures.
- b) Explain inverted file/index, along with suitable example.

4. Attempt following question : **10**

Explain Sequential Searching with Brute Force (BM) algorithm, Knuth-Morris-Pratt (KMP) algorithm and Boyer-Moore algorithm.



SECTION – II

5. Attempt **any four** : **(4×5=20)**

- a) What is Data Retrieval and what are the four basic steps of Data Retrieval ?
- b) Explain GEMINI algorithm (approach) in detail.
- c) Explain Web Crawling and Metasearches.
- d) Explain Multilingual Documents with respect to Digital Libraries.
- e) Explain Multimedia Data Support in commercial DBMS and the MULTOS Data Model.

6. Attempt **any one** : **10**

- a) Explain Query Language in detail with its three main aspects (characteristics).

OR

- b) Explain Centralized Architecture and Distributed Architecture of Search Engine in detail.

7. Attempt following question : **10**

Explain the Architectural issues in the Digital Libraries in details.



SLR-EP – 490

Seat No.	
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Set	R
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B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(1×20=20)

- 1) GEMINI approach is based on _____
 - a) 'Quick-and-dirty' test
 - b) 'Quick' test
 - c) SGML
 - d) HTML
- 2) GEMINI approach means _____
 - a) Geometric Multimedia Object Indexing
 - b) Generic Multimedia Object Indexing
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 - d) None of these
- 3) Crawlers are also known as _____
 - a) Robots
 - b) Spiders and walkers
 - c) Wanders and Knowbots
 - d) All above '3' options
- 4) Harvest uses a _____ architecture, to gather and distribute data.
 - a) Distributed
 - b) Hybrid
 - c) Centralized
 - d) None of these
- 5) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
 - a) Crawlers
 - b) Gatherers
 - c) Brokers
 - d) Metasearches
- 6) IBM developed the _____ system for searching images and video.
 - a) Content Based Image Retrieval (CBIR)
 - b) Video Watermark
 - c) Query By Image Content (QBIC)
 - d) None of these
- 7) One social issue with documents relates to _____
 - a) Language
 - b) Culture
 - c) Culture and language
 - d) None of these

P.T.O.



- 8) Unicode provides a single _____ coding scheme, suitable for all natural languages.
a) 32-bit b) 64-bit c) 48-bit d) 16-bit
- 9) The user of IR System is concerned more with retrieving _____ about a subject than with retrieving _____ which satisfies a given query.
a) Data, Data b) Information, Data
c) Data, Information d) Information, Information
- 10) Due to historical reasons, documents in a collection are frequently represented through a set of _____.
a) Index term (Keywords) b) Substring
c) Phrase d) Proximity
- 11) A string which must form the beginning of a text word, is called _____.
a) Substring b) Suffix c) Word d) Prefix
- 12) An intermediate structuring model lies between fixed structure and hypertext structure is _____.
a) Hierarchical structure b) Boolean structure
c) Vector structure d) Natural structure
- 13) The query select all documents, which satisfy condition is _____.
a) (e1 OR e2) b) (e1 AND e2) c) (e1 BUT e2) d) None of these
- 14) The inverted file structure is composed of two elements, which are _____.
a) Phrase and proximity b) Words and substring
c) Vocabulary and occurrences d) Patterns expression
- 15) According to Heap's law, the Vocabulary grows as _____.
a) $O(\log n)$ b) $O(n^B)$ c) $O(mn)$ d) $O(n^2)$
- 16) Shift-or algorithm is based on _____.
a) Suffix automaton b) Bit-parallelism
c) Prefix automaton d) None of these
- 17) Multimedia system contain _____.
a) Only text b) Images and graphics
c) Sound and video d) All above '3' options
- 18) Which data type, Oracle DBMS provide to Represent variable length char string ?
a) Varchar 2 b) LOB c) BLOB d) CLOB
- 19) The main goal of Multimedia IR System is to efficiently perform _____.
a) Uploading data b) Manipulation data
c) Retrieval of data d) Verify data
- 20) Sequential scanning may be slow, because _____.
i) Distance computation might be expensive
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iv) None of these
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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)**

Day and Date : Wednesday, 23-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

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SECTION – I

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- a) Explain structural queries in detail, with its three main structures.
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4. Attempt following question : **10**

Explain Sequential Searching with Brute Force (BM) algorithm, Knuth-Morris-Pratt (KMP) algorithm and Boyer-Moore algorithm.



SECTION – II

5. Attempt **any four** : **(4×5=20)**

- a) What is Data Retrieval and what are the four basic steps of Data Retrieval ?
- b) Explain GEMINI algorithm (approach) in detail.
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6. Attempt **any one** : **10**

- a) Explain Query Language in detail with its three main aspects (characteristics).

OR

- b) Explain Centralized Architecture and Distributed Architecture of Search Engine in detail.

7. Attempt following question : **10**

Explain the Architectural issues in the Digital Libraries in details.



SLR-EP – 490

Seat No.	
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B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(1×20=20)

- 1) Shift-or algorithm is based on _____
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 - c) Prefix automaton
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- 2) Multimedia system contain _____
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P.T.O.



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Seat No.	
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**B.E. (Computer Science and Engineering) (Part – II) Examination, 2016
Elective – III : INFORMATION RETRIEVAL (New)**

Day and Date : Wednesday, 23-11-2016

Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Attempt **any four** : **(4x5=20)**

- a) Explain pattern matching and what are the types of patterns mostly used ?
- b) What is Inverted Files and what are the three general steps, the search algorithm on an inverted index follow ?
- c) Explain Boolean Queries with its most commonly operators.
- d) Explain Information Versus Data Retrieval.
- e) Explain the Retrieval process in details.

3. Attempt **any one** : **10**

- a) Explain structural queries in detail, with its three main structures.
- b) Explain inverted file/index, along with suitable example.

4. Attempt following question : **10**

Explain Sequential Searching with Brute Force (BM) algorithm, Knuth-Morris-Pratt (KMP) algorithm and Boyer-Moore algorithm.



SECTION – II

5. Attempt **any four** : **(4×5=20)**

- a) What is Data Retrieval and what are the four basic steps of Data Retrieval ?
- b) Explain GEMINI algorithm (approach) in detail.
- c) Explain Web Crawling and Metasearches.
- d) Explain Multilingual Documents with respect to Digital Libraries.
- e) Explain Multimedia Data Support in commercial DBMS and the MULTOS Data Model.

6. Attempt **any one** : **10**

- a) Explain Query Language in detail with its three main aspects (characteristics).

OR

- b) Explain Centralized Architecture and Distributed Architecture of Search Engine in detail.

7. Attempt following question : **10**

Explain the Architectural issues in the Digital Libraries in details.



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative :

(20×1=20)

- 1) A company wants to build a test environment to test software updates and new solutions. The environment should mirror the production environment and be secure and inaccessible from outside the company network. The company does not want to invest in infrastructure that may be idle for a significant amount of time. Which cloud computing model will satisfy all these requirements ?
A) Public Cloud B) Private Cloud C) External Cloud D) Virtual Private Cloud
- 2) Which two statements are true about the public cloud model ?
A) It meets security and auditing requirements for highly regulated industries
B) Resources and infrastructure are managed and maintained by the enterprise IT operations staff
C) It shifts the bulk of the costs from capital expenditures and IT infrastructure investment to an utility operating expense model
D) It shifts the bulk of the costs from capital expenditures to creating a virtualized and elastic infrastructure within the enterprise data center
- 3) Which delivery model is an example of a cloud computing environment that provides users with a web based e-mail service ?
A) Software as a Service B) Platform as a Service
C) Computing as a Service D) Infrastructure as a Service
- 4) What is one benefit of cloud computing ?
A) Computer resources can be quickly provisioned
B) A workload can quickly move to a cloud computing environment
C) There is no operational cost for a cloud computing environment
D) The resources can quickly move from one cloud environment to another
- 5) A company is considering a cloud environment to improve the operating efficiency for their data and applications. The company is part of an industry where strict security and data privacy issues are of the highest importance. Which type of cloud would be a good choice ?
A) Hybrid cloud B) Public cloud C) Private cloud D) Governed cloud
- 6) Which statement is true about the security of the cloud computing environment ?
A) It is compromised because it is a shared environment
B) Multitenant applications are not able to run in a cloud environment
C) A public cloud provides the same level of security as a private cloud
D) Access to critical data is better controlled in a private cloud environment
- 7) Which statement is true about the maintenance of a cloud computing environment ?
A) In a Software as a Service (SaaS) environment, patches are not automatically installed on the clients
B) In a SaaS environment, customers do not need to worry about installing patches in the virtual instances
C) In an Infrastructure as a Service (IaaS) environment, patches are automatically installed on the clients
D) In an IaaS environment, customers do not need to worry about installing patches in the virtual instances

P.T.O.



- 8) Which statement is true about a cloud computing environment ?
- A) It cannot be used to host location based applications
 - B) It enables users to access systems regardless of their location
 - C) It introduces latency as the servers are geographically dispersed
 - D) It can improve a web server response time by having servers closer to the end user
- 9) What is the role of virtualization in cloud computing ?
- A) It removes operating system inefficiencies
 - B) It improves the performance of web applications
 - C) It optimizes the utilization of computing resources.
 - D) It adds extra load to the underlying physical infrastructure and has no role in cloud computing
- 10) Amazon Web Services is which type of cloud computing distribution model ?
- A) Software as a service
 - B) Platform as a service
 - C) Infrastructure as a service
 - D) Storage as a service
- 11) Following statements are talking about
1. It's more complex than a hybrid cloud, which is typically a paired private and public cloud
 2. This cloud add more clouds to the mix, perhaps two or more public IaaS providers, a private PaaS, on-demand management and security systems from public clouds, private use-based accounting
- A) Multi-Cloud
 - B) Private Cloud
 - C) Business Cloud
 - D) Storage Cloud
- 12) Which statement is true about a bare metal hypervisor ?
- A) It can only be hosted on an existing operating system
 - B) It requires a separate license for the native operating system
 - C) It has minimum functionality to support only one type of operating system
 - D) It runs directly on server hardware to provide virtual machines with timesharing resources
- 13) Challenges of multi-cloud deployment are
- A) Complexity, interoperability, Management overhead
 - B) Multi-tenancy, Load Balancing
 - C) High Availability, Elasticity
 - D) Easy Management
- 14) What business outcomes might be expected from moving to the cloud ?
1. Improved agility
 2. Operational resilience
 3. Sustainable IT
- A) 1 only
 - B) 2 Only
 - C) All above
 - D) 2 and 3 only
- 15) What do you mean by cloud in cloud computing ?
- A) Data exchanged among grid nodes
 - B) Provides tools to monitor and distribute the number of licenses
 - C) Provides logical view of data
 - D) Set of hardware, software, network, storage, services and interfaces
- 16) Which of the following enterprise is leading solution provider for Multi-Cloud ?
- A) Oracle
 - B) Right Scale
 - C) Cloudera
 - D) Azure
- 17) How many types is Cloud delivery models categorized ?
- A) 2
 - B) 7
 - C) 3
 - D) 4
- 18) _____ allows multiple operating system instances to run as guest on the same server.
- A) Server
 - B) Hypervisor
 - C) Network
 - D) Data
- 19) Which of the following does not belong to type of competency area in cloud business analytics ?
- A) Business intelligence and performance management
 - B) Analytics and optimization
 - C) Content management system
 - D) Information hierarchy
- 20) _____ is a server environment that does not physically exist but is created on another server.
- A) Physical machine
 - B) Logical machine
 - C) Guest machine
 - D) Virtual machine



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- A) Give comparison between traditional computing and cloud computing.
 - B) Explain history of cloud computing.
 - C) What is public cloud ? Explain with example public clouds.
 - D) Explain “Insecure Interfaces and APIs” security risk.
 - E) Explain in details attacks relating to “abuse and nefarious use of cloud computing” threat.
 - F) List and explain characteristics of private cloud.
3. What is vitalization ? Explain virtualization technique in details. **10**
- OR
- With neat diagram explain the Cloud Deployment models.
4. Explain in details SaaS, PassS and IaaS security issues in details. **10**
- OR
- Explain the benefits and challenges of cloud computing. With example.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- A) Explain challenges in managing heterogeneous clouds.
 - B) Explain application of Cloud in Education.
 - C) How cloud is considered as future trend in Telecom Sector ?
 - D) Explain organizational security management.
 - E) Explain any four essential research issues in future cloud.
 - F) What are the challenges for Cloud Migration ?
6. Write a short note on Right-Scale Cloud Management System. **10**
- OR
- Explain application of cloud in Cloud In Retail Business.
7. Identify and explain some critical security and privacy issues in cloud computing. **10**
- OR
- Write a short note on Cloud in Life Sciences.

Set P



Seat No.	
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Set	Q
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative :

(20×1=20)

- 1) Which of the following enterprise is leading solution provider for Multi-Cloud ?
A) Oracle B) Right Scale C) Cloudera D) Azure
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- 3) _____ allows multiple operating system instances to run as guest on the same server.
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P.T.O.



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

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Set Q



Seat No.	
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Set	R
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

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MCQ/Objective Type Questions

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Marks : 20

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 1. It's more complex than a hybrid cloud, which is typically a paired private and public cloud
 2. This cloud add more clouds to the mix, perhaps two or more public IaaS providers, a private PaaS, on-demand management and security systems from public clouds, private use-based accountingA) Multi-Cloud B) Private Cloud C) Business Cloud D) Storage Cloud
- 2) Which statement is true about a bare metal hypervisor ?
 - A) It can only be hosted on an existing operating system
 - B) It requires a separate license for the native operating system
 - C) It has minimum functionality to support only one type of operating system
 - D) It runs directly on server hardware to provide virtual machines with timesharing resources
- 3) Challenges of multi-cloud deployment are
 - A) Complexity, interoperability, Management overhead
 - B) Multi-tenancy, Load Balancing
 - C) High Availability, Elasticity
 - D) Easy Management
- 4) What business outcomes might be expected from moving to the cloud ?
 1. Improved agility 2. Operational resilience 3. Sustainable ITA) 1 only B) 2 Only C) All above D) 2 and 3 only
- 5) What do you mean by cloud in cloud computing ?
 - A) Data exchanged among grid nodes
 - B) Provides tools to monitor and distribute the number of licenses
 - C) Provides logical view of data
 - D) Set of hardware, software, network, storage, services and interfaces
- 6) Which of the following enterprise is leading solution provider for Multi-Cloud ?
 - A) Oracle B) Right Scale C) Cloudera D) Azure
- 7) How many types is Cloud delivery models categorized ?
 - A) 2 B) 7 C) 3 D) 4
- 8) _____ allows multiple operating system instances to run as guest on the same server.
 - A) Server B) Hypervisor C) Network D) Data
- 9) Which of the following does not belong to type of competency area in cloud business analytics ?
 - A) Business intelligence and performance management
 - B) Analytics and optimization
 - C) Content management system
 - D) Information hierarchy



- 10) _____ is a server environment that does not physically exist but is created on another server.
A) Physical machine B) Logical machine C) Guest machine D) Virtual machine
- 11) A company wants to build a test environment to test software updates and new solutions. The environment should mirror the production environment and be secure and inaccessible from outside the company network. The company does not want to invest in infrastructure that may be idle for a significant amount of time. Which cloud computing model will satisfy all these requirements ?
A) Public Cloud B) Private Cloud C) External Cloud D) Virtual Private Cloud
- 12) Which two statements are true about the public cloud model ?
A) It meets security and auditing requirements for highly regulated industries
B) Resources and infrastructure are managed and maintained by the enterprise IT operations staff
C) It shifts the bulk of the costs from capital expenditures and IT infrastructure investment to an utility operating expense model
D) It shifts the bulk of the costs from capital expenditures to creating a virtualized and elastic infrastructure within the enterprise data center
- 13) Which delivery model is an example of a cloud computing environment that provides users with a web based e-mail service ?
A) Software as a Service B) Platform as a Service
C) Computing as a Service D) Infrastructure as a Service
- 14) What is one benefit of cloud computing ?
A) Computer resources can be quickly provisioned
B) A workload can quickly move to a cloud computing environment
C) There is no operational cost for a cloud computing environment
D) The resources can quickly move from one cloud environment to another
- 15) A company is considering a cloud environment to improve the operating efficiency for their data and applications. The company is part of an industry where strict security and data privacy issues are of the highest importance. Which type of cloud would be a good choice ?
A) Hybrid cloud B) Public cloud C) Private cloud D) Governed cloud
- 16) Which statement is true about the security of the cloud computing environment ?
A) It is compromised because it is a shared environment
B) Multitenant applications are not able to run in a cloud environment
C) A public cloud provides the same level of security as a private cloud
D) Access to critical data is better controlled in a private cloud environment
- 17) Which statement is true about the maintenance of a cloud computing environment ?
A) In a Software as a Service (SaaS) environment, patches are not automatically installed on the clients
B) In a SaaS environment, customers do not need to worry about installing patches in the virtual instances
C) In an Infrastructure as a Service (IaaS) environment, patches are automatically installed on the clients
D) In an IaaS environment, customers do not need to worry about installing patches in the virtual instances
- 18) Which statement is true about a cloud computing environment ?
A) It cannot be used to host location based applications
B) It enables users to access systems regardless of their location
C) It introduces latency as the servers are geographically dispersed
D) It can improve a web server response time by having servers closer to the end user
- 19) What is the role of virtualization in cloud computing ?
A) It removes operating system inefficiencies
B) It improves the performance of web applications
C) It optimizes the utilization of computing resources.
D) It adds extra load to the underlying physical infrastructure and has no role in cloud computing
- 20) Amazon Web Services is which type of cloud computing distribution model ?
A) Software as a service B) Platform as a service
C) Infrastructure as a service D) Storage as a service



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- A) Give comparison between traditional computing and cloud computing.
 - B) Explain history of cloud computing.
 - C) What is public cloud ? Explain with example public clouds.
 - D) Explain “Insecure Interfaces and APIs” security risk.
 - E) Explain in details attacks relating to “abuse and nefarious use of cloud computing” threat.
 - F) List and explain characteristics of private cloud.
3. What is vitalization ? Explain virtualization technique in details. **10**
- OR
- With neat diagram explain the Cloud Deployment models.
4. Explain in details SaaS, PassS and IaaS security issues in details. **10**
- OR
- Explain the benefits and challenges of cloud computing. With example.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- A) Explain challenges in managing heterogeneous clouds.
 - B) Explain application of Cloud in Education.
 - C) How cloud is considered as future trend in Telecom Sector ?
 - D) Explain organizational security management.
 - E) Explain any four essential research issues in future cloud.
 - F) What are the challenges for Cloud Migration ?
6. Write a short note on Right-Scale Cloud Management System. **10**
- OR
- Explain application of cloud in Cloud In Retail Business.
7. Identify and explain some critical security and privacy issues in cloud computing. **10**
- OR
- Write a short note on Cloud in Life Sciences.

Set R



SLR-EP – 491

Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :**
- 1) **All questions are compulsory.**
 - 2) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative :

(20×1=20)

- 1) Which statement is true about the security of the cloud computing environment ?
 - A) It is compromised because it is a shared environment
 - B) Multitenant applications are not able to run in a cloud environment
 - C) A public cloud provides the same level of security as a private cloud
 - D) Access to critical data is better controlled in a private cloud environment
- 2) Which statement is true about the maintenance of a cloud computing environment ?
 - A) In a Software as a Service (SaaS) environment, patches are not automatically installed on the clients
 - B) In a SaaS environment, customers do not need to worry about installing patches in the virtual instances
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- 3) Which statement is true about a cloud computing environment ?
 - A) It cannot be used to host location based applications
 - B) It enables users to access systems regardless of their location
 - C) It introduces latency as the servers are geographically dispersed
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- 4) What is the role of virtualization in cloud computing ?
 - A) It removes operating system inefficiencies
 - B) It improves the performance of web applications
 - C) It optimizes the utilization of computing resources.
 - D) It adds extra load to the underlying physical infrastructure and has no role in cloud computing
- 5) Amazon Web Services is which type of cloud computing distribution model ?
 - A) Software as a service
 - B) Platform as a service
 - C) Infrastructure as a service
 - D) Storage as a service
- 6) Following statements are talking about
 1. It's more complex than a hybrid cloud, which is typically a paired private and public cloud
 2. This cloud add more clouds to the mix, perhaps two or more public IaaS providers, a private PaaS, on-demand management and security systems from public clouds, private use-based accounting
 - A) Multi-Cloud
 - B) Private Cloud
 - C) Business Cloud
 - D) Storage Cloud
- 7) Which statement is true about a bare metal hypervisor ?
 - A) It can only be hosted on an existing operating system
 - B) It requires a separate license for the native operating system
 - C) It has minimum functionality to support only one type of operating system
 - D) It runs directly on server hardware to provide virtual machines with timesharing resources

P.T.O.



- 8) Challenges of multi-cloud deployment are
A) Complexity, interoperability, Management overhead B) Multi-tenancy, Load Balancing
C) High Availability, Elasticity D) Easy Management
- 9) What business outcomes might be expected from moving to the cloud ?
1. Improved agility 2. Operational resilience 3. Sustainable IT
A) 1 only B) 2 Only C) All above D) 2 and 3 only
- 10) What do you mean by cloud in cloud computing ?
A) Data exchanged among grid nodes
B) Provides tools to monitor and distribute the number of licenses
C) Provides logical view of data
D) Set of hardware, software, network, storage, services and interfaces
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A) Oracle B) Right Scale C) Cloudera D) Azure
- 12) How many types is Cloud delivery models categorized ?
A) 2 B) 7 C) 3 D) 4
- 13) _____ allows multiple operating system instances to run as guest on the same server.
A) Server B) Hypervisor C) Network D) Data
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A) Business intelligence and performance management
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C) Content management system
D) Information hierarchy
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D) It shifts the bulk of the costs from capital expenditures to creating a virtualized and elastic infrastructure within the enterprise data center
- 18) Which delivery model is an example of a cloud computing environment that provides users with a web based e-mail service ?
A) Software as a Service B) Platform as a Service
C) Computing as a Service D) Infrastructure as a Service
- 19) What is one benefit of cloud computing ?
A) Computer resources can be quickly provisioned
B) A workload can quickly move to a cloud computing environment
C) There is no operational cost for a cloud computing environment
D) The resources can quickly move from one cloud environment to another
- 20) A company is considering a cloud environment to improve the operating efficiency for their data and applications. The company is part of an industry where strict security and data privacy issues are of the highest importance. Which type of cloud would be a good choice ?
A) Hybrid cloud B) Public cloud C) Private cloud D) Governed cloud



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
CLOUD COMPUTING (Elective – III)**

Day and Date : Wednesday, 23-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : All questions are compulsory.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
- A) Give comparison between traditional computing and cloud computing.
 - B) Explain history of cloud computing.
 - C) What is public cloud ? Explain with example public clouds.
 - D) Explain “Insecure Interfaces and APIs” security risk.
 - E) Explain in details attacks relating to “abuse and nefarious use of cloud computing” threat.
 - F) List and explain characteristics of private cloud.
3. What is vitalization ? Explain virtualization technique in details. **10**
- OR
- With neat diagram explain the Cloud Deployment models.
4. Explain in details SaaS, PassS and IaaS security issues in details. **10**
- OR
- Explain the benefits and challenges of cloud computing. With example.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
- A) Explain challenges in managing heterogeneous clouds.
 - B) Explain application of Cloud in Education.
 - C) How cloud is considered as future trend in Telecom Sector ?
 - D) Explain organizational security management.
 - E) Explain any four essential research issues in future cloud.
 - F) What are the challenges for Cloud Migration ?
6. Write a short note on Right-Scale Cloud Management System. **10**
- OR
- Explain application of cloud in Cloud In Retail Business.
7. Identify and explain some critical security and privacy issues in cloud computing. **10**
- OR
- Write a short note on Cloud in Life Sciences.

Set S



Seat No.	
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Set	P
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) What is the most basic level of storage ?
a) SAN b) DAS c) NAS d) iSCSI
- 2) A NAS solution is most appropriate for what type of data environment
a) Secured Access b) Shared Access
c) Remote Access d) Parallel Access
- 3) Which of the following statements describe differences between Storage Area Network (SAN) and Network Attached Storage (NAS) solutions ?
a) SAN is generally more expensive but provides higher performance
b) NAS uses TCP/IP for communication between hosts and the NAS server
c) NAS requires additional hardware on a host : a host bus adapter for connectivity
d) SAN uses proprietary protocols for communication between hosts and the SAN fabric
- 4) I/O requests to disk storage on a SAN are called
a) File I/Os b) SAN I/Os c) Block I/Os d) Disk I/Os
- 5) Which two are advantages of hardware RAID controllers ?
a) Volume management is performed by the server
b) Volume management is performed by controller card
c) Dedicated cache memory increases server write performance
d) Parity calculation by the server and cache memory in the RAID controller increases read and write performance
- 6) Which RAID types use parity for data protection ?
a) RAID 1 b) RAID 4 c) RAID 1 + 0 d) RAID 0
- 7) Which one of these is characteristic of RAID 5 ?
a) Distributed parity b) No parity
c) All parity in a single disk d) Double parity
- 8) What is the unique characteristic of RAID 6 ?
a) Distributed Parity b) Striping
c) Two independent distributed parity d) Mirroring



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- a) Explain sever centric and storage centric IT architecture, with neat diagrams.
 - b) Explain the benefits of storage networks on business applications.
 - c) With a neat diagram, explain the architecture of intelligent disk system.
 - d) Explain RAID 4 and RAID 5 ?
 - e) Explain the service classes in fibre channel.
3. Answer **any two** of the following : **(2×10=20)**
- a) Explain fibre channel with reference to protocol stack, addressing modes and login techniques.
 - b) Compare NAS and fibre channel SAN.
 - c) Explain JBOD in detail.

SECTION – II

4. Answer **any four** of the following : **(4×5=20)**
- a) Explain In band interface and Out band interface.
 - b) Explain In band management in fibre channel SAN.
 - c) Explain CMIP and DMI in Out Band Management.
 - d) What are the different components of Backup Servers ?
 - e) Explain Network Data Management Protocol.
5. Answer **any two** of the following : **(2×10=20)**
- a) Explain LUN masking and remote mirroring.
 - b) Explain what are next generation backups ?
Server free backup
LAN -free backup
 - c) Explain the Asymmetric storage virtualization in detail.

Set P



Seat No.	
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Set	Q
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) Which of the following statements are true ?
 - a) Data can be recovered fastest in online backup
 - b) Tape library is an example of nearline storage
 - c) Data recovery can take hours for offline backup
 - d) All the above
- 2) Which of the following combinations can support RAID 05 ?
 - a) 2 sets with 3 disks each
 - b) 3 sets with 2 disks each
 - c) 4 sets with 1 disk each
 - d) None of the above
- 3) What is the minimum number of disks required for RAID 1 ?
 - a) 1
 - b) 2
 - c) 4
 - d) 5
- 4) Which of the following RAID levels provides maximum usable disk space ?
 - a) RAID 1
 - b) RAID 0
 - c) RAID 5
 - d) RAID 6
- 5) Can you help decide on the RAID level to use – we are a media house and we use lot of graphics/video applications – we need large throughputs for videos to get played without any jitter and since we are in publishing business we can't afford downtimes.
Even if there is any downtime we would like our data to be quickly reconstructed and enable us to continue without work in less time
 - a) RAID 5
 - b) RAID 10
 - c) RAID 6
 - d) RAID 01
- 6) What is the most basic level of storage ?
 - a) SAN
 - b) DAS
 - c) NAS
 - d) iSCSI
- 7) A NAS solution is most appropriate for what type of data environment
 - a) Secured Access
 - b) Shared Access
 - c) Remote Access
 - d) Parallel Access
- 8) Which of the following statements describe differences between Storage Area Network (SAN) and Network Attached Storage (NAS) solutions ?
 - a) SAN is generally more expensive but provides higher performance
 - b) NAS uses TCP/IP for communication between hosts and the NAS server
 - c) NAS requires additional hardware on a host : a host bus adapter for connectivity
 - d) SAN uses proprietary protocols for communication between hosts and the SAN fabric



- 9) I/O requests to disk storage on a SAN are called
a) File I/Os b) SAN I/Os c) Block I/Os d) Disk I/Os
- 10) Which two are advantages of hardware RAID controllers ?
a) Volume management is performed by the server
b) Volume management is performed by controller card
c) Dedicated cache memory increases server write performance
d) Parity calculation by the server and cache memory in the RAID controller increases read and write performance
- 11) Which RAID types use parity for data protection ?
a) RAID 1 b) RAID 4 c) RAID 1 + 0 d) RAID 0
- 12) Which one of these is characteristic of RAID 5 ?
a) Distributed parity b) No parity
c) All parity in a single disk d) Double parity
- 13) What is the unique characteristic of RAID 6 ?
a) Distributed Parity b) Striping
c) Two independent distributed parity d) Mirroring
- 14) This is a way of storing the data in different places on same/different storage. By doing so I/O operations can overlap in a balanced way, improving performance and providing fault tolerance
a) RAID b) RAIT
c) None of the above d) Both a) and b)
- 15) This is a method of reducing storage needs by eliminating redundant data
a) Data snapshot b) Data De-duplication
c) Data compression d) Data encryption
- 16) This is the pooling of physical storage from multiple network storage devices into what appears to be a single storage device that is managed from a central console
a) Server provisioning b) Data mining
c) Disk/Tape virtualization d) None of the above
- 17) This is the assignment of different categories of data to different types of storage media in order to reduce total storage cost. Categories may be based on levels of protection needed, performance requirements, frequency of use and other considerations
a) Data mining b) Tiered storage
c) Data protection d) Meta-Data management
- 18) The purpose of backup is
a) To restore a computer to an operational state following a disaster
b) To free space
c) Is to free space in the primary storage
d) None of the above
- 19) Backup of the source data can be created
a) On the same device b) On another device
c) At some other location d) All the above
- 20) Which of the following backup technique is most space efficient ?
a) Full backup b) Incremental backup
c) Differential backup d) None of the above



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- a) Explain sever centric and storage centric IT architecture, with neat diagrams.
 - b) Explain the benefits of storage networks on business applications.
 - c) With a neat diagram, explain the architecture of intelligent disk system.
 - d) Explain RAID 4 and RAID 5 ?
 - e) Explain the service classes in fibre channel.
3. Answer **any two** of the following : **(2×10=20)**
- a) Explain fibre channel with reference to protocol stack, addressing modes and login techniques.
 - b) Compare NAS and fibre channel SAN.
 - c) Explain JBOD in detail.

SECTION – II

4. Answer **any four** of the following : **(4×5=20)**
- a) Explain In band interface and Out band interface.
 - b) Explain In band management in fibre channel SAN.
 - c) Explain CMIP and DMI in Out Band Management.
 - d) What are the different components of Backup Servers ?
 - e) Explain Network Data Management Protocol.
5. Answer **any two** of the following : **(2×10=20)**
- a) Explain LUN masking and remote mirroring.
 - b) Explain what are next generation backups ?
Server free backup
LAN -free backup
 - c) Explain the Asymmetric storage virtualization in detail.

Set Q



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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions:** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) This is the pooling of physical storage from multiple network storage devices into what appears to be a single storage device that is managed from a central console
 - a) Server provisioning
 - b) Data mining
 - c) Disk/Tape virtualization
 - d) None of the above
- 2) This is the assignment of different categories of data to different types of storage media in order to reduce total storage cost. Categories may be based on levels of protection needed, performance requirements, frequency of use and other considerations
 - a) Data mining
 - b) Tiered storage
 - c) Data protection
 - d) Meta-Data management
- 3) The purpose of backup is
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 - b) To free space
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- 5) Which of the following backup technique is most space efficient ?
 - a) Full backup
 - b) Incremental backup
 - c) Differential backup
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- 6) Which of the following statements are true ?
 - a) Data can be recovered fastest in online backup
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- 7) Which of the following combinations can support RAID 05 ?
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 - d) None of the above
- 8) What is the minimum number of disks required for RAID 1 ?
 - a) 1
 - b) 2
 - c) 4
 - d) 5



- 9) Which of the following RAID levels provides maximum usable disk space ?
a) RAID 1 b) RAID 0 c) RAID 5 d) RAID 6
- 10) Can you help decide on the RAID level to use – we are a media house and we use lot of graphics/video applications – we need large throughputs for videos to get played without any jitter and since we are in publishing business we can't afford downtimes.
Even if there is any downtime we would like our data to be quickly reconstructed and enable us to continue without work in less time
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a) RAID b) RAIT
c) None of the above d) Both a) and b)
- 20) This is a method of reducing storage needs by eliminating redundant data
a) Data snapshot b) Data De-duplication
c) Data compression d) Data encryption



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- a) Explain sever centric and storage centric IT architecture, with neat diagrams.
 - b) Explain the benefits of storage networks on business applications.
 - c) With a neat diagram, explain the architecture of intelligent disk system.
 - d) Explain RAID 4 and RAID 5 ?
 - e) Explain the service classes in fibre channel.
3. Answer **any two** of the following : **(2×10=20)**
- a) Explain fibre channel with reference to protocol stack, addressing modes and login techniques.
 - b) Compare NAS and fibre channel SAN.
 - c) Explain JBOD in detail.

SECTION – II

4. Answer **any four** of the following : **(4×5=20)**
- a) Explain In band interface and Out band interface.
 - b) Explain In band management in fibre channel SAN.
 - c) Explain CMIP and DMI in Out Band Management.
 - d) What are the different components of Backup Servers ?
 - e) Explain Network Data Management Protocol.
5. Answer **any two** of the following : **(2×10=20)**
- a) Explain LUN masking and remote mirroring.
 - b) Explain what are next generation backups ?
Server free backup
LAN -free backup
 - c) Explain the Asymmetric storage virtualization in detail.

Set R



Seat No.	
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Set	S
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

- 1) Which RAID types use parity for data protection ?
a) RAID 1 b) RAID 4 c) RAID 1 + 0 d) RAID 0
- 2) Which one of these is characteristic of RAID 5 ?
a) Distributed parity b) No parity
c) All parity in a single disk d) Double parity
- 3) What is the unique characteristic of RAID 6 ?
a) Distributed Parity b) Striping
c) Two independent distributed parity d) Mirroring
- 4) This is a way of storing the data in different places on same/different storage. By doing so I/O operations can overlap in a balanced way, improving performance and providing fault tolerance
a) RAID b) RAIT
c) None of the above d) Both a) and b)
- 5) This is a method of reducing storage needs by eliminating redundant data
a) Data snapshot b) Data De-duplication
c) Data compression d) Data encryption
- 6) This is the pooling of physical storage from multiple network storage devices into what appears to be a single storage device that is managed from a central console
a) Server provisioning b) Data mining
c) Disk/Tape virtualization d) None of the above
- 7) This is the assignment of different categories of data to different types of storage media in order to reduce total storage cost. Categories may be based on levels of protection needed, performance requirements, frequency of use and other considerations
a) Data mining b) Tiered storage
c) Data protection d) Meta-Data management
- 8) The purpose of backup is
a) To restore a computer to an operational state following a disaster
b) To free space
c) Is to free space in the primary storage
d) None of the above



- 9) Backup of the source data can be created
 - a) On the same device
 - b) On another device
 - c) At some other location
 - d) All the above
- 10) Which of the following backup technique is most space efficient ?
 - a) Full backup
 - b) Incremental backup
 - c) Differential backup
 - d) None of the above
- 11) Which of the following statements are true ?
 - a) Data can be recovered fastest in online backup
 - b) Tape library is an example of nearline storage
 - c) Data recovery can take hours for offline backup
 - d) All the above
- 12) Which of the following combinations can support RAID 05 ?
 - a) 2 sets with 3 disks each
 - b) 3 sets with 2 disks each
 - c) 4 sets with 1 disk each
 - d) None of the above
- 13) What is the minimum number of disks required for RAID 1 ?
 - a) 1
 - b) 2
 - c) 4
 - d) 5
- 14) Which of the following RAID levels provides maximum usable disk space ?
 - a) RAID 1
 - b) RAID 0
 - c) RAID 5
 - d) RAID 6
- 15) Can you help decide on the RAID level to use – we are a media house and we use lot of graphics/video applications – we need large throughputs for videos to get played without any jitter and since we are in publishing business we can't afford downtimes.
Even if there is any downtime we would like our data to be quickly reconstructed and enable us to continue without work in less time
 - a) RAID 5
 - b) RAID 10
 - c) RAID 6
 - d) RAID 01
- 16) What is the most basic level of storage ?
 - a) SAN
 - b) DAS
 - c) NAS
 - d) iSCSI
- 17) A NAS solution is most appropriate for what type of data environment
 - a) Secured Access
 - b) Shared Access
 - c) Remote Access
 - d) Parallel Access
- 18) Which of the following statements describe differences between Storage Area Network (SAN) and Network Attached Storage (NAS) solutions ?
 - a) SAN is generally more expensive but provides higher performance
 - b) NAS uses TCP/IP for communication between hosts and the NAS server
 - c) NAS requires additional hardware on a host : a host bus adapter for connectivity
 - d) SAN uses proprietary protocols for communication between hosts and the SAN fabric
- 19) I/O requests to disk storage on a SAN are called
 - a) File I/Os
 - b) SAN I/Os
 - c) Block I/Os
 - d) Disk I/Os
- 20) Which two are advantages of hardware RAID controllers ?
 - a) Volume management is performed by the server
 - b) Volume management is performed by controller card
 - c) Dedicated cache memory increases server write performance
 - d) Parity calculation by the server and cache memory in the RAID controller increases read and write performance



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
STORAGE AREA NETWORKS (Elective – IV)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Answer **any four** of the following : **(4×5=20)**
- a) Explain sever centric and storage centric IT architecture, with neat diagrams.
 - b) Explain the benefits of storage networks on business applications.
 - c) With a neat diagram, explain the architecture of intelligent disk system.
 - d) Explain RAID 4 and RAID 5 ?
 - e) Explain the service classes in fibre channel.
3. Answer **any two** of the following : **(2×10=20)**
- a) Explain fibre channel with reference to protocol stack, addressing modes and login techniques.
 - b) Compare NAS and fibre channel SAN.
 - c) Explain JBOD in detail.

SECTION – II

4. Answer **any four** of the following : **(4×5=20)**
- a) Explain In band interface and Out band interface.
 - b) Explain In band management in fibre channel SAN.
 - c) Explain CMIP and DMI in Out Band Management.
 - d) What are the different components of Backup Servers ?
 - e) Explain Network Data Management Protocol.
5. Answer **any two** of the following : **(2×10=20)**
- a) Explain LUN masking and remote mirroring.
 - b) Explain what are next generation backups ?
Server free backup
LAN -free backup
 - c) Explain the Asymmetric storage virtualization in detail.

Set S



Seat No.	
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Set	P
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- N. B. :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Well formed XML document means
 - A) It contains a root element
 - B) It contain an element
 - C) It contains one or more elements
 - D) Must contain one or more elements and root element must contain all other elements
- 2) XML uses the features of
 - A) HTML
 - B) XHTML
 - C) VML
 - D) SGML
- 3) AJAX is based on _____
 - A) JavaScript and XML
 - B) VBScript and XML
 - C) JavaScript and Java
 - D) JavaScript and HTTP requests
- 4) Which of the following is an advantage of using JavaScript ?
 - A) Less server interaction
 - B) Immediate feedback to the visitors
 - C) Increased interactivity
 - D) All of the above
- 5) Which of the following function of String object returns a number indicating the Unicode value of the character at the given index ?
 - A) charAt()
 - B) charCodeAt()
 - C) concat()
 - D) indexOf()
- 6) Which of the following jQuery selector selects all elements available in a DOM ?
 - A) \$('*')
 - B) \$('?')
 - C) \$('#')
 - D) None of the above
- 7) Which of the following jQuery method removes all child nodes from the set of matched elements ?
 - A) empty()
 - B) delete()
 - C) remove (expr)
 - D) None of the above
- 8) XSLT stands for
 - A) eXtra Stylesheet Language Transportations
 - B) eXtensible Stylesheet Language Transformations
 - C) eXtensible Stylesheet Language Transportations
 - D) eXcellant Stylesheet Language Transformations
- 9) XSLT becomes a W3C recommendation since
 - A) 16 Nov. 1999
 - B) 20 Nov. 1999
 - C) 2 Oct. 1999
 - D) None of the above



- 10) Why we used XSLT language ?
- A) Use to transport XML documents
 - B) Use to perform transaction b/w XML documents
 - C) Use to transform XML documents
 - D) Use to format XML documents
- 11) Which one is correct ?
- A) XForms is both platform and device independent
 - B) XForms is platform independent but not device independent
 - C) XForms is not platform independent but device independent
 - D) XForms is not platform and device independent
- 12) Which of the following depicts best practice, understandability for resource representation in REST ?
- A) Both server and client should be able to understand and utilize the representation format of the resource
 - B) Format should be able to represent a resource completely
 - C) A resource can have a linkage to another resource, a format should be able to handles such situations
 - D) None of the above
- 13) What is the purpose of XML in a web service ?
- A) A web services takes the help of XML to tag the data, format the data
 - B) A web service takes the help of XML to transfer a message
 - C) A web service takes the help of XML to describe the availability of service
 - D) None of the above
- 14) Which of the following is true about Web services ?
- A) Web services are open standard (XML, SOAP, HTTP etc.) based Web applications
 - B) Web services interact with other web applications for the purpose of exchanging data
 - C) Web services can convert your existing applications into Web-applications
 - D) All of the above
- 15) What HTTP stands for ?
- A) Hyperlink Text Transfer Protocol
 - B) Hyper Text Transfer Protocol
 - C) Hyper Transfer Text Protocol
 - D) Hyper Time Transfer Protocol
- 16) Which of the following is correct about SOAP ?
- A) SOAP is language independent
 - B) SOAP is simple and extensible
 - C) Both of the above
 - D) None of the above
- 17) The primary goal of the _____ protocol is to provide a private channel between communicating application, which ensures privacy of data authentication of the partners and integrity.
- A) SSL
 - B) ESP
 - C) TSL
 - D) PSL
- 18) _____ is to protect data and passwords.
- A) Encryption
 - B) Authentication
 - C) Authorization
 - D) Non-repudiation
- 19) On the upper layer of SSL, a protocol for initial authentication and transfer of encryption keys, called the _____
- A) SSL handshake protocol
 - B) SSL authentication protocol
 - C) SSL record protocol
 - D) SSL cipher protocol
- 20) Message _____ means that the sender and the receiver expect privacy.
- A) Confidentiality
 - B) Integrity
 - C) Authentication
 - D) None of the above



Seat No.	
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** (each carries 5 marks) : 20
- 1) What is the difference between Web 1.0 and Web 2.0 ?
 - 2) What is a web feed ?
 - 3) What is the difference between JavaScript and AJAX ?
 - 4) Explain XML DOM in details.
 - 5) Explain JQuery and its features in detail.
3. Attempt **any one** : 10
- 1) Explain what is REST and RESTFUL.
 - 2) Mention what is the difference between AJAX and REST.
4. Explain XLink, XPath and XForms with an example. 10

SECTION – II

5. Attempt **any four** (each carries 5 marks) : 20
- 1) Explain benefits of XML over HTTP.
 - 2) Define XQuery with syntax.
 - 3) What is the different data type supported by JSON ?
 - 4) Explain Podcasting and serving multimedia with protocols.
 - 5) How the Message Encryption is done in web security ?
6. Attempt **any one** : 10
- 1) Give a syntax rules for of XQuery.
 - 2) Explain authentication and authorization in details.
7. Explain Mapping mashup. Give an example of mapping mashup. 10



Seat No.	
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Set	Q
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- N. B. :**
- 1) **All questions are compulsory.**
 - 2) **Figures to the right indicate full marks.**
 - 3) **Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.**
 - 4) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**
- 1) Which of the following is correct about SOAP ?
A) SOAP is language independent B) SOAP is simple and extensible
C) Both of the above D) None of the above
 - 2) The primary goal of the _____ protocol is to provide a private channel between communicating application, which ensures privacy of data authentication of the partners and integrity.
A) SSL B) ESP C) TSL D) PSL
 - 3) _____ is to protect data and passwords.
A) Encryption B) Authentication C) Authorization D) Non-repudiation
 - 4) On the upper layer of SSL, a protocol for initial authentication and transfer of encryption keys, called the _____
A) SSL handshake protocol B) SSL authentication protocol
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A) JavaScript and XML B) VBScript and XML
C) JavaScript and Java D) JavaScript and HTTP requests
 - 9) Which of the following is an advantage of using JavaScript ?
A) Less server interaction B) Immediate feedback to the visitors
C) Increased interactivity D) All of the above



- 10) Which of the following function of String object returns a number indicating the Unicode value of the character at the given index ?
A) charAt() B) charCodeAt() C) concat() D) indexOf()
- 11) Which of the following jQuery selector selects all elements available in a DOM ?
A) \$('*') B) \$('?') C) \$('#') D) None of the above
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B) eXtensible Stylesheet Language Transformations
C) eXtensible Stylesheet Language Transportations
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- 14) XSLT becomes a W3C recommendation since
A) 16 Nov. 1999 B) 20 Nov. 1999 C) 2 Oct. 1999 D) None of the above
- 15) Why we used XSLT language ?
A) Use to transport XML documents
B) Use to perform transaction b/w XML documents
C) Use to transform XML documents
D) Use to format XML documents
- 16) Which one is correct ?
A) XForms is both platform and device independent
B) XForms is platform independent but not device independent
C) XForms is not platform independent but device independent
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- 17) Which of the following depicts best practice, understandability for resource representation in REST ?
A) Both server and client should be able to understand and utilize the representation format of the resource
B) Format should be able to represent a resource completely
C) A resource can have a linkage to another resource, a format should be able to handles such situations
D) None of the above
- 18) What is the purpose of XML in a web service ?
A) A web services takes the help of XML to tag the data, format the data
B) A web service takes the help of XML to transfer a message
C) A web service takes the help of XML to describe the availability of service
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- 19) Which of the following is true about Web services ?
A) Web services are open standard (XML, SOAP, HTTP etc.) based Web applications
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C) Web services can convert your existing applications into Web-applications
D) All of the above
- 20) What HTTP stands for ?
A) Hyperlink Text Transfer Protocol B) Hyper Text Transfer Protocol
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** (each carries 5 marks) : 20
- 1) What is the difference between Web 1.0 and Web 2.0 ?
 - 2) What is a web feed ?
 - 3) What is the difference between JavaScript and AJAX ?
 - 4) Explain XML DOM in details.
 - 5) Explain JQuery and its features in detail.
3. Attempt **any one** : 10
- 1) Explain what is REST and RESTFUL.
 - 2) Mention what is the difference between AJAX and REST.
4. Explain XLink, XPath and XForms with an example. 10

SECTION – II

5. Attempt **any four** (each carries 5 marks) : 20
- 1) Explain benefits of XML over HTTP.
 - 2) Define XQuery with syntax.
 - 3) What is the different data type supported by JSON ?
 - 4) Explain Podcasting and serving multimedia with protocols.
 - 5) How the Message Encryption is done in web security ?
6. Attempt **any one** : 10
- 1) Give a syntax rules for of XQuery.
 - 2) Explain authentication and authorization in details.
7. Explain Mapping mashup. Give an example of mapping mashup. 10



SLR-EP – 493

Seat No.	
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Set	R
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- N. B. :**
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**

- 1) Which one is correct ?
 - A) XForms is both platform and device independent
 - B) XForms is platform independent but not device independent
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- 2) Which of the following depicts best practice, understandability for resource representation in REST ?
 - A) Both server and client should be able to understand and utilize the representation format of the resource
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 - C) A resource can have a linkage to another resource, a format should be able to handles such situations
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- 3) What is the purpose of XML in a web service ?
 - A) A web services takes the help of XML to tag the data, format the data
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 - B) Web services interact with other web applications for the purpose of exchanging data
 - C) Web services can convert your existing applications into Web-applications
 - D) All of the above
- 5) What HTTP stands for ?

A) Hyperlink Text Transfer Protocol	B) Hyper Text Transfer Protocol
C) Hyper Transfer Text Protocol	D) Hyper Time Transfer Protocol
- 6) Which of the following is correct about SOAP ?

A) SOAP is language independent	B) SOAP is simple and extensible
C) Both of the above	D) None of the above

P.T.O.



- 7) The primary goal of the _____ protocol is to provide a private channel between communicating application, which ensures privacy of data authentication of the partners and integrity.
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D) eXcellant Stylesheet Language Transformations
- 19) XSLT becomes a W3C recommendation since
A) 16 Nov. 1999 B) 20 Nov. 1999 C) 2 Oct. 1999 D) None of the above
- 20) Why we used XSLT language ?
A) Use to transport XML documents
B) Use to perform transaction b/w XML documents
C) Use to transform XML documents
D) Use to format XML documents



Seat No.	
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

N. B. : 1) **All questions are compulsory.**
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SECTION – I

2. Attempt **any four** (each carries 5 marks) : 20
- 1) What is the difference between Web 1.0 and Web 2.0 ?
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 - 4) Explain XML DOM in details.
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- 1) Explain what is REST and RESTFUL.
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SECTION – II

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- 1) Explain benefits of XML over HTTP.
 - 2) Define XQuery with syntax.
 - 3) What is the different data type supported by JSON ?
 - 4) Explain Podcasting and serving multimedia with protocols.
 - 5) How the Message Encryption is done in web security ?
6. Attempt **any one** : 10
- 1) Give a syntax rules for of XQuery.
 - 2) Explain authentication and authorization in details.
7. Explain Mapping mashup. Give an example of mapping mashup. 10



Seat No.	
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- N. B. :**
- 1) **All questions are compulsory.**
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) Which of the following jQuery selector selects all elements available in a DOM ?
A) \$('*') B) \$('?') C) \$('#') D) None of the above
- 2) Which of the following jQuery method removes all child nodes from the set of matched elements ?
A) empty() B) delete() C) remove(expr) D) None of the above
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A) eXtra Stylesheet Language Transportations
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A) Both server and client should be able to understand and utilize the representation format of the resource
B) Format should be able to represent a resource completely
C) A resource can have a linkage to another resource, a format should be able to handles such situations
D) None of the above



- 8) What is the purpose of XML in a web service ?
- A) A web services takes the help of XML to tag the data, format the data
 - B) A web service takes the help of XML to transfer a message
 - C) A web service takes the help of XML to describe the availability of service
 - D) None of the above
- 9) Which of the following is true about Web services ?
- A) Web services are open standard (XML, SOAP, HTTP etc.) based Web applications
 - B) Web services interact with other web applications for the purpose of exchanging data
 - C) Web services can convert your existing applications into Web-applications
 - D) All of the above
- 10) What HTTP stands for ?
- A) Hyperlink Text Transfer Protocol
 - B) Hyper Text Transfer Protocol
 - C) Hyper Transfer Text Protocol
 - D) Hyper Time Transfer Protocol
- 11) Which of the following is correct about SOAP ?
- A) SOAP is language independent
 - B) SOAP is simple and extensible
 - C) Both of the above
 - D) None of the above
- 12) The primary goal of the _____ protocol is to provide a private channel between communicating application, which ensures privacy of data authentication of the partners and integrity.
- A) SSL
 - B) ESP
 - C) TSL
 - D) PSL
- 13) _____ is to protect data and passwords.
- A) Encryption
 - B) Authentication
 - C) Authorization
 - D) Non-repudiation
- 14) On the upper layer of SSL, a protocol for initial authentication and transfer of encryption keys, called the _____
- A) SSL handshake protocol
 - B) SSL authentication protocol
 - C) SSL record protocol
 - D) SSL cipher protocol
- 15) Message _____ means that the sender and the receiver expect privacy.
- A) Confidentiality
 - B) Integrity
 - C) Authentication
 - D) None of the above
- 16) Well formed XML document means
- A) It contains a root element
 - B) It contain an element
 - C) It contains one or more elements
 - D) Must contain one or more elements and root element must contain all other elements
- 17) XML uses the features of
- A) HTML
 - B) XHTML
 - C) VML
 - D) SGML
- 18) AJAX is based on _____
- A) JavaScript and XML
 - B) VBScript and XML
 - C) JavaScript and Java
 - D) JavaScript and HTTP requests
- 19) Which of the following is an advantage of using JavaScript ?
- A) Less server interaction
 - B) Immediate feedback to the visitors
 - C) Increased interactivity
 - D) All of the above
- 20) Which of the following function of String object returns a number indicating the Unicode value of the character at the given index ?
- A) charAt()
 - B) charCodeAt()
 - C) concat()
 - D) indexOf()



Seat No.	
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B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

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

SECTION – I

2. Attempt **any four** (each carries 5 marks) : 20
- 1) What is the difference between Web 1.0 and Web 2.0 ?
 - 2) What is a web feed ?
 - 3) What is the difference between JavaScript and AJAX ?
 - 4) Explain XML DOM in details.
 - 5) Explain JQuery and its features in detail.
3. Attempt **any one** : 10
- 1) Explain what is REST and RESTFUL.
 - 2) Mention what is the difference between AJAX and REST.
4. Explain XLink, XPath and XForms with an example. 10

SECTION – II

5. Attempt **any four** (each carries 5 marks) : 20
- 1) Explain benefits of XML over HTTP.
 - 2) Define XQuery with syntax.
 - 3) What is the different data type supported by JSON ?
 - 4) Explain Podcasting and serving multimedia with protocols.
 - 5) How the Message Encryption is done in web security ?
6. Attempt **any one** : 10
- 1) Give a syntax rules for of XQuery.
 - 2) Explain authentication and authorization in details.
7. Explain Mapping mashup. Give an example of mapping mashup. 10



Seat No.	
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Set

P

B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:** 1) Figures to **right** indicate **full** marks.
2) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**

- 1) In McCulloch Pitts Model, Weights are fixed.
a) True b) False c) Can't say d) None
- 2) Point of contact between two neurons is called as
a) Soma b) Dendrites c) Synapse d) Axon
- 3) What is back propagation ?
a) It is another name given to the curvy function in the perceptron
b) It is the transmission of error back through the network to adjust the inputs
c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
d) None of the mentioned
- 4) A feedback networks are used for
a) Autoassociation b) Pattern storage
c) Pattern environment storage d) All of the above
- 5) _____ is a weight on a connection from a neuron whose activation is always 1.
a) Transfer function b) Weighted sum
c) Bias d) None of these
- 6) In feedback networks, connections strength or weights are symmetric.
a) True b) False c) Can't say d) None
- 7) _____ learning law is unsupervised.
a) Delta b) Widrow-Hoff c) Perceptron d) Hebb's
- 8) In ADALINE model, output/transfer function is nonlinear.
a) True b) False c) Can't say d) None



- 9) In _____ learning for given set of input, target output is known.
a) Unsupervised b) Supervised c) Semi Learning d) None
- 10) The networks inspired by neurons in the brain are
a) Local area networks b) Neural Networks
c) Both a) and b) d) None
- 11) NET talk is
a) A multi layer feedforward neural network
b) A single layer feedforward neural network
c) Feedback network
d) None
- 12) Widrow and Hoff learning law is also called as
a) Hebb's Law b) LMS error learning law
c) Correlation Law d) None
- 13) Perceptron can solve non-linearly separable problems.
a) True b) False c) Can't say d) None
- 14) _____ carry signal from one biological neuron to another neuron.
a) Synapse b) Soma c) Dendrites d) Axon
- 15) The process of adjusting the weights is called as
a) Learning b) Activation value
c) Weighted input d) None
- 16) In Backpropagation neural network there is a feedback of signal.
a) True b) False c) Can't say d) None
- 17) Which is true for neural networks ?
a) It has set of nodes and connections
b) Each node computes its weighted input
c) Activation or transfer function is applied on weighted input to calculate the output
d) All of the above
- 18) Perceptron model is invented by
a) Warren McCulloch b) Walter Pitts
c) Frank Rosenblatt d) None
- 19) Competitive learning network is used for pattern grouping.
a) True b) False c) Can't say d) None
- 20) A multilayer perceptron is
a) A single layer feed-forward neural network
b) A multi layer feedforward neural network
c) A double layer autoassociative neural network
d) None



Seat No.	
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**B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : Figures to **right** indicate **full** marks.

SECTION – I

2. Solve **any four** : **(4×5=20)**
- 1) Explain features of Biological Neural Network.
 - 2) What is Multilayer perceptron ? Explain.
 - 3) Explain Perceptron model.
 - 4) What is artificial neural network ? Compare it with biological neural network.
 - 5) Explain McCulloch-pitts model.
3. Explain : **10**
- i) Perceptron learning rule ii) Widrow and Hoff LMS learning rule.
- OR
- Explain Backpropagation algorithm. **10**
4. What is mean by linear separability ? Explain the problem which is not separable. Also suggest a way to solve that problem. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
- 1) Explain the structure of basic feedforward network.
 - 2) Explain Pattern classification task.
 - 3) Explain the structure of basic feedback network.
 - 4) What is Pattern association ? Explain with example.
 - 5) Explain application of ANN in texture classification.
6. What are the ways of recall of information in neural network ? Explain. **10**
- OR
- Explain application of ANN in recognition of handwritten characters. **10**
7. What is significance of neural networks in the NETtalk application ? Explain. **10**



Seat No.	
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Set

Q

B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:** 1) Figures to **right** indicate **full** marks.
2) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
3) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) In Backpropagation neural network there is a feedback of signal.
a) True b) False c) Can't say d) None
- 2) Which is true for neural networks ?
a) It has set of nodes and connections
b) Each node computes its weighted input
c) Activation or transfer function is applied on weighted input to calculate the output
d) All of the above
- 3) Perceptron model is invented by
a) Warren McCulloch b) Walter Pitts
c) Frank Rosenblatt d) None
- 4) Competitive learning network is used for pattern grouping.
a) True b) False c) Can't say d) None
- 5) A multilayer perceptron is
a) A single layer feed-forward neural network
b) A multi layer feedforward neural network
c) A double layer autoassociative neural network
d) None
- 6) In McCulloch Pitts Model, Weights are fixed.
a) True b) False c) Can't say d) None
- 7) Point of contact between two neurons is called as
a) Soma b) Dendrites c) Synapse d) Axon



- 8) What is back propagation ?
- It is another name given to the curvy function in the perceptron
 - It is the transmission of error back through the network to adjust the inputs
 - It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - None of the mentioned
- 9) A feedback networks are used for
- Autoassociation
 - Pattern storage
 - Pattern environment storage
 - All of the above
- 10) _____ is a weight on a connection from a neuron whose activation is always 1.
- Transfer function
 - Weighted sum
 - Bias
 - None of these
- 11) In feedback networks, connections strength or weights are symmetric.
- True
 - False
 - Can't say
 - None
- 12) _____ learning law is unsupervised.
- Delta
 - Widrow-Hoff
 - Perceptron
 - Hebb's
- 13) In ADALINE model, output/transfer function is nonlinear.
- True
 - False
 - Can't say
 - None
- 14) In _____ learning for given set of input, target output is known.
- Unsupervised
 - Supervised
 - Semi Learning
 - None
- 15) The networks inspired by neurons in the brain are
- Local area networks
 - Neural Networks
 - Both a) and b)
 - None
- 16) NET talk is
- A multi layer feedforward neural network
 - A single layer feedforward neural network
 - Feedback network
 - None
- 17) Widrow and Hoff learning law is also called as
- Hebb's Law
 - LMS error learning law
 - Correlation Law
 - None
- 18) Perceptron can solve non-linearly separable problems.
- True
 - False
 - Can't say
 - None
- 19) _____ carry signal from one biological neuron to another neuron.
- Synapse
 - Soma
 - Dendrites
 - Axon
- 20) The process of adjusting the weights is called as
- Learning
 - Activation value
 - Weighted input
 - None



Seat No.	
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**B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : Figures to right indicate full marks.

SECTION – I

2. Solve **any four** : **(4×5=20)**
- 1) Explain features of Biological Neural Network.
 - 2) What is Multilayer perceptron ? Explain.
 - 3) Explain Perceptron model.
 - 4) What is artificial neural network ? Compare it with biological neural network.
 - 5) Explain McCulloch-pitts model.
3. Explain : **10**
- i) Perceptron learning rule ii) Widrow and Hoff LMS learning rule.
- OR
- Explain Backpropagation algorithm. **10**
4. What is mean by linear separability ? Explain the problem which is not separable. Also suggest a way to solve that problem. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
- 1) Explain the structure of basic feedforward network.
 - 2) Explain Pattern classification task.
 - 3) Explain the structure of basic feedback network.
 - 4) What is Pattern association ? Explain with example.
 - 5) Explain application of ANN in texture classification.
6. What are the ways of recall of information in neural network ? Explain. **10**
- OR
- Explain application of ANN in recognition of handwritten characters. **10**
7. What is significance of neural networks in the NETtalk application ? Explain. **10**



SLR-EP – 494

Seat No.	
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Set **R**

B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions:** 1) Figures to **right** indicate **full** marks.
2) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
3) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer :

(20×1=20)

- 1) NET talk is
 - a) A multi layer feedforward neural network
 - b) A single layer feedforward neural network
 - c) Feedback network
 - d) None
- 2) Widrow and Hoff learning law is also called as
 - a) Hebb's Law
 - b) LMS error learning law
 - c) Correlation Law
 - d) None
- 3) Perceptron can solve non-linearly separable problems.
 - a) True
 - b) False
 - c) Can't say
 - d) None
- 4) _____ carry signal from one biological neuron to another neuron.
 - a) Synapse
 - b) Soma
 - c) Dendrites
 - d) Axon
- 5) The process of adjusting the weights is called as
 - a) Learning
 - b) Activation value
 - c) Weighted input
 - d) None
- 6) In Backpropagation neural network there is a feedback of signal.
 - a) True
 - b) False
 - c) Can't say
 - d) None
- 7) Which is true for neural networks ?
 - a) It has set of nodes and connections
 - b) Each node computes its weighted input
 - c) Activation or transfer function is applied on weighted input to calculate the output
 - d) All of the above

P.T.O.



- 8) Perceptron model is invented by
a) Warren McCulloch b) Walter Pitts
c) Frank Rosenblatt d) None
- 9) Competitive learning network is used for pattern grouping.
a) True b) False c) Can't say d) None
- 10) A multilayer perceptron is
a) A single layer feed-forward neural network
b) A multi layer feedforward neural network
c) A double layer autoassociative neural network
d) None
- 11) In McCulloch Pitts Model, Weights are fixed.
a) True b) False c) Can't say d) None
- 12) Point of contact between two neurons is called as
a) Soma b) Dendrites c) Synapse d) Axon
- 13) What is back propagation ?
a) It is another name given to the curvy function in the perceptron
b) It is the transmission of error back through the network to adjust the inputs
c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
d) None of the mentioned
- 14) A feedback networks are used for
a) Autoassociation b) Pattern storage
c) Pattern environment storage d) All of the above
- 15) _____ is a weight on a connection from a neuron whose activation is always 1.
a) Transfer function b) Weighted sum
c) Bias d) None of these
- 16) In feedback networks, connections strength or weights are symmetric.
a) True b) False c) Can't say d) None
- 17) _____ learning law is unsupervised.
a) Delta b) Widrow-Hoff c) Perceptron d) Hebb's
- 18) In ADALINE model, output/transfer function is nonlinear.
a) True b) False c) Can't say d) None
- 19) In _____ learning for given set of input, target output is known.
a) Unsupervised b) Supervised c) Semi Learning d) None
- 20) The networks inspired by neurons in the brain are
a) Local area networks b) Neural Networks
c) Both a) and b) d) None



Seat No.	
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**B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : Figures to **right** indicate **full** marks.

SECTION – I

2. Solve **any four** : **(4×5=20)**
- 1) Explain features of Biological Neural Network.
 - 2) What is Multilayer perceptron ? Explain.
 - 3) Explain Perceptron model.
 - 4) What is artificial neural network ? Compare it with biological neural network.
 - 5) Explain McCulloch-pitts model.
3. Explain : **10**
- i) Perceptron learning rule ii) Widrow and Hoff LMS learning rule.
- OR
- Explain Backpropagation algorithm. **10**
4. What is mean by linear separability ? Explain the problem which is not separable. Also suggest a way to solve that problem. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
- 1) Explain the structure of basic feedforward network.
 - 2) Explain Pattern classification task.
 - 3) Explain the structure of basic feedback network.
 - 4) What is Pattern association ? Explain with example.
 - 5) Explain application of ANN in texture classification.
6. What are the ways of recall of information in neural network ? Explain. **10**
- OR
- Explain application of ANN in recognition of handwritten characters. **10**
7. What is significance of neural networks in the NETtalk application ? Explain. **10**



SLR-EP – 494

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Set

S

B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

- Instructions :** 1) Figures to **right** indicate **full** marks.
2) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
3) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct answer : **(20×1=20)**

- 1) In feedback networks, connections strength or weights are symmetric.
a) True b) False c) Can't say d) None
- 2) _____ learning law is unsupervised.
a) Delta b) Widrow-Hoff c) Perceptron d) Hebb's
- 3) In ADALINE model, output/transfer function is nonlinear.
a) True b) False c) Can't say d) None
- 4) In _____ learning for given set of input, target output is known.
a) Unsupervised b) Supervised c) Semi Learning d) None
- 5) The networks inspired by neurons in the brain are
a) Local area networks b) Neural Networks
c) Both a) and b) d) None
- 6) NET talk is
a) A multi layer feedforward neural network
b) A single layer feedforward neural network
c) Feedback network
d) None
- 7) Widrow and Hoff learning law is also called as
a) Hebb's Law b) LMS error learning law
c) Correlation Law d) None
- 8) Perceptron can solve non-linearly separable problems.
a) True b) False c) Can't say d) None
- 9) _____ carry signal from one biological neuron to another neuron.
a) Synapse b) Soma c) Dendrites d) Axon

P.T.O.



Seat No.	
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**B.E. (CSE) Part – II Examination, 2016
ARTIFICIAL NEURAL NETWORK (Elective – IV) (New)**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

Instruction : Figures to right indicate full marks.

SECTION – I

2. Solve **any four** : **(4×5=20)**
- 1) Explain features of Biological Neural Network.
 - 2) What is Multilayer perceptron ? Explain.
 - 3) Explain Perceptron model.
 - 4) What is artificial neural network ? Compare it with biological neural network.
 - 5) Explain McCulloch-pitts model.
3. Explain : **10**
- i) Perceptron learning rule
 - ii) Widrow and Hoff LMS learning rule.
- OR
- Explain Backpropagation algorithm. **10**
4. What is mean by linear separability ? Explain the problem which is not separable. Also suggest a way to solve that problem. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
- 1) Explain the structure of basic feedforward network.
 - 2) Explain Pattern classification task.
 - 3) Explain the structure of basic feedback network.
 - 4) What is Pattern association ? Explain with example.
 - 5) Explain application of ANN in texture classification.
6. What are the ways of recall of information in neural network ? Explain. **10**
- OR
- Explain application of ANN in recognition of handwritten characters. **10**
7. What is significance of neural networks in the NETtalk application ? Explain. **10**



Seat No.	
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Set	P
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**B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : BIG DATA ANALYTICS**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative : **(20×1=20)**

- 1) The 3 V terms of Big data was first introduced by
a) Doug Laney b) Brewer c) Carlo Strozzi d) Doug cutting
- 2) The expansion for CAP is _____, _____ and _____.
a) Consistency, Ability, Partition Tolerance
b) Consistency, Atomicity, Partition Tolerance
c) Consistency, Availability, Parallel
d) Consistency, Availability, Partition Tolerance
- 3) CCTV footage is which type of data ?
a) structured data b) unstructured data
c) semi-structured data d) all three
- 4) Hadoop was first introduced by
a) Doug Laney b) Brewer c) Carlo Strozzi d) Doug cutting
- 5) Name node in HDFS uses _____ to store file system name space.
a) EditLog b) FsImage c) Data node d) Map reduce
- 6) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
a) 30 b) 15 c) 5 d) 100
- 7) What does Job tracker do ?
a) stores block of data b) store metadata
c) coordinate and schedule the job d) act as mini reducer
- 8) On a single Hadoop cluster how many Name node can run ?
a) depend on clusters b) only one
c) only 3 d) depend on data nodes



- 9) HDFS is based on
a) Facebook file system b) Google file system
c) IBM file system d) Yahoo file system
- 10) Apache hadoop YARN is a sub-project of
a) Hadoop 1.0 b) Hadoop 2.0 c) Both d) None
- 11) Which command in MongoDB is equivalent to SQL select ?
a) search() b) document() c) find() d) display()
- 12) MongoDB is
a) RDBMS b) Document-oriented DBMS
c) Object Oriented DBMS d) Key-value store
- 13) Apache Cassandra was born at
a) Google b) Facebook c) IBM d) Yahoo
- 14) A container used to hold application data in Cassandra is called
a) Document b) Table c) Keyspaces d) Record
- 15) Which one of the following is equivalent to following in MongoDB Select *
from employees order by salary desc ; ?
a) db.employee.find().sort({"salary" : 1}) ;
b) db.employee.sort ({"salary" :-1});
c) db.employee.find().sort({"salary" :-1});
d) db.employee.sort({"salary" :1});
- 16) The 3 types of Collections used in Cassandra are
a) Array, List, Map b) List, Map, Struct
c) List, Set, Map d) Set, Map, Array
- 17) The metastore in Hive consist of _____ and _____
a) driver, services b) metaservices, database
c) driver, database d) metaservices, driver
- 18) Pig is
a) data Flow language b) NoSQL database
c) import export tool d) scheduling engine
- 19) The term 'ETL' used in Pig stands for
a) Extract, Transform, Load b) Extend, Transfer, Load
c) Extract, Transform, Local d) Extract, transfer, Load
- 20) Hive is used as
a) Data Flow language b) Data Warehousing language
c) Workflow language d) Scheduling language



Seat No.	
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**B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : BIG DATA ANALYTICS**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- 1) Define Big data and different challenges of Big data.
 - 2) What is Big data Analytics ? Give its classification in brief.
 - 3) Define Map Reduce. Give example of Word Count using Map Reduce.
 - 4) Define unstructured data and give different sources of structured data.
 - 5) Explain Hadoop 1.0 and Hadoop 2.0 with diagram.
3. Answer **any two** : **(2×10=20)**
- 1) Explain High level Architecture of Hadoop with its components and different Key aspects of Hadoop.
 - 2) What is HDFS ? Explain with the help of Block Diagram/Architecture.
 - 3) Explain Hadoop Ecosystem with the help of suitable diagram.

SECTION – II

4. Answer **any four** : **(4×5=20)**
- 1) State features of MongoDB and give at least 3 difference between MongoDB and SQL.
 - 2) Explain different CRUD operations in Cassandra.
 - 3) Explain Map Reduce programming in MongoDB with suitable example.
 - 4) Explain Architecture of Hive with suitable diagram.
 - 5) Give different Pig Latin statements with an example.
5. Answer **any two** : **(2×10=20)**
- 1) Explain different CRUD operations in MongoDB with example query.
 - 2) Explain different features of Cassandra in detail.
 - 3) Give different key features of Pig. Explain Anatomy and ETL processing of Pig with suitable diagram.

Set P



SLR-EP – 495

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Q

B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : BIG DATA ANALYTICS

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) *Q. No. 1 is compulsory. It should be solved in first 30 minutes in Answer Book Page No. 3. Each question carries one mark.*
2) *Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.*

MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative :

(20×1=20)

- 1) The 3 types of Collections used in Cassandra are
 - a) Array, List, Map
 - b) List, Map, Struct
 - c) List, Set, Map
 - d) Set, Map, Array
- 2) The metastore in Hive consist of _____ and _____
 - a) driver, services
 - b) metasevices, database
 - c) driver, database
 - d) metasevices, driver
- 3) Pig is
 - a) data Flow language
 - b) NoSQL database
 - c) import export tool
 - d) scheduling engine
- 4) The term 'ETL' used in Pig stands for
 - a) Extract, Transform, Load
 - b) Extend, Transfer, Load
 - c) Extract, Transform, Local
 - d) Extract, Transfer, Load
- 5) Hive is used as
 - a) Data Flow language
 - b) Data Warehousing language
 - c) Workflow language
 - d) Scheduling language
- 6) The 3 V terms of Big data was first introduced by
 - a) Doug Laney
 - b) Brewer
 - c) Carlo Strozzi
 - d) Doug cutting
- 7) The expansion for CAP is _____, _____ and _____.
 - a) Consistency, Ability, Partition Tolerance
 - b) Consistency, Atomicity, Partition Tolerance
 - c) Consistency, Availability, Parallel
 - d) Consistency, Availability, Partition Tolerance

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**B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : BIG DATA ANALYTICS**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Marks : 80

SECTION – I

2. Attempt **any four** : **(4×5=20)**
- 1) Define Big data and different challenges of Big data.
 - 2) What is Big data Analytics ? Give its classification in brief.
 - 3) Define Map Reduce. Give example of Word Count using Map Reduce.
 - 4) Define unstructured data and give different sources of structured data.
 - 5) Explain Hadoop 1.0 and Hadoop 2.0 with diagram.
3. Answer **any two** : **(2×10=20)**
- 1) Explain High level Architecture of Hadoop with its components and different Key aspects of Hadoop.
 - 2) What is HDFS ? Explain with the help of Block Diagram/Architecture.
 - 3) Explain Hadoop Ecosystem with the help of suitable diagram.

SECTION – II

4. Answer **any four** : **(4×5=20)**
- 1) State features of MongoDB and give at least 3 difference between MongoDB and SQL.
 - 2) Explain different CRUD operations in Cassandra.
 - 3) Explain Map Reduce programming in MongoDB with suitable example.
 - 4) Explain Architecture of Hive with suitable diagram.
 - 5) Give different Pig Latin statements with an example.
5. Answer **any two** : **(2×10=20)**
- 1) Explain different CRUD operations in MongoDB with example query.
 - 2) Explain different features of Cassandra in detail.
 - 3) Give different key features of Pig. Explain Anatomy and ETL processing of Pig with suitable diagram.

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- 8) Pig is
- a) data Flow language
 - b) NoSQL database
 - c) import export tool
 - d) scheduling engine
- 9) The term 'ETL' used in Pig stands for
- a) Extract, Transform, Load
 - b) Extend, Transfer, Load
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- 12) The expansion for CAP is _____, _____ and _____.
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 - b) Consistency, Atomicity, Partition Tolerance
 - c) Consistency, Availability, Parallel
 - d) Consistency, Availability, Partition Tolerance
- 13) CCTV footage is which type of data ?
- a) structured data
 - b) unstructured data
 - c) semi-structured data
 - d) all three
- 14) Hadoop was first introduced by
- a) Doug Laney
 - b) Brewer
 - c) Carlo Strozzi
 - d) Doug cutting
- 15) Name node in HDFS uses _____ to store file system name space.
- a) EditLog
 - b) Fslmage
 - c) Data node
 - d) Map reduce
- 16) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
- a) 30
 - b) 15
 - c) 5
 - d) 100
- 17) What does Job tracker do ?
- a) stores block of data
 - b) store metadata
 - c) coordinate and schedule the job
 - d) act as mini reducer
- 18) On a single Hadoop cluster how many Name node can run ?
- a) depend on clusters
 - b) only one
 - c) only 3
 - d) depend on data nodes
- 19) HDFS is based on
- a) Facebook file system
 - b) Google file system
 - c) IBM file system
 - d) Yahoo file system
- 20) Apache hadoop YARN is a sub-project of
- a) Hadoop 1.0
 - b) Hadoop 2.0
 - c) Both
 - d) None



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**B.E. (CSE) (Part – II) (New) Examination, 2016
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SECTION – II

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5. Answer **any two** : **(2×10=20)**
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 - 2) Explain different features of Cassandra in detail.
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**B.E. (CSE) (Part – II) (New) Examination, 2016
Elective – IV : BIG DATA ANALYTICS**

Day and Date : Thursday, 24-11-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) Q. No. 1 is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. 3. **Each** question carries **one** mark.
2) **Answer MCQ/Objective type questions on Page No. 3 only.**
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MCQ/Objective Type Questions

Duration : 30 Minutes

Marks : 20

1. Choose the correct alternative :

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- 1) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
a) 30 b) 15 c) 5 d) 100
- 2) What does Job tracker do ?
a) stores block of data b) store metadata
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- 3) On a single Hadoop cluster how many Name node can run ?
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- 4) HDFS is based on
a) Facebook file system b) Google file system
c) IBM file system d) Yahoo file system
- 5) Apache hadoop YARN is a sub-project of
a) Hadoop 1.0 b) Hadoop 2.0 c) Both d) None
- 6) Which command in MongoDB is equivalent to SQL select ?
a) search() b) document() c) find() d) display()
- 7) MongoDB is
a) RDBMS b) Document-oriented DBMS
c) Object Oriented DBMS d) Key-value store
- 8) Apache Cassandra was born at
a) Google b) Facebook c) IBM d) Yahoo
- 9) A container used to hold application data in Cassandra is called
a) Document b) Table c) Keyspaces d) Record

P.T.O.



- 10) Which one of the following is equivalent to following in MongoDB Select * from employees order by salary desc ; ?
- a) `db.employee.find().sort({"salary": 1}) ;`
 - b) `db.employee.sort ({"salary": - 1});`
 - c) `db.employee.find().sort({"salary": - 1});`
 - d) `db.employee.sort({"salary":1});`
- 11) The 3 types of Collections used in Cassandra are
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**B.E. CSE (Part – II) (New) Examination, 2016
Elective – IV : BIG DATA AND ANALYTICS**

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