SLR-SL – 1

Seat No.	

Set P

B.Sc. – I (ECS) (Semester – I) (CBCS Pattern) Examination, 2018
ENGLISH COMPULSORY
Paper – I : Golden Petals

Day and Date : Monday, 29-10-2018 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Fill in the blanks choosing the correct answer from the alternatives given below. **14**

1) Charlie Chaplin was born in _____
   a) London b) Paris
   c) Scotland d) America

2) Charlie Chaplin did his first film with _____ company.
   a) FOX b) 20th century
   c) Sony d) Keystone

3) Shanti Tigga was the mother of _____ children.
   a) one b) three c) two d) five

4) During the training, Shanti Tigga impressed the instructor with her skill in handling _____
   a) gun b) sword c) rifle d) AK-47

5) Shanti Tigga joined army at the age of _____
   a) 25 b) 27 c) 35 d) 37

6) _____ was Charlie Chaplin's middle name.
   a) William b) Spencer
   c) John d) Albert

7) _____ was the father of Nachiketa.
   a) Vajasrawas b) Vijayaraj
   c) Vijayakamal d) Vijay

P.T.O.

8) Nachiketa decided to meet the god of _____
   a) Water b) Fire
   c) Death d) Air
9) The theme of the poem 'I Find No Peace' is _____
   a) Peace b) Love
   c) Hateful nature d) Beauty
10) The poem 'Success is counted sweetest' is written by _____
   a) Emily Dickenson b) John Dickenson
   c) John Milton d) John Abraham
11) A reporter from _____ was assigned to write a review of Charlie's first film.
   a) Washington b) London
   c) New York d) Paris
12) Ranjit <u>wrote</u> a story; the underlined word 'wrote' is _____
   a) verb b) adverb
   c) adjective d) pronoun
13) She had written all answers in her book. The tense of this given sentence is _____
   a) Present perfect tense b) Past perfect tense
   c) Past tense d) Past continuous tense
14) Rani is going to her village to attend the village _____
   a) Fair b) Fare
   c) Fairie d) Fer

2. Answer **any four** of the following questions in brief : **16**
   1) Describe the get up of Charlie Chaplin.
   2) How did Charlie Chaplin get his first role in films ?
   3) Describe the character of Shanti Tigga.
   4) What did Shanti Tigga's relative feel after her death ?
   5) Why did Nachiketa feel troubled ?
   6) What did Nachiketa hope to achieve from his journey ?

3. Answer **any two** of the following : **12**
   1) Describe the theme of the poem 'I Find No Peace'.
   2) Comment on the use of contrast in the poem 'Success is counted sweetest'.
   3) Write in detail what is communication.
   4) State the possible causes when you missed a lecture because you did not know that the lecture was scheduled at that particular time.

4. Answer **any one** of the following : **14**
   1) Explain where and why e-mail, video calls, mobile phones, radio and movie these channels of – communication are used in particular communication.
   2) Why do you think we need language and vocabulary ?

5. What is the difference between one way and two way communication ? Write in detail. **14**

SLR-SL – 2

Seat No.	

Set P

B.Sc. (ECS) – I (Semester – I) (CBCS) Examination, 2018
FUNDAMENTAL OF COMPUTER (Paper – II)

Day and Date : Tuesday, 30-10-2018 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

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

1. Multiple Choice Questions. **14**

1) The second generation computers were introduced by
   a) Vaccume tubes b) IC's
   c) Transistors d) All of these

2) Microsoft Word is an example of
   a) Application Software b) Processing device
   c) System Software d) An operating system

3) The term that we use to describe physical components of the system is
   a) Software b) System Software
   c) Hardware d) All of these

4) Execution of two or more programs by a single CPU is known as
   a) Multiprocessing b) Time sharing
   c) Multiprogramming d) None of the above

5) Magnetic tape is _____ storage device.
   a) Random b) Sequential accessed
   c) Track d) None of these

6) In order to tell Excel that we are entering a formula in cell, we must begin with an operator such as
   a) $ b) # c) = d) +

7) The _____ of a system includes the programs or instructions.
   a) Hardware b) ICON c) Software d) None of these

8) A smallest phosphor dot on CRT can be illuminated is called
   a) cursor b) dpi c) pixel d) none of these

9) _____ is the optical storage device.
   a) Magnetic tape b) Hard disk c) Pen drive d) CD/DVD

P.T.O.

10) _____ is the extension of batch file.

a) .txt b) .bt c) .bat d) .exe

11) A light sensitive device that converts drawing, printed text or other images into digital form is

a) keyboard b) plotter c) scanner d) mouse

12) Which of the following is the largest unit of storage ?

a) GB b) KB c) MB d) TB

13) Computer is free from tiredness we call it

a) accuracy b) automatic c) diligence d) versatility

14) _____ DOS command is used to create a text file.

a) Md b) Copy con c) New d) Create

2. A) Answer the following (**any four**) : **8**

1) What is hardware ? List any four hardware.
2) Write use of any four DOS Commands.
3) List the use of power point presentation.
4) What is text formatting ?
5) What is Mail merge ?

B) Write notes on (**any two**) : **6**

1) What are uses of batch file ?
2) What is application software ? List some application software's.
3) Explain Compact Disk.

3. A) Answer the following (**any two**) : **8**

1) Write a note on Dot matrix printer.
2) Explain the super computer with applications.
3) What is Multiprogramming ? Explain with suitable diagram.

B) Answer the following (**any one**) : **6**

1) Explain scanner with its types.
2) Explain android operating system.

4. A) Answer the following (**any two**) : **10**

   1) Write different applications of computer.

   2) What is secondary memory ? Explain Floppy Disk.

   3) Explain plotter and its types.

   B) Answer the following (**any one**) : **4**

   1) Explain any eight mathematical function used in MS-Excel.

   2) What is the difference between a Primary Memory and Secondary Memory.

5. Answer the following (**any two**) : **14**

   1) Explain different features of Microsoft Excel.

   2) Explain different features of operating system.

   3) Explain the generations of computers.

SLR-SL – 3

Seat No.	

Set P

B.Sc. (ECS) – I (Semester – I) (CBCS) Examination, 2018
PROGRAMMING USING "C" (Paper – III)

Day and Date : Wednesday, 31-10-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

1. Choose and write correct answer from given alternatives : **14**

   1) What are the types of linkages ?
      a) Internal and External
      b) External, Internal and None
      c) External and None
      d) Internal

   2) To print out a and b given below, which of the following printf statement will you use ?

```
#include<stdio.h>
float a = 3.14;
double b = 3.14
```

      a) printf("%f %lf", a, b);
      b) printf("%Lf %f", a, b);
      c) printf("%Lf %Lf", a, b);
      d) printf("%f %Lf", a, b);

   3) By default a real number is treated as a
      a) float
      b) double
      c) long double
      d) far double

   4) Is the following statement a declaration or definition ?
      a) Declaration
      b) Definition
      c) Function
      d) Error

   5) In which order do the following gets evaluated ?
      1. Relational
      2. Arithmetic
      3. Logical
      4. Assignment
      a) 2134
      b) 1234
      c) 4321
      d) 3214

   6) Which of the following cannot be checked in a switch-case statement ?
      a) Character
      b) Integer
      c) Float
      d) Enum

P.T.O.

7) Which of the following is not logical operator ?
   a) & b) && c) || d) !

8) In which stage the following code
   #include<stdio.h> gets replaced by the contents of the file stdio.h ?
   a) During editing b) During linking
   c) During execution d) During preprocessing

9) Which of the following are unary operators in C ?
   a) ! b) sizeof c) ~ d) &&

10) How will you print \n on the screen ?
   a) printf("\n"); b) printf('\n');
   c) echo"\n" d) printf("\\n");

11) Which of the following special symbol allowed in a variable name ?
   a) * (asterisk) b) | (Pipeline)
   c) -(Hyphen) d) _ (Underscore)

12) In which numbering system can the binary number 1011011111000101 be easily converted to ?
   a) Decimal system b) Hexadecimal system
   c) Octal system d) No need to convert

13) Which of the following is the correct usage of conditional operators used in C ?
   a) a>b ? c = 30: c = 40;
   b) a>b ? c = 30;
   c) max = a>b ? a>c ? a:c:b>c ? b:c
   d) return (a>b) ? (a:b)

14) All Keywords in C Language are in
   a) Lowercase b) Uppercase
   c) Both a and b d) None of these

2. A) Answer the following (**any 4**) : **8**

   1) Explain the terms compiler and interpreter.
   2) Why header file used in C language ?
   3) List the types of constant.
   4) What is the difference between entry-controlled and exit-controlled loop ?
   5) Write program structure in C.
   6) What are the rules regarding to declaring variable name ?

B) Write note on **any two** of the following : **6**

1) Programming Languages.
2) C Tokens.
3) Data Types in C programming.

3. A) Answer the following (**any two**) : **8**

1) What is operator ? Explain types of operator in detail.
2) Explain unconditional control statements with example.
3) What is string ? Explain following string functions.
   a) streat() b) stremp()

B) Answer the following (**any one**) : **6**

1) Explain Conditional control statements.
2) Write a program to sort n positive integers.

4. A) Answer the following (**any two**) : **10**

1) What is array ? Explain types of array with examples.
2) Write a program to find the palindrome number or not.
3) Explain loop statement with example.

B) Answer the following (**any one**) : **4**

1) Write a program to check given number is Armstrong or not.
2) Explain flow chart and Algorithm and it's advantages, disadvantages.

5. Answer the following (**any two**) : **14**

1) Explain flowchart symbols with suitable example.
2) Write a program to generate Fibonacci series up to 15 terms.
3) Write a program to calculate addition of matrix.

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SLR-SL – 4

Seat No.	

Set P

B.Sc. (ECS) – I (Semester – I) Examination, 2018
(CBCS Pattern)
Electronics (Paper – IV)
LINEAR ELECTRONICS – I

Day and Date : Thursday, 1-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Figures to **right** indicate **full** marks.*
*3) Draw circuit diagram **wherever** necessary.*

1. Multiple choice questions : **14**

1) _____ is barrier potential for silicon.
a) 0.4 V b) 0.6 V c) 0.7 V d) 0.3 V

2) The nonelectrolyte capacitor uses _____ as dielectric.
a) aluminum b) paper c) copper d) tantalum

3) The ideal input impedance of op-amp is _____ ohm.
a) infinity b) zero c) 100 d) 10

4) The full wave rectifier is used to convert
a) ac to ac b) dc to dc c) ac to dc d) none of these

5) The 103 no. on ceramic capacitor has value is equal to _____ μF.
a) 0.1 b) 0.01 c) 0.001 d) 0.0001

6) PIV for half wave rectifier is
a) 2 Vm b) Vm c) 4 Vm d) Vm/2

7) The IC 741 has _____ no. of pin for output.
a) 6 b) 14 c) 8 d) 4

8) _____ % is efficiency of bridge wave rectifier.
a) 48 b) 46 c) 81 d) 40

9) The current flows through 100 Ω resistor for 20 V is
a) 0.2 nA b) 0.2 μA c) 0.2 mA d) 0.2 A

10) The noninverting input and output of op-amp is
a) in phase b) out of phase
c) inverting phase d) none of these

11) _____ is passive component.
a) Zener b) Diode c) LED d) Capacitor

12) Capacitance = $\varepsilon \times$ _____.
a) d/I b) A/d c) I/d d) I/A

13) _____ is unit of resistance.
a) Ohm b) Henry c) Farad d) Volt

14) The reverse current increases rapidly through diode at
a) VBR b) VCC c) GND d) VSS

2. A) Answer the following (**any four**). **08**
1) Explain ohms law.
2) State Kirchhoff's voltage law.
3) Define resistor.
4) Draw circuit diagram of bridge wave rectifier.
5) Classify amplifier depending on class of operation.

B) Write note on (**any two**). **06**
1) Explain fixed resistor.
2) Explain forward biasing of diode.
3) Explain class B amplifier.

3. A) Answer the following (**any two**). **08**
1) Explain fixed type capacitor.
2) Explain CLC filters with circuit diagram.
3) Explain RC coupled amplifier.

B) Answer the following (**any one**). **06**
1) Explain air gang capacitor.
2) Explain parameters of op-amp.

4. A) Answer the following (**any two**). **10**
1) Explain p type semiconductor.
2) Explain half wave rectifier.
3) Explain op-amp as adder.

B) Answer the following (**any one**). **04**
1) Explain op-amp as subtractor.
2) Explain CE configuration of transistor.

5. Answer the following (**any two**). **14**
1) Explain wire wound potentiometer.
2) Explain characteristics of transistor in CB configuration.
3) Explain op-amp as inverting and noninverting op-amp.

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SLR-SL – 5

Seat No.	

Set P

B.Sc. (ECS) – I (Semester – I) Examination, 2018
(CBCS Pattern)
ELECTRONICS (Paper – V)
Digital Electronics – I

Day and Date : Friday, 2-11-2018 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Draw circuit diagram ***wherever*** *necessary.*

1. Multiple choice questions : **14**

1) IC 7402 is _____ type gate.
a) NOR b) NAND c) OR d) XOR

2) IC _____ is an encoder.
a) 74148 b) 74138 c) 74154 d) 74151

3) Half adder uses _____ gate.
a) AND, XOR b) OR, NAND c) AND, NOT d) OR, XOR

4) Base of hexadecimal no. system is
a) 2 b) 4 c) 8 d) 16

5) IC _____ is counter.
a) 7495 b) 7490 c) 74138 d) 74150

6) Race around condition occurs in _____ flip flop.
a) JK b) RS c) D d) None of these

7) The excess 3 code of 5 is
a) 1111 b) 1010 c) 1000 d) 0101

8) _____ is circuit with one input and many output.
a) multiplexer b) demultiplexer
c) encoder d) decoder

9) BCD equivalent for 75 is
a) 01110100 b) 01111000 c) 01110101 d) 01010111

10) Toggling occurs in JK flip flop for input
a) 1, 1 b) 1, 0 c) 0, 1 d) 0, 0

P.T.O.

11) _____ no. of flip flops are used to store 4 bits.
a) 1 b) 2 c) 3 d) 4

12) Full adder is used to make addition of _____ bits.
a) 2 b) 3 c) 4 d) 8

13) Total no. of gates in IC 7404 are
a) 2 b) 3 c) 4 d) 6

14) The AND gate is _____ gate.
a) basic b) universal c) inverter d) none of these

2. A) Answer the following (**any four**) : **8**
1) Explain octal no. system.
2) Write binary rules for multiplication.
3) Draw logic diagram of half adder.
4) Explain concept of race condition.
5) Explain ones compliment with example.

B) Write note on (**any two**) : **6**
1) Explain excess 3 code.
2) Explain 3 variable K-map.
3) Explain D flip flop.

3. A) Answer the following (**any two**) : **8**
1) Explain D Morgan's theorem.
2) Explain parity check error detection.
3) Explain ring counter.

B) Answer the following (**any one**) : **6**
1) Explain basic gate with symbol.
2) Explain K-map for 4 variables.

4. A) Answer the following (**any two**) : **10**
1) Explain hexadecimal no. system.
2) Explain full adder with diagram.
3) Explain 3 bit up counter.

B) Answer the following (**any one**) : **4**
1) Explain mod 10 counter.
2) Explain binary to decimal conversion.

5. Answer the following (**any two**) : **14**
1) Explain RS flip flop using NAND and NOR gate.
2) Explain universal adder/sub tractor.
3) Explain hexadecimal to binary and binary to hexadecimal conversion.

_____

SLR-SL – 6

Seat No.	

Set P

B.Sc. (E.C.S.) – I (Semester – I) (CBCS) Examination, 2018
MATHEMATICS (Paper – VI)
Discrete Structure

Day and Date : Saturday, 3-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) ***Use*** *of calculator is* ***allowed****.*

1. Choose correct alternative for **each** of the following. **14**

1) The degree of each vertex in a complete graph K_6 is
a) 10 b) 15 c) 5 d) 6

2) In adjacency matrix of graph G, if all the diagonal elements are 0 and non-diagonal elements are zero or 1 then graph G is _____ graph.
a) null b) multi c) complete d) none of these

3) A walk in which no vertex is repeated is called as
a) Path b) Trial c) Circuit d) Tour

4) _____ algorithm is used to find shortest spanning tree.
a) Dijkstar's b) Fleury's
c) Warshall's d) None of these

5) A binary tree has always _____ number of vertices.
a) even b) odd c) any d) infinite

6) A graph G which have parallel edges but no loop is called as _____ graph.
a) simple b) multi c) pseudo d) regular

7) If $|A| = 37$, $|B| = 23$ and $|A \cup B| = 48$ then $|A \cap B| =$ _____
a) 108 b) 62
c) 12 d) cannot be determined

8) The number of edges in a graph with 8 vertices each of degree 4
a) 16 b) 4 c) 8 d) 32

9) A connected graph G is Eulerian if degree of each vertex in G is
a) same b) prime c) even d) odd

P.T.O.

10) Order of incidence matrix of a graph having 4 vertices and 7 edges is
a) 4×7 b) 7×4 c) 4×4 d) 7×7

11) _____ is a particular case of Hamiltonian graph.
a) Travelling salesman problem b) Chinese postman problem
c) Both a and b d) None of the above

12) If a simple graph G is isomorphic to its own complement then the graph G is called as _____ graph.
a) Isomorphic b) Complement
c) Self complementary d) None of these

13) A trail which covers all the edges of a connected graph G is called as
a) Eulerian circuit b) Eulerian trail
c) Closed trail d) Hamiltonian trail

14) The complement of a complete graph is _____ graph.
a) Complete b) Simple c) Null d) None of these

2. A) Answer the following (**any four**) : **8**

1) State principle of inclusion-exclusion for three sets.

2) Define vertex disjoint subgraphs and edge disjoint subgraphs.

3) Define linear recurrence relation with constant coefficient of order K.

4) Draw the graphs $K_{4,2}$ and $K_{3,2}$.

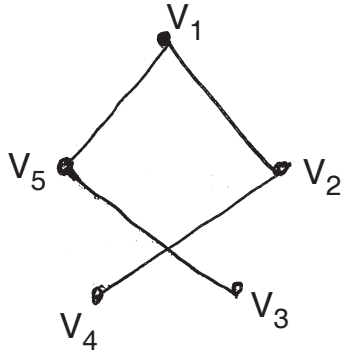
5) Define a complete graph with suitable example.

B) Answer the following (**any two**). **6**

1) Define Hamiltonian path, trail and Eulerian Trail.

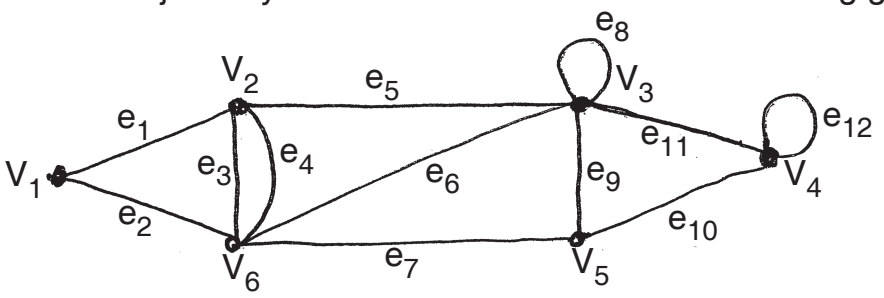
2) Define Bipartite graph and complete Bipartite graph.

3) Define complement of a graph. Hence draw complement of the following graph.



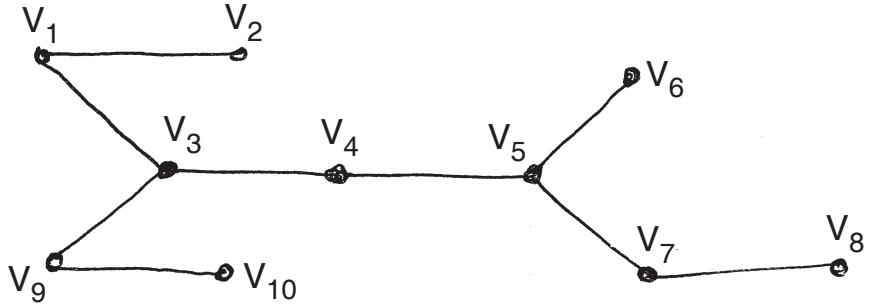
3. A) Answer the following (**any two**) : **8**

1) Find the adjacency and incidence matrix for the following graph.



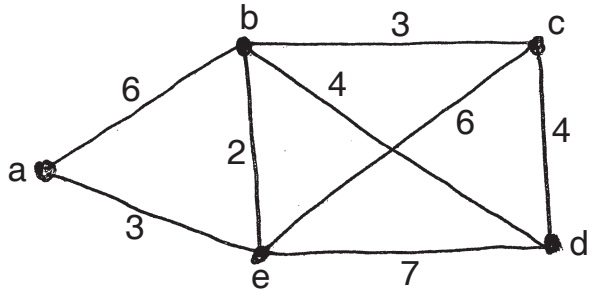
2) Write a brief note on Konigsberg's seven bridge problem.

3) Find eccentricity of every vertex of following tree. Also find its centre and radius.

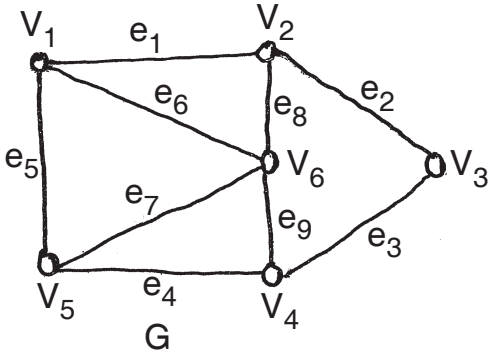


B) Answer the following (**any one**). **6**

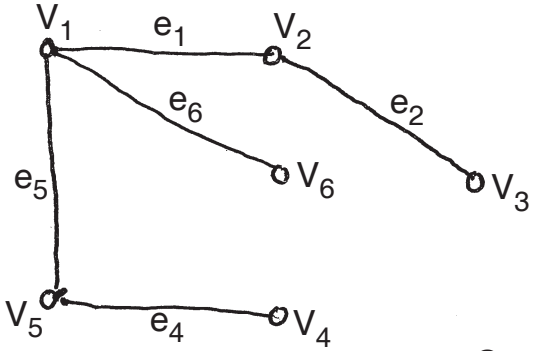
1) Apply Dijkstar's algorithm to a graph given below to find the shortest path from a to all.



2) Find all Fundamental circuits and cut sets for the following connected graph G w.r. to the spanning tree T.



G

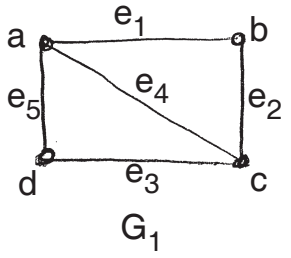


T

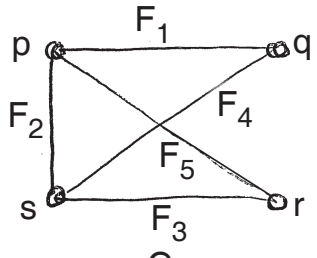
Set P

4. A) Answer the following (**any two**) : **10**

1) Show that the following two graphs are isomorphic.



G_1



G_2

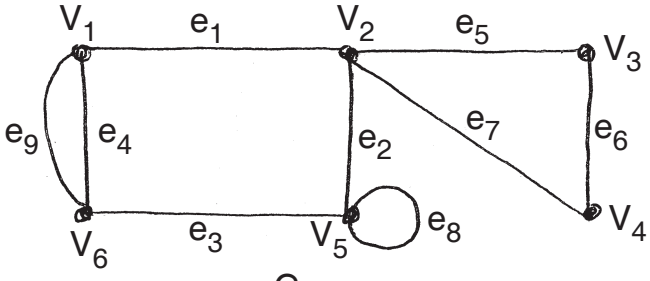
2) Explain the Chenese postman problem.

3) From the following graph, draw one pair of each of the following subgraphs.

I) Vertex disjoint

II) Edge disjoint

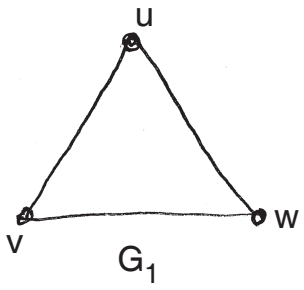
III) Neither vertex disjoint nor edge disjoint.



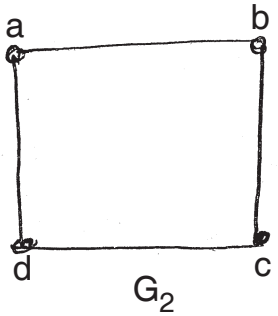
G

B) Answer the following (**any one**). **4**

1) Find and draw $G_1 \times G_2$ for the following pairs of graphs.



G_1



G_2

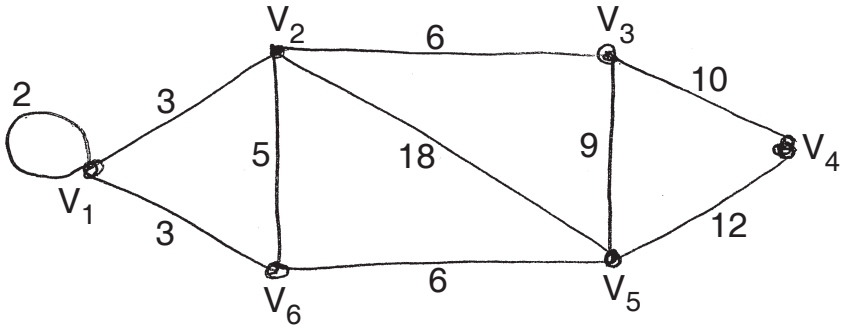
2) Give an example of graph which is

a) Eulerian but not Hamiltonian

b) Neither Hamiltonian nor Eulerian

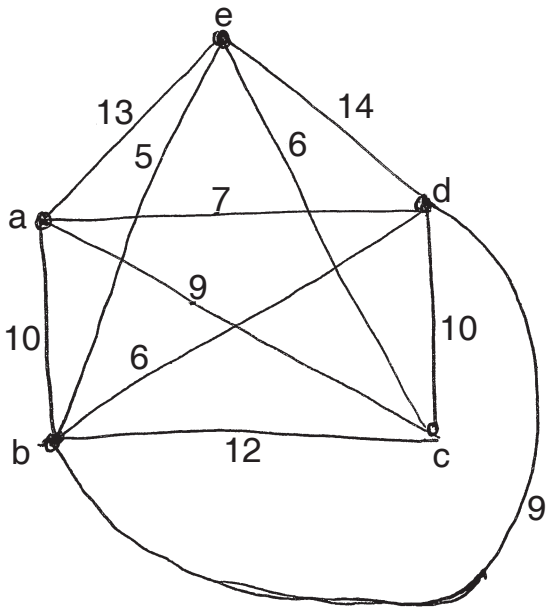
5. Answer the following (**any two**). **14**

1) Define spanning tree and by using Kruskal's algorithm find a shortest spanning tree and its weight of the following graph.



2) State and prove principle of Inclusion-Exclusion for three sets.

3) By starting with vertex 'a', solve the Travelling salesman problem for the following graph.



G

SLR-SL – 7

Seat No.	

Set P

B.Sc. (E.C.S.) – I (Semester – I) (CBCS) Examination, 2018
MATHEMATICS (Paper – VII)
Numerical Methods

Day and Date : Monday, 12-11-2018 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) ***Use*** *of scientific calculator is* ***allowed****.*

1. Choose the correct alternative for **each** of the following : **14**

1) In iteration method, the function $\phi(x)$ is selected in such a way that $|\phi'(x)|$
   a) = 1 b) < 1
   c) > 1 d) None of these

2) The equation $xe^x - \tan x = 0$ is _____ equation.
   a) Linear b) Ordinary differential
   c) Trigonometric d) Transcendental

3) Homogeneous system of linear equations is never
   a) Inconsistent b) Consistent
   c) Convergent d) None of these

4) One of the roots of the equation $f(x) = x^3 + 3x - 1 = 0$ lies in the interval
   a) (0, 1) b) (2, 3) c) (– 1, 0) d) (–1, – 2)

5) If f(x) is a polynomial in x of degree 'n' then $\Delta^n f(x)$ is
   a) Zero b) n
   c) (n – 1) d) Constant

6) By putting n = 2 in general quadrature formula, _____ formula is obtained.
   a) Trapezoidal b) Simpson's $\left(\frac{3}{8}\right)^{th}$
   c) Newton-Raphson d) None of these

7) In Runge-Kutta fourth order method, formula for K_4 is
   a) hf (x_0, y_0) b) $f(x_0 + h, y_0 + K_1)$
   c) $hf(x_0 + h, y_0 + K_3)$ d) $f(x_0 + h, y_0 + K_3)$

8) While doing addition of two numbers in the normalised floating point notation, exponents are
   a) Added b) Subtracted
   c) Made equal d) Multiplied

9) While doing multiplication of two numbers in the normalised floating point notation mantissa's should be
   a) Multiplied b) Added
   c) Divided d) Made equal

10) To find the numerical value of integration in the interval (a, b) by taking 'n' equidistant ordinates, the interval of integration (a, b) is divided into _____ equal subintervals.
   a) n b) (n – 1)
   c) n + 1 d) 2n

11) Euler's method is used to solve _____ equations.
   a) Non linear b) Interpolating
   c) Transcendental d) None of these

12) Process of estimating the value of dependent variable at an intermediate value is called as
   a) Extrapolation b) Extraction
   c) Interpolation d) Intermediation

13) The first approximate value of a root of the equation $f(x) = e^x – 5x = 0$ by Newton Raphson method taking initial approximation $x_0 = 0.26413$ is
   a) 0.25917 b) 0.26413
   c) 0.52197 d) 0.26909

14) If in a system of 3 linear equations in 3 variables, two variables are leading and one variable is non leading variable then the system posses _____ solutions.
   a) No b) Unique
   c) Trivial d) Infinitely many

2. A) Answer the following **(any four)** : **8**

1) Prove that $\Delta = \nabla E$.

2) State the formulae for K_1 and K_3, in Runge-Kutta fourth order method.

3) Write augmented matrix representing following system of linear equations : $x - 3y + 2z - 4w = 7$; $6y - w + 3 = 0$; $x + 3z = -4$.

4) Define absolute error and percentage error.

5) Define transcendental equation with suitable example.

B) Answer the following **(any two)** : **6**

1) Write an algorithm to find inverse of a square matrix A, by using row reduction method.

2) Evaluate $\left(\frac{\Delta^2}{E}\right)x^2$. Take h = 1.

3) Write an algorithm to find root of the equation f(x) = 0 by using bisection method.

3. A) Answer the following **(any two)** : **8**

1) Obtain the Taylor's series for y(x) and compute y(0.2), correct up to four decimal places. Given that $\frac{dy}{dx} = 1 + xy,\ y(0) = 1$.

2) Define the operators Δ and ∇. Hence show that $E = 1 + \Delta$.

3) Evaluate $\int_0^5 x^3 \cdot dx$ by using Trapezoidal rule. Take h = 1.

B) Answer the following **(any one)** : **6**

1) Write an algorithm to solve system of m-linear equations in n-variables by using Gauss Elimination Method.

2) Define relative error. Hence evaluate the following. Write the answers in the normalized floating point form.

i) 0.6928E6 + 5.4321E5

ii) 0.9871E4 – 0.5631E4

iii) 4.6512E5 $\times$ 3.5168E – 2

iv) 0.8889E – 3 $\div$ 0.2121E – 6

4. A) Answer the following **(any two)** : **10**

1) Evaluate $\int_0^{\pi/2} \cos x \cdot dx$ by using Simpson's $\left(\frac{1}{3}\right)^{rd}$ rule, by dividing the interval into 9 - equal parts.

2) Find real root of the equation $x^2 - x - 3 = 0$, in the interval [2, 3] by using Regula-Falsi method. Perform only two iterations.

3) By using Lagrange's interpolation formula, find the value of f(10) from the data given below.

x	6	7	9	12
y = f(x)	2.556	2.690	2.908	3.158

B) Answer the following **(any one)** : **4**

1) Derive Newton-Raphson method formula to find root of the equation f(x) = 0.

2) By using Euler's method, find y(1.6) by taking h = 0.2. Given that $\frac{dy}{dx} = x + y^2$ with $x_0 = 1.2$, $y_0 = 2.2$.

5. Answer the following **(any two)** : **14**

1) Evaluate $\int_3^6 \frac{4x}{(2+x)^2} \cdot dx$ by using Simpson's $\left(\frac{3}{8}\right)^{th}$ rule. Take h = 0.5.

2) Derive Newton's forward difference interpolation formula.

3) Solve the following system of linear equations by using Gauss-Elimination method.

$x - y - z + 2w = 1$; $2x + y + 4z + w = 1$; $3x + y + 5z + 4w = -3$.

———————

SLR-SL – 8

Seat No.	

Set P

B.Sc. (E.C.S.) (Part – I) (Semester – I) (CBCS) Examination, 2018
Paper – VIII – DESCRIPTIVE STATISTICS – I

Day and Date : Tuesday, 13-11-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *i)* ***All*** *questions are* ***compulsory****.*
ii) Figures to ***right*** *indicate* ***full*** *marks.*
iii) ***Use*** *of soundless calculator is* ***allowed****.*

1. Select most correct alternative : **14**

1) From Less than Ogive Curve, we can determine
   a) Median b) Quartiles c) Deciles d) All of these

2) The A.M. of 35, 34, 30, a, 32, 33, 25 is 27 then value of 'a' is
   a) 0 b) 25
   c) 27 d) None of these

3) Let A : First order central moment is zero.

   B : The measure of kurtosis is based on even ordered central moments. Then
   a) Only A is true b) Only B is true
   c) Both A and B are true d) Both A and B are false

4) Measure of dispersion that based on extreme observations is
   a) Q.D. b) S.D.
   c) Range d) None of these

5) Drinking habit of a person is
   a) an attribute b) discrete variable
   c) continuous variable d) none of these

6) The measure of central tendency that is based on all observations is
   a) A.M. b) Median
   c) Mode d) All of these

7) Quartiles are the values that divides the given set of observations into _____, when data is arranged in ascending order.
   a) two equal parts b) four equal parts
   c) three equal parts d) five equal parts

P.T.O.

8) Which of the following measure of dispersion is a relative measure of dispersion ?
   a) Range b) Q.D.
   c) S.D. d) Coefficient of Q.D.

9) The range and coefficient of range of the values 11, 10, 13, 14, 12, 20, 18, 19 are _____ respectively.
   a) 10 and 2/3 b) 20 and 1/3 c) 10 and 30 d) 10 and 1/3

10) If the value of coefficient of Kurtosis β_2 is 3, than the frequency distribution is said to be
   a) Leptokurtic b) Platykurtic c) Mesokurtic d) None of these

11) For a given frequency distribution, A.M. = 50 and median = mode = 50 then frequency distribution is
   a) Asymmetric b) Symmetric
   c) Negatively skewed d) Positively skewed

12) In a moderately skewed distribution, the mode and mean are 40 and 50 respectively then the value of median is
   a) 46.66 b) 47.66 c) 55 d) None of these

13) If the population under study is heterogeneous type then _____ sampling method provides a representative sample.
   a) SRSWR b) SRSWOR c) Stratified d) Systematic

14) For a given frequency distribution, the A.M. is 20 and variance is 81, then C.V. is
   a) 45 b) 20 c) 81 d) None of these

2. A) Attempt **any four** : **8**
   1) Find median for 37, 42, 55, 43, 44, 32, 30, 50 and 30.
   2) Define A.M.
   3) State any two advantages of sampling over census method.
   4) Given $Q_1 = 15$ and $Q_2 = 20$ and $Q_3 = 30$. Comment on skewness.
   5) First two raw moments are 5 and 26 respectively. Find S.D.

   B) Attempt **any two** : **6**
   1) Write a note on weighted A.M.
   2) The first 3 raw moments are 2, 9 and 105 respectively find third order central moment.
   3) Given : $n = 12$, $\sum x = 108$ and $\sum(x - 9)^2 = 144$. Find C.V.

3. A) Attempt **any two** : **8**

1) What is kurtosis ? Explain types of kurtosis.

2) Find third quartile for the data given below.

Marks	10	20	30	40	50
No. of Students	10	15	20	8	4

3) Find first four raw moments for the data given below :

X	1	2	4	6	8
F	4	8	12	6	2

B) Attempt **any one** : **6**

1) Define Pie-diagram. Explain construction of it.

2) For a group of 10 observations the mean was 50 letter on it was discovered that the observations 14 and 60 were misread as 40 and 16 respectively. Find correct mean.

4. A) Attempt **any two** : **10**

1) The monthly mean wages for factory A and B are Rs. 5,000 and Rs. 7,000 respectively and S.D. of wages are Rs. 100 and Rs. 130 respectively. In which factory wages shows more variability ? Justify your answer.

2) Describe Systematic sampling with illustration.

3) For a distribution A.M. is 7, variance is 16, $\mu_3 = -64$ and $\mu_4 = 162$. Find comment on skewness and kurtosis.

B) Attempt **any one** : **4**

1) Distinguish between absolute and relative measures of dispersion.

2) For a moderately skewd distribution, A.M. = 30, variance = 64 and coefficient of skewness is 0.4, find median.

5. Attempt **any two** : **14**

1) Draw histogram for the data given below hence determine mode.

Weight (Kgs)	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
No. of Persons	20	30	40	25	15	10

2) For a distribution the mean is 10, variance is 16, third central moment is 1 and fourth central moment is 1024. Obtain first four moments about origin.

3) Define variance state formula for combined variance and state its merits and demerits.

Set P

SLR-SL – 9

Seat No.	

Set P

B.Sc. (E.C.S.) (Part – I) (Semester – I) (CBCS) Examination, 2018
PROBABILITY THEORY – I (Paper – IX)

Day and Date : Wednesday, 14-11-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *i)* ***All*** *questions are* ***compulsory.***
ii) Figures to the ***right*** *indicate* ***full*** *marks.*
iii) ***Use*** *of Soundless calculator is* ***allowed****.*

1. Select most **correct** alternative : **14**

1) If $\binom{n}{8} = \binom{n}{7}$ then value of n is _____

a) 56 b) 1 c) 15 d) None of these

2) A random experiment has _____ possible outcomes.

a) More than one b) Less than one
c) 0 d) None of these

3) If A and B are independent events with $P(A \cap B) = 0.2$ $P(B) = 0.4$. Then $P(A)$ = _____

a) 0.2 b) 0.5 c) 1 d) None of these

4) A r.v. denoting number of seeds germinated out of 10 planted seeds follows _____ distribution.

a) Binomial b) Poisson
c) Hyper geometric d) Uniform

5) A probability distribution for that mean is always greater than variance is _____ distribution.

a) Binomial b) Poisson c) Uniform d) All of these

6) If A and B are two events which have no point in common, the events A and B are _____

a) Complementary to each other b) Independent

c) Mutually exclusive d) Dependent

7) If $E(X^2) = 1$ and $E(X) = 1$ then $V(-X) =$ _____

a) – 1 b) 0 c) 1 d) 2

8) The limiting case of binomial distribution is _____

a) Binomial distribution b) Hyper geometric distribution

c) Uniform distribution d) Poisson distribution

9) If A and B are independent events with $P(A) = 0.50$ and $P(B) = 0.25$ then $P(A \cup B) =$ _____

a) 0.625 b) 0.55 c) 1 d) 0.75

10) If five seeds are planted and total number of seeds germinated are recorded after a week then sample space is _____

a) (0, 5) b) {0, 1, 2, 3, 4, 5}

c) {1, 2, 3, 4, 5} d) None of these

11) If X and Y denotes numbers on uppermost faces when two fair dice are thrown together then $P(X = Y) =$ _____

a) 3/36 b) 6/36 c) 12/36 d) 1/36

12) Variance of a constant is always _____

a) Zero b) Constant itself

c) 1 d) None of these

13) An unbiased coin is tossed. Let A : getting Head, B : getting Tail, then events A and B are _____

a) Mutually exclusive b) Equally likely

c) Exhaustive d) All of these

14) Multiplication principle of counting provides number of ways in which _____ operations can be done sequentially.

a) One of the b) Some of the

c) All of the d) None of these

2. A) Attempt **any four** : **8**

1) Give the axiomatic definition of probability.

2) Define Poisson distribution.

3) State multiplication principle of counting.

4) The p.m.f. of discrete r.v. X is given below. Find value of k.

X	0	1	2	3	4
P(X)	K	2k	5k	2k	k

5) If $X \rightarrow B(10, 0.5)$. Calculate S.D. of r.v.X.

B) Attempt **any two** : **6**

1) Define discrete uniform distribution and give a real life situation where this distribution is applied.

2) In how many ways 2-digit numbers can be formed using the digits 1, 3, 5, 7, 9 if repetition is not allowed ?

3) Given $P(A) = 0.50$, $P(B) = 0.60$ & $P(A \cup B) = 0.9$. Find $P(A \cap B)$, $P(A^c)$.

3. A) Attempt **any two** : **8**

1) An unbiased coin is tossed and a fair die is rolled. If A = {Tail} and B = {6} then verify whether the events A and B are independent.

2) For the following probability distribution of a discrete r,v.X. Find V(X).

X	2	4	6	8	10
P(X)	0.3	0.1	0.2	0.3	0.1

3) Show that : $P(A^c) = 1 - P(A)$, where A^c is complement of A.

B) Attempt **any one** : **6**

1) State and prove addition law of probability.

2) Define c.d.f. and state its properties.

4. A) Attempt **any two** : **10**

1) Let X be Poisson variate with parameter m if P[X = 5] = 3/10 P[X = 4], find P(X > 3).

2) Prove that

$$\binom{n}{r}+\binom{n}{r-1}=\binom{n+1}{r};$$

3) If three unbiased coins are tossed simultaneously. Let X denotes number of times head appeared. Find p.m.f of X hence c.d.f of X and obtain P[X > 2].

B) Attempt **any one** : **4**

1) Show that probability of any event A on sample space always lies between 0 and 1.

2) If X $\rightarrow$ B (9, 0.45). Find P(X = 7).

5. Attempt **any two** : **14**

1) Define hyper geometric distribution. State its mean and variance. State the condition under which it is applicable.

2) An unbiased coin is tossed 3 times. Let A, B and C are the events that head occurs at 1st, 2nd and 3rd toss respectively. Discuss the independence of the events A, B and C.

3) A box contains 8 white balls and 6 black balls. Two balls are drawn at random one by one without replacement. Find the probability of drawing a) both white balls b) first white and second black balls.

SLR-SL – 10

Seat No.	

Set P

B.Sc. – I (ECS) (Semester – II) (Old CBCS) Examination, 2018
ENGLISH (Compulsory)
On Track – English Skills for Success

Day and Date : Saturday, 17-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

1. Rewrite the following sentences by choosing correct alternative. **14**

1) The first V2 missile was tested unsuccessfully in
   a) May 1942 b) June 1942 c) August 1942 d) Sept. 1942

2) _____ is the common denominator among all successful men and women, according to Dr. Abdul Kalam.
   a) wealth b) fame
   c) knowledge d) total commitment

3) Wernher Von Braun was _____ scientist who produced the Jupiter missile.
   a) An American b) A German c) A Russian d) A Roman

4) The First Session on the Parliament of Religion was open on
   a) 11 July 1993 b) 31 May 1993 c) 31 April 1993 d) 11 Sept. 1993

5) What is the vanishing act Palkhiwala writes about ?
   a) the removal of poverty b) the disappearance of inequality
   c) the removal of discrimination d) the disappearance of dissenters

6) The primary idea of human rights involves
   a) rights of the government
   b) rights for the government
   c) rights formulated by the government
   d) rights to operate against the government

7) _____ is the speakers of the poem Brahma.
   a) Ralph Waldo Emerson b) Brahma
   c) Slayer d) Vanished Gods

8) _____ is the colour of slayer in Brahma.
   a) black b) white c) yellow d) red

9) _____ is the godesses in the poem full moon.
   a) moon b) mother goose
   c) gethsmane d) pierced

10) She borrowed _____ Pen drive (belonging to Manas).
   a) Manas' b) Manas
   c) Manases d) None of the above

11) The birds flew into _____ nests.
   a) them b) these c) their d) there

12) Mother is _____ singer than me. (good)
   a) good b) better c) best d) all

13) She _____ (rarely) plays the violin now.
   a) rarely b) seldomly c) carefully d) forcefully

14) Write antonyms of the following.
   a) acquit b) clockwise

2. Answer **any seven** of the following in **two** or **three** lines. **14**

1) What was the motivating solgan of the American Civil War ?
2) What has caused more deaths than all the weapons of mass destruction ?
3) Who were other Indians present the Parliament of Religion ?
4) What is the complex than Von Braun attributed to Americans ?
5) What happened the first V2 missile when it was first test ?
6) Why was Vivekananda not prepared for the weather conditions in Chicago ?
7) What is the origin of the poem Brahma ?
8) Why is the moon a brilliant challenger of rocket experts ?

3. A) Write short note on **any two** of the following. **8**

1) Palkhiwala's view about human rights.
2) Parliament of Religion.
3) Dr. Kalam's attitude on work.

B) Answer **any three** of the following in **30** to **40** words. **6**

1) What is the origin and background of the poem Brahma ?
2) Who does the speaker address at the end of the poem Brahma ?
3) Who were the watchers of the moon ? What happened to them ?
4) How was the moon's light made holy in Gethsemane ?

4. You are the secretary of the Bharat Sport Clubin your town. The meeting of the office bearer of the club is scheduled on 15 of the next month prepare an agenda and minutes for the meeting. **14**

OR

Write an email forwarding job application for the post of software developer in Patel IT Solutions. **14**

5. Prepare a curriculum vitae to apply for the post of software developer. **14**

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Seat No.	

SLR-SL – 11

Set P

B.Sc. – I (ECS) (Semester – II) Examination, 2018
Paper – I : ENGLISH (Compulsory) (New) (CBCS)
Golden Petals

Day and Date : Saturday, 17-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Rewrite the following sentences by using the correct options : **14**

1) *Letter to a Teacher* exposes the class bias of the _____ system.
   a) political b) cultural
   c) educational d) social

2) The claims that men and women make on us are beyond
   a) imagination b) enumeration
   c) expectations d) evaluation

3) Jim Corbett was a colonel with the British Army during the _____ India.
   a) colonial b) postcolonial
   c) neocolonial d) free

4) The gymnastics teacher wanted the poor boys to play
   a) cricket b) rugby c) football d) basketball

5) Social service in the modern times is _____ neighbours' aspirations.
   a) criticizing b) understanding
   c) evaluating d) underestimating

6) After having hunted the man-eater, Corbett felt that he didn't give the animal a _____chance.
   a) spiteful b) sporting c) spiriting d) spiritual

7) At the break of day, the weavers wove a gay garment for a new-born
   a) puppy b) monster c) baby d) pet
8) Maya Angelou was worried about the death of her
   a) enemies b) critics
   c) rivals d) near and dear ones
9) The moonlight chill is paralleled with _____by Sarojini Naidu.
   a) birth b) death
   c) regeneration d) salvation
10) *When I think of death* is
   a) a sonnet b) a lyric
   c) a free verse d) an ode
11) He was sanctioned a _____of 10 lakh rupees.
   a) lone b) loan c) loun d) loen
12) We celebrate Mahatma Gandhi's _____ Anniversary on 2nd October.
   a) berth b) barth c) birth d) breath
13) She runs a _____shop.
   a) stationary b) stationer
   c) stationery d) stationory
14) The _____ today is quite pleasant.
   a) wither b) weather c) whether d) whather

2. Answer the following bits in **two** to **three** sentences **each** (**any seven**) : **14**

1) Why did the students feel that their teacher would forget them ?
2) Describe the two types of neighbours according to Ernest Barker.
3) How did Jim Corbett suppress his cough ?
4) Why did the poor children fail the gymnastics examination ?
5) What are the natural claims of our neighbours ?
6) What was the tiger doing when Corbett went near it ?
7) What were the poor boys good at ?
8) What is the meal of a fully grown tiger ?

3. A) Answer the following questions in about **50** words **each (any two)** : **8**

   1) What are the qualities of a good email ?
   2) What is the format of a formal email ?
   3) What is the process of writing a blog ?

   B) Explain with reference to the context **(any two)** : **6**

   1) "Weavers, weaving at fall of night,
      Why do you weave a garment so bright ?
      Like the plumes of a peacock, purple and green,
      We weave the marriage-veils of a queen".

   2) "I find it impossible to let a friend or relative
      Go into that country of no return".

   3) "Weavers, weaving solemn and still,
      What do you weave in the moonlight chill ? ....
      White as a feather and white as a cloud,
      We weave a dead man's funeral shroud".

4. A) What is an interview ? Write a detailed note on the objectives of interview and the types of interview.

   OR

   B) Write the script of a group discussion on the topic "Corruption: A Monster" discussed by Amit, Deepika, Saleem and Mohan. **14**

5. What is the importance of Minutes ? Bring out the types of Minutes along with its features. **14**

SLR-SL – 12

Seat No.	

Set P

B.Sc. (ECS) Part – I (Semester – II) (CBCS) Examination, 2018
INTRODUCTION TO WEB DESIGNING (Paper – II)

Day and Date : Monday, 19-11-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose the **correct** alternative : **14**

1) The default character encoding in HTML 5 is _____
   a) UTF-8 b) UTF-16
   c) ISO-8859-1 d) ASCII

2) _____ is correct HTML syntax for adding a background color in web page.
   a) <body color = ″Gray″>
   b) <body backgroundcolor = ″Gray″>
   c) <body bgcolor = ″Gray″>
   d)<body backcolor = ″Gray″>

3) In HTML 5, list of predefined options are give by _____ tag.
   a) <prelist> b) <specificlist>
   c) <datalist> d) <sourcelist>

4) <!doctype> declaration in HTML 5 is _____
   a) Optional b) Only Once
   c) Twice d) Any number

5) Cascading Style Sheets define style and appearance using _____
   a) functions with parameters and return values
   b) techniques with function and inline elements
   c) techniques with block and inline elements
   d) rules with selectors, properties and their values

6) _____technique is used to access any element of form object.
   a) document.forms.elements[0]
   b) document[0].forms[0].elements[0]
   c) document.forms[0].elements[0]
   d) document[0].forms.elements

7) _____ is not property of <video> element.
   a) Abort b) Currenttime
   c) Duration d) Currentsrc

8) The _____ attribute adds space within each cell.
   a) Cellspacing b) Cellpadding
   c) Width d) Height

9) The _____ attribute of <BODY> tag sets color of hypertext links.
   a) Link b) Alink
   c) Vlink d) Color

10) The output of ParseFloat (˝3e-1xyz˝). is _____
   a) 3e-1 b) xyz
   c) 3.1 d) 0.3

11) getDay() method of Data object return _____
   a) Weekday number (0-6) b) Day Number(1-31)
   c) Day Name d) Current Date

12) _____ property of History object returns the number of URLs in the history list.
   a) URL b) Historylist
   c) Length d) URLlist

13) _____of the following value of cursor shows it as the 'I' bar.
   a) Pointer b) Crosshair
   c) Move d) None of the above

14) If we want define style for an unique element, then _____ css selector will we use.
   a) ID b) Class
   c) name d) text

2. Answer the following (**any 7**) : **14**
   1) List out any four text formatting tags with example.
   2) List out value of type attribute of <input> tag.
   3) What is Selectors, Properties and Values ?
   4) How to declare class and Id in css ? Give example.
   5) What is placeholder tage. Give example.
   6) What is Use of History Object ? List out any 2 methods of history object.
   7) Explain any two text related properties of css with example.
   8) Explain different dialogboxes used in JavaScript.
   9) What is LAN, MAN and WAN ?

3. A) Answer the following (**any 2**) : **10**
      1) How to use graphics in HTML 5 ? Explain with example.
      2) Explain Border related and pading related css properties with example.
      3) Explain frame and frameset tag with example.

   B) Design web page which validate email and compare password. **4**

4. Answer the following (**any 2**) : **14**
   1) What is navigation ? Explain navigation technique with example.
   2) What are different operator used in JavaScript.
   3) Explain different control structures used in JavaScript with example.

5. Answer the following (**any 2**) : **14**
   1) Write JavaScript which checks prime number and Armstrong number.
   2) Design web page which use nested list.
   3) What is network topology ? Explain different topologies in detail.

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SLR-SL – 13

Seat No.	

Set **P**

B.Sc. (ECS) – I (Semester – II) (CBCS) Examination, 2018
INTRODUCTION TO PROGRAMMING USING C – II (Paper – III)

Day and Date : Tuesday, 20-11-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose **correct** alternatives. **14**

1) The keyword used to transfer control from a function back to the calling function is _____

a) switch
b) goto
c) go back
d) return

2) Which function definition will run correctly ?

a) int sum(int k, int m)
return (k + m) ;
b) int sum(int k, int m)
{return (k + m) ;}
c) int sum(k, m)
return (k + m) ;
d) None of the mentioned

3) Any C program

a) Must contain at least one function
b) Need not contain any function
c) Needs input data
d) None of the above

4) The default parameter passing mechanism is

a) Call by value
b) Call by reference
c) Call by value result
d) None of these

P.T.O.

5) Assume that float takes 4 bytes, predict the output of following program

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float arr [5] = {12.5, 10.0, 13.5, 90.5, 0.5} ;
    float *ptr1 = &arr[0] ;
    float *ptr2 = ptr1 + 3 ;
    printf("%f", *ptr2) ;
    printf("%d", ptr2 – ptr1) ;
    getch();
}
```

a) 90.500000 3
b) 90.500000 12
c) 10.000000 12
d) 0.500000 3

6) The statement int**a ;

a) is illegal
b) is illegal but meaningless
c) is syntactically and semantically correct
d) none of these

7) User defined data type can be derived by _____

a) struct
b) enum
c) typedef
d) all of the mentioned

8) Number of bytes in memory taken by the below structure is ?

```
struct test
{
        int k ;
        char c ;
} ;
```

a) Multiple of integer size
b) Integer size + character size
c) Depends on the platform
d) Multiple of word size

9) What is the similarity between a structure, union and enumeration ?

a) All of them let you define new values
b) All of them let you define new data types
c) All of them let you define new pointers
d) All of them let you define new structures

10) Which of the following ; statements correct about the below code ?
maruti.engine.bolts = 25 ;
a) Structure bolts is nested within structure engine
b) Structure engine is nested within structure maruti
c) Structure maruti is nested within structure engine
d) Structure maruti is nested within strcuture bolts

11) The value of EOF is _____
a) –1 b) 0 c) 1 d) 10

12) Which of the following mode argument is used to truncate ?
a) a b) f c) w d) t

13) A preprocessor command
a) Need not start on a new line
b) Need not start on the first column
c) Has # as the first character
d) Comes before the first executable statement

14) Each screen point is referred to as _____
a) Resolution b) Pixel c) Persistence d) Dot Pitch

2. Attempt **any seven** questions from the followings : **14**
1) Define and declare structure within structure.
2) What is the purpose of register keyword ?
3) List the applications of pointer.
4) What is the difference between structure and union ?
5) What is the use of “#define” in C ?
6) What is file pointer in C ?
7) Define and declare getpixel() and putpixel() functions.
8) Define typedef and how structure is declared using typedef.
9) What is function prototype ?

3. A) Attempt **any two** questions from the followings : **10**
   1) Write a short note on random access of file.
   2) Explain array of structure with example.
   3) Write a program to find the factorial of a number using recursion.

   B) What is C preprocessor directive ? List important preprocessor directives. **4**

4. Attempt **any two** questions from the followings : **14**
   1) What is pointer ? Write a program to swap two numbers by using pointers.
   2) Explain different file operations.
   3) Write a program that stores the information (name, roll and marks) of a student and displays it on the screen using structures.

5. Attempt **any two** questions from the followings : **14**
   1) Explain various storage classes in C with example.
   2) Write a program to read information from keyboard and write into the file, then read data from the file and display on the screen (console).
   3) What is Structure ? Explain pointer to structure with example.

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SLR-SL – 14

Seat No.	

Set **P**

B.Sc. (ECS) – I (Semester – II) (CBCS Pattern) Examination, 2018
Electronics
LINEAR ELECTRONICS – II (Paper – IV)

Day and Date : Thursday, 22-11-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Multiple Choice Questions. **14**

1) MOSFET has _____ input impedance.
   a) Low b) Very low c) High d) Very high

2) _____ transducers are self generating transducers.
   a) Active b) Passive c) Both a and b d) None

3) RTD is a _____ type transducer.
   a) Negative temp. coefficient b) Positive temp. coefficient
   c) Neutral d) None

4) Oscillator is an electronic device which converts _____
   a) ac to ac b) dc to ac
   c) dc to dc d) None of the above

5) According to barkhousen criteria loop gain $A\beta$ is always keep _____ to get constant oscillations.
   a) <1 b) 0 c) >1 d) None

6) _____ multivibrator are called free running multivibrator.
   a) Monostable b) Bistable c) Astable d) None

7) Thermistor is a _____ transducer.
   a) Pressure b) Light sensitive
   c) Thermal d) None

P.T.O.

8) The frequency of phase shift oscillator is given by _____ formula.

a) $1/2\pi RC\sqrt{6}$ b) $1/2\pi FC\sqrt{6}$ c) $1/2\pi R\sqrt{6}$ d) $1/2\pi C\sqrt{6}$

9) In MOSFET _____ layer is used to increase input resistance.

a) Semiconductor b) SIO_2 c) Impurity d) None

10) The frequency of oscillations remain stable in _____ oscillator.

a) Crystal b) Hartley c) Colpitt d) None

11) The gate voltage at which drain current cuts-off is called _____

a) Cut-in-voltage b) Pinchoff voltage

c) Offset voltage d) None

12) If any IC contains components above 1000 then such integration are called _____

a) SSI b) MSI c) LSI d) VLSI

13) TTL logic uses power supply _____

a) 5 V b) 10 V c) 3 V d) 15 V

14) In _____ components mounting is only on one side of PCB.

a) SMD b) SMC c) SMT d) PTH

2. Answer **any seven** of the following : **14**

1) Give advantages of FET.
2) Give four measurement characteristics of sensors.
3) Compare between TTL and MOS family.
4) What is negative feedback ? What is positive feedback ?
5) What is noise margin ?
6) Draw symbol of n-channel and p-channel depletion MOSFET.
7) Define : 1) Oscillator 2) Multivibrator.
8) What is transducer ? What are two main types of transducer ?
9) Draw diagram of PAL.

3. A) Answer **any two** of the following : **10**
   1) Explain n-channel FET.
   2) Explain Astable Multivibrator using IC 555.
   3) Explain crystal oscillator.

   B) Explain PLA. **4**

4. Attempt **any two** of the following : **14**
   1) Explain Complex Programmable Logical Device (CPLD).
   2) Explain Thermocouple Transducer.
   3) Explain Phase Shift Oscillator.

5. Attempt **any two** of the following : **14**
   1) Explain SMT and SMD.
   2) Explain pH sensor and IR sensor.
   3) Explain N-channel Enhancement MOSFET.

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SLR-SL – 15

Seat No.	

Set P

B.Sc. (ECS) – I (Semester – II) (CBCS Pattern) Examination, 2018
DIGITAL ELECTRONICS AND MICROPROCESSOR – II
(Paper – V)

Day and Date : Saturday, 24-11-2018 Total Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*

2) Figures to the ***right*** *place indicate* ***full*** *marks.*

3) ***Neat*** *diagram* ***must*** *be drawn* ***wherever*** *necessary.*

1. Select **correct** alternatives. **14**

1) To design a DRAM _____ is used.

a) Resistor b) Capacitor

c) Inductor d) All above

2) Data bus of 8085 microprocessor is _____ bit.

a) 16 b) 8 c) 32 d) 4

3) In binary weighted register network _____ values of resistance are use.

a) Different b) Same

c) Only two d) Only one

4) The information stored in ROM is we can

a) Only write b) Only read

c) Read and write d) All of these

5) 8085 microprocessor is _____ pin IC.

a) 20 b) 30 c) 18 d) 40

P.T.O.

6) _____ is a DAC.

a) R-2R b) SAR c) Dual slope d) All above

7) Selected information is erased from

a) RAM b) EEPROM c) UVPROM d) PROM

8) Comparator is used in _____ ADC.

a) Single slope ADC b) SAR

c) R-2R network d) None of above

9) _____ interrupt is lowest priority interrupt.

a) INTR b) RST7.5

c) RST6.5 d) RST5.5

10) The HLT is _____ type of instruction.

a) Data transfer b) Arithmetic

c) Machine control d) Logical

11) ADC 0808 _____ bit ADC.

a) 8 b) 16 c) 10 d) None of the above

12) _____ is the data transfer instruction.

a) MOV b) ACI c) SUB d) SBB

13) Zero flag is set when result is

a) Non-zero b) Zero

c) One d) All of above

14) The % of error is _____

a) Resolution b) Accuracy

c) Monotonocity d) Linearity

2. Attempt **any seven** of the following : **14**

   1) What are the different applications of DAC ?
   2) Give the four parameters of memory.
   3) What is the instruction format of for 8085 microprocessor ?
   4) Write a note on instruction cycle.
   5) Explain monotonocity and offset error of the ADC.
   6) Write a note on EPROM.
   7) Explain function of comparator.
   8) State the different types of instruction.
   9) Write assembly language program for subtraction of two 8 bit numbers.

3. A) Attempt **any two** of the following : **10**

      1) Explain dynamic memory RAM cell.
      2) Explain different arithmetic instruction.
      3) Explain different type of addressing modes of 8085.

   B) Explain the RAM chip structure. **4**

4. Attempt **any two** of the following : **14**

   1) Explain successive approximation ADC.
   2) Explain architecture of 8085 microprocessor.
   3) Explain static RAM cell by using transistor.

5. Attempt **any two** of the following : **14**

   1) Explain with suitable diagram binary weighted DAC.
   2) Explain Bus architecture of 8085 microprocessor.
   3) Explain dual slope ADC.

SLR-SL – 16

Seat No.	

Set P

B.Sc. (E.C.S.) – I (Semester – II) (CBCS Pattern) Examination, 2018
MATHEMATICS (Paper – VI)
Mathematical Algebra

Day and Date : Monday, 26-11-2018 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

***Instructions** : 1) **All** questions are **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*
*3) Use of scientific calculator is **allowed**.*

1. Choose the correct alternative. **14**

1) If a function 'f' is a onto function then
   a) range of 'f' is equal to co-domain of 'f'
   b) range of 'f' is equal to domain of 'f'
   c) co-domain of f is subset of range
   d) domain of f = co-domain of f

2) Contrapositive of conditional statement. $q \rightarrow p$ is
   a) $\sim q \rightarrow \sim p$ b) $\sim p \rightarrow \sim q$ c) $p \rightarrow q$ d) $q \vee p$

3) The least positive number for which the statement $2^n \leq n!$ is true is
   a) 0 b) 1
   c) 3 d) None of these

4) The relation R defined on set A is said to be reflexive if
   a) a R a $\forall$ a $\in$ A
   b) a R b implies bRa, a, b $\in$ A
   c) a R a for a $\in$ A
   d) a R b and b R a implies a = b

5) Real part and imaginary part of complex number $z = i^3$ is _____ and _____ respectively.
   a) 0 and – 1 b) – 1 and 0
   c) j d) 0 and – i

P.T.O.

6) If z_1 and z_2 are two complex numbers in polar form then $|z_1 . z_2|$ =
   a) $|z_1| \, | z_2|$ b) $|z_1| - | z_2|$
   c) $|z_1| + | z_2|$ d) $Argz_1 + Argz_2$

7) Identify element 'e' w.r.t. binary operation $*$, where $a * b = a + b - 1$, for $a, b \in z$ is
   a) – 1 b) a c) – b d) 1

8) If $(x * y) * z = x *(y * z)$, then the operation $*$ is said to be
   a) Commutative b) Distributive
   c) Invertive d) None of these

9) If $f(x) = x^3 - 5x + 3$, then $f(-2)$ is
   a) 5 b) –15 c) – 5 d) 21

10) The modulus of complex number $z = (- 1 + i)^{-1}$ is
   a) $\sqrt{2}$ b) $\frac{1}{\sqrt{2}}$
   c) $\frac{1}{2\sqrt{2}}$ d) $2\sqrt{2}$

11) If every element of set A is related to every element of set B, then relation R is called as _____ relation.
   a) Universal relation b) Void relation
   c) Relation d) Function

12) If every element of set A is related to unique element of set B, then relation is called as
   a) Universal relation b) Void relation
   c) Relation d) Function

13) If both the statements p and q are false statements then the truth value of their double implication is
   a) F b) T
   c) T and F d) Cannot be determined

14) If $p_1, p_2, p_3, \vdash q$ then statement 'q' is called as
   a) Conclusion b) Primise
   c) Hypothesis d) None of these

2. Attempt **any seven** : **14**
   1) State first principle of finite induction.
   2) If p and q are false and r and s are true statements, then find truth value of compound statements.
      $[(p \vee s) \rightarrow \sim(q \leftrightarrow r)] \leftrightarrow [(\sim p \wedge s) \rightarrow q]$.
   3) Define partial ordering relation.
   4) Define one-one function.
   5) Find modulus and argument of complex number $z = \sqrt{3} + i$.
   6) Let $*$ be the binary operation defind on set Q by $a * b = \frac{a-b}{2}$, $a, b \in Q$. Find identity element 'e' w.r.t $*$ if exist.
   7) Define converse and inverse of conditional statement $p \rightarrow q$.
   8) Let R be the relation defined as set A = {a, b, c, d} given by R= {(a,a), (a, c), (a, d), (b, a) (b, c), (c, c), (c, a) (c, b), (d, a), (d, c) (d, d)}. Draw the diagraph of relation R.
   9) Prepare the truth table of $p \rightarrow \sim (q \wedge r)$.

3. A) Attempt **any two** of the following : **10**
      1) Prove that, composition of two one-one function is one-one.
      2) By using principle of mathematical induction, show that, sum of squares of first 'n' natural numbers is given by, $\frac{n(n+1)(2n+1)}{6}$, for all $n \geq 1$.
      3) Determine whether the following statement is tautology or contradiction or neither.
         $[(p \leftrightarrow \sim q) \rightarrow \sim p] \wedge [(p \vee q) \rightarrow \sim q]$.

   B) Find the real and imaginary part of complex number $z = (-2 - 3i)^{-1}$. **4**

4. Attempt **any two** of the following : **14**
   1) By using Marshall's Algorithm, find the transistive closure of relation, R = {(p, r) (p, s) (q, p) (r, s), (s, r) (s, p); (s, s)} defined as set A = {p, q, r, s}. Also draw digraph of relation R*.
   2) Test the validity of following argument by using truth table
      $p \rightarrow \sim q, \sim p \vee r, \sim r \vdash (q \rightarrow r) \leftrightarrow q$.
   3) Determine whether, the following operation $*$ defined on set Q by, $a * b = a + b - 2$ for $a, b \in z$. Is commutative, associative. Is identity element exist ? If so find inverse of each element, in z.

5. Attempt **any two** of the following : **14**

   1) Define complex number. Let z_1 and z_2 be two complex numbers then prove that $\left| \frac{z_1}{z_2} \right| = \frac{|z_1|}{|z_2|}$ and Arg $\left(z_1 / z_2 \right)$ = Arg z_1 – Arg z_2.

   2) Define inverse of the function. Hence show that following function $f : R - \{4/5\} \to R - \{0\}$ defined by $f(x) = \frac{1}{5x - 4}$, for all $x \in R - \{4/5\}$, is invertible.

   3) State both Demorgan's laws and distributive laws in logic. Prove any one of distributive law by truth table.

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SLR-SL – 17

Seat No.	

Set P

B.Sc. (ECS) – I (Semester – II) (CBCS) Examination, 2018
MATHEMATICS (Paper – VII)
Operations Research

Day and Date : Tuesday, 27-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) ***Use*** *of scientific calculator is* ***allowed****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) Graph paper will be ***provided*** *if necessary.*

1. Choose the correct alternative : **14**

1) Hungarian method is used to solve _____
   a) L.P.P. b) T.P. c) A. P. d) Dual L.P.P.

2) In MODI method, if all $d_{ij} \geq 0$, then at that stage solution is
   a) optimum b) unbalanced
   c) alternate optimum d) none of these

3) The coefficient of surplus variable in objective function of maximization type is _____
   a) +M b) –M c) Zero d) One

4) Every L.P.P. is associated with another L.P.P. is called as _____ of the problem.
   a) Dual b) Duel
   c) Primal d) None of these

5) The objective of A.P. is to _____ the total assignment cost.
   a) Maximize b) Minimize
   c) Optimize d) None of these

6) In an I.B.F.S. of T.P., the number of occupied cells must be _____, where m is number of rows and n is number of columns.
   a) m – n + 1 b) m – n – 1
   c) m + n – 1 d) m n – 1

P.T.O.

7) If number of jobs is not equal to number of facilities then A.P. is said to be _____
   a) balanced b) unbalanced
   c) restricted d) none of these
8) _____ method is better to find IBFS of T.P.
   a) Least cost b) North-West
   c) VAM d) MODI
9) The L.P.P. is said to be in standard form if all the constraints are _____ type except the non-negativity constraints.
   a) = b) $\geq$ c) $\leq$ d) $\leq$ or $\geq$
10) If for given T.P., total supply is less than total demand, then dummy _____ row in the given T.P. is introduced.
   a) Supply b) Demand
   c) Destination d) None of these
11) The linear conditions in L.P.P. are known as _____
   a) constraints b) objective functions
   c) equations d) none of these
12) The dual of L.P.P. is called as _____
   a) semi dual b) semi primal
   c) primal T.P. d) primal
13) If primal of L.P.P. contains 3-constraints and 5 variables and its dual L.P.P. will contain _____ constraints and _____ variables respectively.
   a) 3, 5 b) 5, 3 c) 3, 3 d) 5, 5
14) If feasible region does not exist in graphical solution of L.P.P., then LPP has _____ solutions.
   a) unique b) many
   c) unbounded d) no

2. Attempt **any seven** of the following : **14**
   1) Define unbalanced T.P.
   2) Define slack variable.
   3) Define surplus variable.
   4) What is degenerate solution in T.P. ?
   5) Write the formula to find opportunity cost for unoccupied cells.

6) Convert the following A.P. of maximization type into minimization type :

	I	II	III
P	4	27	12
Q	31	9	21
R	17	4	26

7) Write the standard form of L.P.P. :

Maximize : $z = 15x + 23y$

Subject to : $2x + 4y \leq 4$; $x \leq 5$; $3x + 5y \leq 11$, $x, y \geq 0$

8) Define decision variable.

9) Write the names of methods to find I.B.F.S. of T.P.

3. A) Attempt **any two** of the following : **10**

1) Write the dual of the following L.P.P. :

Minimize : $z = 5x - 3y + 4z$

Subject to : $4x + 3y \geq 6$

$2x + 3y - 5z \geq 6$

$x - y \geq 6$

$x, y, z \geq 0$

2) Find I.B.F.S. by North-West corner method :

Destination → / **Sources ↓**	W_1	W_2	W_3	W_4	**Capacity**
F_1	19	30	50	10	7
F_2	70	30	40	60	9
F_3	40	8	70	20	18
Demand	5	8	7	14	34

3) Solve the following A.P. to minimize cost :

	I	II	III	IV	V
A	11	17	8	16	15
B	9	7	12	6	15
C	13	16	15	12	16
D	21	24	17	28	26
E	14	10	12	11	15

B) Give the difference between T.P. and A.P. **4**

4. Attempt **any two** of the following : **14**

1) Solve the L.P.P. by simplex method :

Maximize : $z = 3x + 2y$,

Subject to : $x + y \leq 4$

$x - y \leq 2$

$x, y \geq 0$

2) Solve the following A.P. to minimize cost :

	A_1	A_2	A_3	A_4	A_5	A_6
B_1	12	10	15	22	18	8
B_2	10	18	25	15	16	12
B_3	11	10	3	8	5	9
B_4	6	14	10	13	13	12
B_5	8	12	11	7	13	10

3) Find I.B.F.S. by VAM.

	Q	R	S	T	a_i
A	6	5	8	5	30
B	5	11	9	7	40
C	8	9	7	13	50
b_j	35	28	32	35	120

5. Attempt **any two** of the following : **14**

1) Find optimum solution of following I.B.F.S. by MODI method.

Destination → / **Origin ↓**	**D_1**	**D_2**	**D_3**	**D_4**	**Availability**
O_1	23	27	16	18 (30)	30
O_2	12 (5)	17 (35)	20	51	40
O_3	22 (17)	28	12 (25)	32 (11)	53
Requirement	22	35	25	41	

2) Write an algorithm to solve A.P. by Hungarian method.

3) Solve L.P.P. by graphical method :

Maximize : $z = 3x + 5y$

Subject to : $x + 2y \leq 2000$

$x + y \leq 1500$

$y \leq 600$

$x, y \geq 0$

SLR-SL – 18

Seat No.	

Set **P**

B.Sc. (ECS) (Part – I) (Semester – II) (CBCS – Pattern) Examination, 2018
Paper – VIII : DESCRIPTIVE STATISTICS – II

Day and Date : Wednesday, 28-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *i)* ***All*** *questions are* ***compulsory****.*
ii) Figures to ***right*** *indicate* ***full*** *marks.*
iii) ***Use*** *of* ***any*** *type of calculator is* ***allowed****.*

1. Select most correct alternative : **14**

1) The idea of product of moment correlation coefficient was given by

a) R. A. Fisher b) Francis Galton

c) Karl Pearson d) Spearman

2) If r = 0, the two variables are

a) Linearly related b) Dependent

c) Not lineraly related d) None of the above

3) If $b_{yx} > 1$, then b_{xy} is

a) Less than 1 b) Greater than 1

c) Equal to 1 d) Not certain

4) Relation between correlation coefficient and regression coefficient is

a) $r = \sqrt{b_{xy} * b_{yx}}$ (with sigh of regression coefficient)

b) $r = (b_{xy} * b_{yx})/2$ (with sign of regression coefficient)

c) $r = b_{xy} * b_{yx}$ (with sign of regression coefficient)

d) b_{xy}/b_{yx} (with sign of regression coefficient)

5) Range of correlation coeffient is

a) 0 to 1 b) – 1 to 1 c) 0 to ∞ d) – ∞ to +∞

6) If $r_{12} = 0$ and $r_{13} = 0$ then $r_{12.3}$ is equal to
   a) 1 b) 0
   c) 0.5 d) None of the above

7) The range of $R_{1.23}$ is
   a) 0 to 1 b) – 1 to +1
   c) – 1 to 0 d) None of the above

8) If $r < 0$, then b_{xy} is
   a) Positive b) Negative
   c) Not certain d) None of these

9) Laspeyre's price index formula uses _____ as the weights.
   a) Current year's quantities b) Base year's prices
   c) Current year's prices d) Base year's quantities

10) The time series data is arranged
   a) Geographically b) Qualitatively
   c) Quantitatively d) Chronologically

11) Fisher index number is _____ mean of Laspeyre's and Passche's index number.
   a) Geometric b) Arithmetic
   c) Harmonic d) None of the above

12) Variation due to earthquakes is belongs to
   a) Cyclic variation b) Secular trend
   c) Irregular variation d) None of the above

13) If the line of regression of Y on X and X on Y are X + Y = 15 and X + 2Y = 20 respectively, then A.M. of X is _____
   a) 10 b) 05
   c) 7.5 d) None of these

14) The variation in sales of cotton clothes is attached to the component of the time series
   a) Secular trend b) Seasonal variation
   c) Cyclical variation d) All of these

2. Attempt **any seven** of the following : **14**

1) Define Fisher price index number.

2) Write the interpretation of correlation coefficient if r = +1, r = – 1, r = 0.

3) If $\sum d_1^2 = 416$, n = 12 then find the value of rank correlation.

4) Define index number.

5) Define Regression.

6) If $r_{12} = 0.7$, $r_{13} = r_{23} = 0.5$ find $r_{12.3}$.

7) Explain the concept of Index Number.

8) If Cov (X, Y) = – 13.0 and $\sigma_x = 3.60$ and $\sigma_y = 4.07$ then find value of r.

9) Define Karl Pearson's coefficient of correlation.

3. A) Attempt **any two** of the following : **10**

1) Ten students got following marks in Math's and Stat.

Math's	8	36	98	25	75	82	92	62	65	35
Stat	84	51	91	60	68	62	86	58	35	49

Find the Spearman's Rank correlation and give conclusion.

2) Compute 3 year moving average for following data.

Year	1	2	3	4	5	6
Sales	14	15	10	8	9	11

3) For the following data fit straight line trend by least square method and estimate value for year 2007.

Year	2000	2001	2002	2003	2004	2005
Profit	83	92	71	90	160	191

B) Discuss the irregular variation in Time Series. **4**

4. Attempt **any two** of the following : **14**

1) The two lines of regression are 3X – Y – 5 = 0 and 4X – 3Y = 0.

I) Find the mean of X and Y.

II) Correlation between X and Y.

2) Find Fisher price index number for following data :

Products	Year 2014		Year 2016	
	Price	Quantity	Price	Quantity
A	60	300	100	560
B	20	200	20	240
C	40	240	60	360
D	100	300	120	300
E	80	320	120	450

3) Explain the concept of Partial correlation.

5. Attempt **any two** of the following : **14**

1) Explain the concept of scatter diagram.

2) If x_1, x_2, x_3 are the variables, such that

$\sigma_1 = 2.4$, $\sigma_2 = 2.7$, $\sigma_3 = 2.7$, $r_{12} = 0.20$, $r_{13} = 0.40$, $r_{23} = 0.50$, $\bar{X}_1 = 30$,

$\bar{X}_2 = 35$, $\bar{X}_3 = 48$ then obtain the equation of regression x_1 on x_2 and x_3.

3) For the following data obtain the two lies of regression by using method of least square method. Also obtain the value of Y when X = 9

X	1	5	3	2	1	1	7	3
Y	6	1	0	0	1	2	1	5

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Seat No.	

Set P

B.Sc. (ECS) (Part – I) (Semester – II) (CBCS – Pattern)
Examination, 2018
Paper – IX : PROBABILITY THEORY – II

Day and Date : Thursday, 29-11-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *i)* ***All*** *questions are* ***compulsory.***
ii) Figures to the ***right*** *indicate* ***full*** *marks.*
iii) ***Use*** *of any type of calculator is* ***allowed****.*

1. Select most **correct** alternative. **14**

1) If marginal p.m.f. of a r.v. X is $p(x) = \frac{x}{6}$ x = 1, 2, 3 then E(x) is _____
   a) 7/3 b) 7/4 c) 6 d) 1/6
2) If p.d.f. of r.v. X is f(x) = k*x*(1 – x) 0 < x < 1 then value of P(X > 2) is _____
   a) 1/2 b) 0.5 c) 0 d) 0.6
3) If F(x) distribution function then F(∞) =
   a) 0 b) 1 c) ∞ d) – ∞
4) If X and Y are independent variables then
   a) E(XY) = E(x)*E(Y) b) Cov (X, Y) ≠ 0
   c) E(X + Y) ≠ E(x) + E(Y) d) None of these
5) If a continuous random variable X follows exponential distribution with mean 4 then its variance is
   a) 4 b) 2 c) 16 d) 0.25
6) If X and Y are two random variables such that their expectation exist and P(x ≤ y) = 1 then
   a) E(x) ≤ E(y) b) E(x) ≥ E(y)
   c) E(x) < E(y) d) None of above
7) If p.d.f. of a continuous random variable X is $f(x) = \frac{1}{2}(x + 1)$ – 1 < x < 1 then P (x ≥ 0) is
   a) 3/4 b) 4/3 c) 2 d) None of these

P.T.O.

8) Mean deviation for normal distribution is

a) $\frac{2}{3}\sigma$ b) $\frac{2}{3}\sigma^2$ c) $\frac{2}{4}\sigma$ d) $\frac{3}{4}\sigma$

9) For which of the following distribution having mean and SD is always equal ?

a) Normal b) Uniform

c) Exponential d) All of these

10) If a r.v. have exponential distribution with mean θ then its F(x) is given by

a) $1 - e^{+\theta x}$ b) $1 - e^{-\theta x}$ c) $1 - e^{-\frac{1}{\theta}x}$ d) None of these

11) Mean of rectangular distribution over (a, b) is given by

a) $\frac{a+b}{2}$ b) $\frac{a-b}{2}$

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

12) If p.d.f of exponential distribution is $\frac{1}{\theta}e^{-\frac{x}{\theta}}$ then its variance is

a) θ b) θ^2 c) $1/\theta^2$ d) $1/\theta$

13) The hypothesis tested for its possible rejection is called as

a) Null hypothesis b) Alternative hypothesis

c) Composite hypothesis d) None of these

14) Whether the test is one sided or two sided depends on

a) Alternative hypothesis b) Null hypothesis

c) Both a and b d) None of these

2. Attempt **any seven** of the following : **14**

1) Define joint probability mass function of bivariate discrete r.v. (X, Y).

2) Define expectation of a continuous r.v.

3) State any two properties of cumulative distribution function.

4) If p.d.f. of a continuous r. v. X is $f(x) = \frac{3}{4}x(2 - x)$, $0 < x < 2$ then find $p(X \leq 1)$.

5) If a continuous r.v. X having p.d.f. $f(x) = 3x^2$, $0 < x < 1$ then find its mean.

6) Define exponential distribution.

7) Define a null hypothesis and alternative hypothesis.

8) Define uniform distribution and state is mean and variance.

9) Define independence of random variable.

3. A) Attempt **any two** of the following. **10**

1) The joint p.m.f of (X, Y) of random variable is given by the following table.

x \ y	1	2	3
1	0.1	0.1	0.2
2	0.2	0.3	0.1

Find the marginal distribution of X and Y.

2) Verify whether the following function is the probability density function of a continuous r.v. X.

$$f(x) = \begin{cases} 2x, & 0 < x < 1 \\ 0, & \text{o.w} \end{cases}$$

If yes, then find the $P(X \geq 0.25)$.

3) If X is uniformly distributed random with mean 1 and variance 4/3 the find P[X< 0].

B) Define Normal distribution. State any 2 the properties of normal distribution. **4**

4. Attempt **any two** of the following. **14**

   1) State and prove "Lack of Memory" property of exponential distribution.

   2) If X is life time of certain battery with mean life of 500 Hr. then find probability that

      i) Battery will destroy before 600 Hr.

      ii) Battery will destroy in between 600 Hr. to 800 Hr.

   3) A sample of 400 male students is found to have mean weight 52.47 kg. Can it be regarded as sample from large population with mean weight 52 kg, given that the population standard deviation is 1.2 kg. (Use $\alpha = 0.01$).

5. Attempt **any two** of the following. **14**

   1) The manufacture of "Spot remover" claims that his product removes at least 90% of spots. What can we conclude about his claim at 5% level of significance if spot remover removed 174 spots out of 200 chosen at random ?

   2) Let X be random variable having normal distribution with mean 5 and SD 2, find

      i) $P[13 \leq X \leq 17]$

      ii) $P[X \geq 17]$

      Given that $P(0 < z < 1) = 0.3413$.

   3) Verify that the function $f(x) = Kx(2 - x)$, $0 < x < 2$ is to be considered as p. d. f. of some r.v. X in the given range.

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Seat No.	

Set P

B.Sc. (ECS) – II (Semester – III) (CBCS) Examination, 2018
OBJECT ORIENTED PROGRAMMING USING C++
Paper – I

Day and Date : Friday, 30-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

1. Multiple choice question. **14**

1) What is the index number of the last element of an array with 9 elements ?
   a) 9 b) 8
   c) 0 d) None of these

2) The operator used for dereferencing or indirection is _____
   a) * b) & c) -> d) ->>

3) Which is used to define the member of a class externally ?
   a) : b) ::
   c) # d) None of the mentioned

4) Constructors are used to
   a) Initialize the objects
   b) Construct the data members
   c) Both initialize the objects & construct the data members
   d) None of the mentioned

5) Which of the following concepts means determining at runtime what method to invoke ?
   a) Data hiding b) Dynamic typing
   c) Dynamic binding d) Dynamic loading

6) Which of the following operators can't be overloaded ?
   a) :: b) + c) – d) []

P.T.O.

7) Which of the following approach is adapted by C++ ?
   a) Left-right
   b) Right left
   c) Top-down
   d) Bottom-up

8) Which inheritance type is used in the class given below ?
   class A : public X, public Y
   {}
   a) Multilevel Inheritance
   b) Multiple Inheritance
   c) Hybrid Inheritance
   d) Hierarchical Inheritance

9) Destructor has the same name as the constructor and is preceded by
   a) ~
   b) ?
   c) !
   d) None of these

10) By default, all the files are opened in _____ mode.
   a) Binary
   b) Text
   c) .doc
   d) None of these

11) _____ is the example of unary operator.
   a) ++
   b) +
   c) <<
   d) *

12) The default access specifier of the class is called a _____
   a) Public
   b) Protected
   c) No modifier
   d) Private

13) Binding of data and function into single unit is called as
   a) Class
   b) Encapsulation
   c) Plymorphism
   d) Data binding

14) The operator << is called _____
   a) A get from operator
   b) Extraction
   c) Insertion operator
   d) None of these

2. A) Answer the following (**Any Four**) : **8**
   1) Use of Inline function.
   2) Define Operator Overloading.
   3) Define this keyword.
   4) List out the defining rules for static member function.
   5) Use of scope resolution operator.

   B) Write note on **any two**. **6**
   1) Explain virtual function.
   2) What are the uses of Access specifiers ?
   3) Explain Manipulators.

3. A) Answer the following (**any two**). **8**
   1) What is Constructor ? Give an example of constructor overloading.
   2) Write a program to check given no. is Armstrong or not use (OOPS concept).
   3) Explain call by reference with suitable example.

   B) Answer the following (**any one)**. **6**
   1) Write a program to demonstrate multilevel inheritance.
   2) What is operator overloading ? Explain binary operator overloading with example.

4. A) Answer the following (**any two**). **10**
   1) Write a program to demonstrate array of object.
   2) What is destructor ? Give an example of destructor.
   3) What is nesting classes ? Give an example.

   B) Answer the following (**any one)**. **4**
   1) Write a program to demonstrate friend function.
   2) Explain dynamic memory allocation operators suitable example.

5. Answer the following (**any two**). **14**
   1) Write a program to copy the content of one text file to another text file.
   2) What is pure virtual function ? Give an example.
   3) Explain different types file manipulators in detail.

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Set P

SLR-SL – 22

Seat No.	

Set P

B.Sc. (ECS) – II (Semester – III) Examination, 2018
Computer Science (CBCS) (Paper – II)
SOFTWARE ENGINEERING

Day and Date : Saturday, 1-12-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose the correct alternatives. **14**

1) The inter-connections and interaction between the subsystems are called
   a) Environment links b) Connecting links
   c) Interfaces d) Control lines

2) _____ system is an orderly arrangement of independent ideas.
   a) Open b) Conceptual c) Artificial d) Physical

3) _____ quality of software is related with the extent to which access of software or data by unauthorized access can be controlled.
   a) Interoperability b) Integrity
   c) Visibility d) Portability

4) Which of the following model is not suitable accommodating any changes ?
   a) Prototyping b) Spiral c) Waterfall d) RAD

5) System maintenance phase of SDLC includes
   a) Removal of errors b) Cost and benefit analysis
   c) Updations d) Both a & c

6) In a decision table, for N conditions, there will be _____ combinations of conditions.
   a) $2N^2$ b) 2N c) 2^N d) N^2

7) External entities may be a
   a) Source of input data only
   b) Source of input data or destination of result
   c) Destination of result only
   d) Repository of data

8) In ERD, if an attribute can be split into components then it is called as
   a) Composite attribute b) Derived attribute
   c) Multivalued attribute d) Stored attribute
9) Facts expressed in quantitative form are termed as
   a) Records b) Data
   c) Requirements d) Information
10) If the effect in one module cause defect in another module then it is called as
   a) Low coupling b) Low cohesion
   c) Ripple effect d) Triple effect
11) Detailed study of existing system is referred to as
   a) System planning b) Design DFD
   c) Feasibility study d) System analysis
12) _____ is an agreement between system developer and the end user.
   a) Requirement anticipation b) Requirement investigation
   c) Requirement specification d) Both a and c
13) _____ are sometimes referred as 'Bubble Diagram'.
   a) Flowchart b) ER-Diagram
   c) Decision table d) DFD
14) In RAD model, the components or functions are developed
   a) one after another b) parallel
   c) slowly d) both a and b

2. A) Answer the following **(any 4)** : **8**
   1) What is open and closed system ?
   2) What is normalization ?
   3) Draw the symbols of DFD.
   4) What is the purpose of HIPO chart ?
   5) Which are the types of decision table ?

   B) Write notes on **(any 2)** : **6**
   1) White Box Testing.
   2) Cohesion.
   3) Questionnaire.

3. A) Answer the following **(any 2)** : **8**
   1) Draw a system flowchart for College admission system.
   2) Explain following qualities of software :
      i) Performance
      ii) Productivity.
   3) Design an input screens for Library system.

   B) Answer the following **(any 1)** : **6**
   1) Who is system analyst ? Explain the various roles played by the system analyst.
   2) Differentiate between Logical DFD and Physical DFD.

4. A) Answer the following **(any 2)** : **10**
   1) What is Data Dictionary ? Explain the various contents of Data dictionary.
   2) Explain different phases of System Development Life Cycle.
   3) What is system maintenance ? Explain the categories of maintenance.

   B) Answer the following **(any 1)** : **4**
   1) What is prototyping model ? Explain in detail.
   2) Draw a decision tree for the information given below :

      A company decides to give Diwali bonus to all the employees for which the management has divided the employees into 3 categories namely Administrative Staff (AS), Office Staff (OS), Workers (W) and considered following rules :
      1) If the employee is permanent and belongs to AS category the bonus amount is 3 months salary.
      2) If the employee is permanent and belongs to OS category the bonus amount is 2 months salary.
      3) If the employee is permanent and belongs to W category the bonus amount is 1 month salary.
      4) If the employee is temporary then half of the amount is given to them as per the permanent employee's bonus amount.

5. Answer the following **(any 2)** : **14**
   1) Draw a CLD and first level DFD for Payroll system.
   2) Define the term Entity, Attribute and Relationship. Explain types of relationship with example.
   3) Explain the top-down incremental implementation. State its advantages and disadvantages.

Seat No.	

SLR-SL – 23

Set P

B.Sc. (ECS) – II (Semester – III) (CBCS) Examination, 2018
COMPUTER SCIENCE (Paper – III)
Operating System

Day and Date : Monday, 3-12-2018 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Multiple choice questions. : **14**

1) In the blocked state
   a) The process waiting for I/O is found
   b) The process which is running is found
   c) The process waiting for processor is found
   d) All of the above

2) CPU can only execute programs which are stored in
   a) Hard disk b) Floppy disk c) Job queue d) Ready queue

3) _____ is not the state of the process.
   a) Ready b) Privileged c) Running d) Blocked

4) Contiguous allocation with fixed partitions suffers from _____ fragmentation.
   a) Internal b) External c) Both d) None

5) A process execution begins and ends with
   a) I/O burst b) CPU burst c) Both d) None

6) _____ is a synchronization tool.
   a) Thread b) Semaphore c) Pipe d) Socket

7) The time taken by the disk arm to locate the specific address of a sector for getting information is called
   a) Rotational latency b) Search time
   c) Seek time d) Response time

P.T.O.

8) The execution of critical sections by the processes is _____time.
   a) Progressive b) Mutually exclusive
   c) Bounded waiting d) Relative speed

9) For deadlock detection _____is used in single instance resource type.
   a) Wait-for graph b) Resource allocation graph
   c) Variant graph d) Directed graph

10) Process attributes are stored in a
   a) Stack b) Program control Block
   c) Queue d) Process control block

11) Long term scheduler execute more frequently than short term scheduler.
   a) True b) False

12) Demand paging is a virtual memory system.
   a) True b) False

13) Equal priority processes are scheduled in SJF manner.
   a) True b) False

14) In real time O.S., the response time is very critical
   a) True b) False

2. A) Answer **any four** : **8**

1) Define Beladys Anamoly.
2) State the benefits of threads.
3) Define race condition.
4) What is disk access time ?
5) Define spinlock semaphore.

B) Answer **any two** : **6**

1) Define context switching with its drawback.
2) Differentiate between process and program.
3) Define fragmentation with its types.

3. A) Answer **any two** : **8**

1) Write a note on real time O.S.

2) State process scheduling criterias.

3) Define scheduler with its types.

B) Answer **any one** : **6**

1) Explain contiguous and linked file allocation methods.

2) Consider the following system scenario,

Allocation			
	A	**B**	**C**
J_1	2	1	0
J_2	3	2	3
J_3	3	0	2
J_4	3	2	0
J_5	1	0	1

Max.			
	A	**B**	**C**
J_1	5	6	3
J_2	8	5	6
J_3	4	8	2
J_4	7	4	3
J_5	4	3	3

Available		
A	B	C
3	3	2

Solve by using Bankers algorithm and find out :

i) Contents of need matrix.

ii) Is system is in safe state ?

iii) If J_4 arrives with request (2 0 2) can be granted immediately.

4. A) Answer **any two** : **10**

1) Explain contiguous allocation with dynamic partition method.

2) Define O.S. with services provided by O.S.

3) Consider following system snapshot,

Jobs	**Arrival time**	**CPU Burst**	**Priority**
J_1	0	5	2
J_2	2	4	1
J_3	3	7	3
J_4	5	6	4

Calculate average waiting time and average turn around time by using priority scheduling algorithm and also draw Gantt chart.

B) Answer **any one** : **4**

1) Write note on producer-consumer problem.

2) If the disk head is located initially at 32, find the number of disk moves required with FCFS, if the disk queue of I/O blocks requests are,

98, 37, 14, 124, 65, 67.

5. Answer **any two** : **14**

1) Explain concept of paging with diagram.

2) Explain PCB with diagram.

3) Calculate the number of page faults for the following reference string using,

- FIFO page replacement algorithm
- LRU page replacement algorithm
- Optimal page replacement algorithm.

Frame size = 3

Reference string =

4 3 2 1 4 3 5 4 3 2 15

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Seat No.	

Set **P**

B.Sc. (ECS) – II (Semester – III) (CBCS) Examination, 2018
DATA STRUCTURES (Paper – IV)

Day and Date : Tuesday, 4-12-2018 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose correct alternatives : **14**

1) Which of the following is an application of queue ?
   a) Reversal of string b) Evaluation of postfix expression
   c) Both a) and b) d) None of these

2) Traversing binary tree by preorder, then root is found at _____ position.
   a) First b) Middle c) Last d) Second last

3) Node of singly linked list has _____ parts.
   a) Single b) Double c) Triple d) Zero

4) The value contained in parent node of min-heap tree is
   a) Less than child node b) Equals to child node
   c) Greater than child node d) Both a) and b)

5) Which of the following operation arises result in “Stack Overflow” situation ?
   a) IsFull () b) IsEmpty () c) PUSH () d) POP ()

6) In which algorithm a main problem is breakdown into two or more sub-problems ?
   a) Branch and bound b) Greedy
   c) Divide and conquer d) None of these

7) For the implementation of _____ sort, queue data structure is used.
   a) Bubble b) Selection c) Insertion d) Radix

8) How many possible binary trees can be constructed using 5 nodes ?
   a) 42 b) 24 c) 55 d) 65

9) _____ sort method uses divide and conquer strategy.
   a) Quick b) Bubble c) Insertion d) Selection

10) _____ is maximum balance factor of node of AVL tree.
   a) –1 b) 0 c) 1 d) All of these

P.T.O.

11) Which of the following tree allows random as well as sequential access of keys ?
a) B – tree b) B + tree c) Threaded d) Extended

12) In case of _____ queue, elements are inserted and removed from both ends.
a) Linear b) Circular c) Priority d) Deque

13) _____ data structure is useful to implement different kinds of other data structures.
a) Stack b) Queue c) Linked list d) Both a) and b)

14) _____ search method is applicable over sorted data only.
a) Linear b) Binary c) Both a) and b) d) None of these

2. A) Answer **any four** of the following : **8**
1) How circular queue is better than linear queue ?
2) Write node structure for doubly linked list.
3) What is collision in hashing ?
4) What is complete binary tree ?
5) How dynamic memory allocation is better than static memory allocation ?

B) Write short note on the following (**any two**) : **6**
1) Selection sort.
2) Stack in subroutine call.
3) Greedy algorithm.

3. A) Answer **any two** of the following : **8**
1) What is stack ? Write an algorithm for PUSH and POP operation.
2) Explain “Quick Sort” method with example.
3) What is IRD ? Explain its Remove_left() and Remove_right() operation.

B) Answer **any one** of the following : **6**
1) Write a program that evaluates postfix expression using stack.
2) Write a program to implement circular queue.

4. A) Answer **any two** of the following : **10**
1) Write a program to implement binary search method.
2) Write a program to implement binary tree with tree traversal method.
3) What is ADT ? Explain ADT for queue data structure.

B) Answer **any one** of the following : **4**

1) Explain following operations of singly circular linked (a) insert_first () (b) remove_after ().

2) What is hashing ? Explain any four hash functions.

5. Answer **any two** of the following : **14**

1) Write a program that counts total number of vowels present in string using stack.

2) Explain following operations of binary search tree (a) insert () (b) delete_leaf() (c) search ().

3) What is B-tree ? Write its characteristics and construct B-tree of order five for following data :

78	62	71	10	36	99	75	13	83	34	40	109	23	66	92	62	20	48	52	12

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SLR-SL – 25

Seat No.	

Set P

B.Sc. (ECS) – II (Semester – III) (CBCS Pattern) Examination, 2018
Paper – V : EMBEDDED SYSTEM – I

Day and Date : Wednesday, 5-12-2018 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) **All** questions are **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*
*3) Draw circuit diagram **wherever** necessary.*

1. Multiple choice questions. **14**

1) In _____ communication data transmit between start bit and stop bit.
a) Synchronous b) Asynchronous
c) Parallel d) None

2) _____ register of ARM allocate to PC.
a) R1 b) R8 c) R2 d) R15

3) _____ pin of LCD used to adjust contrast.
a) RS b) VCC c) GND d) VEE

4) EA pin of 8051 connect to _____ to access external memory.
a) RS b) VCC c) GND d) VEE

5) _____ maximum external memory can access by 8051.
a) 64K b) 2K c) 3K d) 128 Byte

6) _____ is wireless communication device.
a) Bluetooth b) RS232 c) 8255 d) None

7) _____ is serial communication device.
a) Bluetooth b) RS232 c) Zegbee d) None

8) 8086 microprocessor has _____ bit address bus.
a) 16 b) 20 c) 32 d) 64

9) _____ total register are include in ARM architecture.
a) 36 b) 37 c) 38 d) 39

10) _____ register use to hold current status of program.
a) CPSR b) SPSR c) R6 d) R7

11) _____ register allocate to SP in ARM.
a) R10 b) R11 c) R12 d) R13

12) _____ technique CPU does not take part in data transfer.
a) Polling b) Interrupt I/O c) DMA d) None of these

13) 8051 has _____ I/O port.
a) 4 b) 3 c) 2 d) 1

14) _____ header file use for assembly C for 8051.
a) reg51 b) reg52 c) reg53 d) None

2. A) Answer **any four** of the following. **8**
1) Define mailbox.
2) Define watchdog timer.
3) Define time of market.
4) List application to embedded system.
5) List wireless communication devices.

B) Write note on **(any two)**. **6**
1) Memory allocation in embedded system.
2) Real time clock.
3) Explain SPI.

3. A) Answer **any two** of the following. **8**
1) What are different type of O.S. ? Explain RTOS.
2) Explain starvation and deadlock.
3) Compare between 8086 and 8051.

B) Attempt of the following **(any one)**. **6**
1) Explain round robin scheduling algorithm with example.
2) Give recent trends in embedded system.

4. A) Answer the following **(any two)**. **10**
1) Compare between CISC and RISC.
2) Explain keyboard interfacing to 8051.
3) Explain task scheduler.

B) Attempt of the following **(any one)**. **4**
1) Explain multitasking and multiprocessing.
2) Explain DMA.

5. Attempt **any two** of the following. **14**
1) Explain exception handling in arm.
2) Write ALP program to add 47H and 66H and store result in R6.
3) Explain PCI, USB 12C.

_____

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Seat No.	

Set **P**

B.Sc. (ECS) – II (Semester – III) (CBCS) Examination, 2018
ADVANCED MICROPROCESSOR (Paper – VI)

Day and Date : Thursday, 6-12-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

1. Select the **correct** alternative of the following : **14**

1) _____ is internal memory of the CPU.
A) Cache B) Register C) RAM D) ROM

2) To work a specific operation of is function of _____
A) Op-code B) Mode
C) Address D) All of the above

3) The data stored on the CD-ROM is in the form of _____
A) 0 B) 1 C) pit, land D) 01

4) The associative memory is _____
A) PROM B) CAM
C) RAM D) EEPROM

5) To synchronize Microprocessor and bus control logic _____ is necessary.
A) Timing circuitry B) CPU
C) ALU D) System bus

6) The _____ number of address lines are required to 512 byte memory.
A) 10 B) 12 C) 11 D) 9

7) Reliability of memory is measured in _____
A) Read time B) Write time
C) MTBF D) Delay time

8) The width of pit and land is about _____ μm.
A) 0.5 B) 0.1 C) 0.01 D) 0.6

9) _____ is hardware priority interrupt method.
A) DMA B) Daisy Chain
C) Polling D) None of the above

10) Following _____ is IOP.
A) 8080 B) 8089 C) 8086 D) 80186

11) Static memory is made from _____
A) Capacitor B) Resistor
C) Flip-flop D) Diode

12) Following _____ is fastest data transfer technique.
A) Programmed I/O B) Interrupt initiated I/O
C) DMA D) All of the above

13) _____ can send and receive data on transmission line simultaneously.
A) Half duplex B) Duplex
C) Full deplex D) None of the above

14) In semiconductor memory _____ logic family is used for low power consumption.
A) CMOS B) TTL C) DTL D) RTL

2. A) Answer **any four** of the following : **8**

1) What is associative memory ?
2) Explain Instruction format.
3) Write a note on magnetic memory.
4) Give the function of I/O interface.
5) Why memory hierarchy is necessary ?
6) What is DMA ?

B) Write notes on **any two** of the following : **6**

1) Write a note on mapping.

2) Write a note on strobe method.

3) Write a note on IOP.

3. A) Answer **any two** of the following : **8**

1) Explain two level memory hierarchy.

2) Explain memory mapped I/O.

3) Explain arithmetic instructions.

B) Answer **any one** of the following : **6**

1) What is segmentation ?

2) Write a note on bit slice processor.

4. A) Answer **any two** of the following : **10**

1) Write a note on combinational ALU.

2) Write a note on parallel priority interrupts method.

3) Explain stack register.

B) Answer **any one** of the following : **4**

1) Write a note on sequential ALU.

2) Explain associative mapping.

5. Answer **any two** of the following : **14**

1) Explain CPU control unit.

2) Explain RAM and ROM design.

3) Explain general register organization.

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Set P

B.Sc. (E.C.S.) – II (Semester – IV) (New CBCS) Examination, 2018
OBJECT ORIENTED PROGRAMMING USING JAVA (Paper – I)

Day and Date : Friday, 7-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose **correct** alternatives. **14**

1) Which of these functions is called to display the output of an applet ?
   a) display () b) paint()
   c) displayApplet() d) PrintApplet()

2) Which of the following blocks execute compulsorily whether exception is caught or not ?
   a) finally b) catch c) throws d) none of the above

3) If a subclass has the same method as declared in the parent class it is known as _____
   a) Method overriding b) Method overloading
   c) Constructor overloading d) None of the above

4) What is the return type of a method that does not returns any value ?
   a) int b) flot c) void d) doube

5) In java a thread can be created by _____
   a) Extending the thread class
   b) Implementing Runnable interface
   c) Both a) and b)
   d) None of these

6) What is maximum thread priority in Java ?
   a) 10 b) 12 c) 5 d) 8

7) What is size of integer in Java Programming ?
   a) 3 Bytes b) 4 Bytes c) 2 Bytes d) 8 Bytes
8) Which of these class is super class of every class in Java ?
   a) String class b) Object class
   c) Abstract class d) ArrayList class
9) What does AWT stands for ?
   a) All Window Tools b) All Writing Tools
   c) Abstract Window Toolkit d) Abstract Writing Toolkit
10) On successful compilation a file with the class extension is created.
   a) True b) False
11) What is the default layout for Dialogs ?
   a) FlowLayout b) BorderLayout
   c) CardLayout d) GridLayout
12) If there is no constructor in a class, compiler automatically creates a default constructor
   a) True b) False
13) Which of the below is invalid identifier with main method ?
   a) Public b) Static
   c) Private d) Final
14) Which of these operators is used to allocate memory to array variable in Java ?
   a) malloc b) alloc c) new d) new malloc

2. Solve **any seven** of the following : **14**

1) Define JDK.
2) What is an interface ?
3) What is synchronization ?
4) What is an exception ?
5) What is Abstraction and Encapsulation ?
6) What is an array ? Types of array.
7) What is the difference between print() and Println().
8) Explain Thread Priority.
9) What is Garbage collection in Java ?

3. A) Answer **any two** of the following : **10**

   1) Explain features of java in detail.

   2) What is method overriding ? Explain with suitable example.

   3) What is collection framework in java ? Explain with suitable exampleHash Map.

   B) Explain this keyword with example. **4**

4. Answer **any two** of the following : **14**

   1) What is the use of Layout manager ? Explain GridLayout with example.

   2) What is multithreading in Java ? Explain Lifecycle of a thread with diagram.

   3) What is constructor ? Explain with suitable example.

5. Answer **any two** of the following : **14**

   1) Explain types of inheritance in Java with the example of single inheritance.

   2) Explain character Stream classes. Write a program to copy file to file using character stream.

   3) Explain the structure of Java program in detail.

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Seat No.	

Set **P**

B.Sc. (ECS) – II (Computer Science) (Semester – IV) Examination, 2018
DBMS USING ORACLE (New CBCS) (Paper – II)

Day and Date : Saturday, 8-12-2018 Total Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*

2) Figures to ***right*** *indicate* ***full*** *marks.*

1. A) Choose the **correct** alternative. **10**

1) The concept of locking can be used to solve problem of _____

a) Lost update b) Uncommitted dependency

c) Inconsistent data d) All of the above

2) _____ is assignment operator in PL/SQL

a) = = b) = c) : = d) None of the above

3) Variable is passed to procedure in _____ modes.

a) pass by value b) read, write

c) in, out and in out d) None of the above

4) _____ represents single line comment in PL/SQL.

a) -- b) - c) /*and */ d) *

5) _____ command is used to display definition of a table.

a) select b) desc

c) revoke d) update

6) A _____ query that retrieves the rows from more than one table or view.

a) join b) end

c) start d) all of mentioned

7) Total number of column in relation is called _____

a) Cardinality b) Degree

c) Sum d) None of these

8) _____ is a facility to undo the change made recently which are uncommitted.

a) Commit b) Savepoint

c) Rollback d) None of these

9) The overall description of database is called _____

a) instance b) schema

c) data d) table

10) Which of the following group function ignore null value ?

a) max() b) count()

c) sum() d) count(*)

B) State the following statements **true/false**. **4**

1) Grant and Revoke are DCL commands.
2) Unique key does not allows null values.
3) View is virtual relation defined on tale.
4) SQL is name of implicit cursor

2. Answer **any seven** of the following : **14**

1) Write advantages of stored Procedure's.
2) What is use of % type and % rowtype ?
3) What is shared lock ?
4) What is Shadow paging ?
5) Define tuple and cardinality.
6) Write a syntax of for loop with e.g.
7) Why database recovery is needed ?
8) Write syntax and example of group by clause.
9) State the components of database.

3. A) Answer **any two** of the following : **10**

   1) What is trigger ? How it works ? Explain its type.

   2) Write a PL/SQL block to check given number is Armstrong or not.

   3) Explain the database users.

   B) Discuss the properties of transaction. **4**

4. Answer **any two** of the following : **14**

   1) What is package in PL/SQL ? Explain package specification and body with example.

   2) Explain Join technique in Relational Algebra.

   3) Write Dr. E. F. Codd's Rules for Relational data model any seven.

5. Answer **any two** of the following : **14**

   1) Explain different types of keys with example.

   2) What is cursor ? Explain explicit cursor with example.

   3) What is scheduling ? Explain view serializability with example.

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Seat No.	

Set **P**

B.Sc. (Entire Computer Science) – II (Semester – IV) (CBCS) Examination, 2018
Paper – III : LINUX OPERATING SYSTEM (New)

Day and Date : Monday, 10-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose **correct** alternative. **14**

1) Which of the following is not the shell keyword ?
A) waitfor B) umask C) case D) until

2) The information of files is stored in _____ on the disk.
A) Swap table B) Boot table
C) Inode table D) System table

3) For taking input from the user in shell script _____ command is used.
A) echo B) read
C) Both A and B D) None of these

4) Which of the following is the use of mv command ?
A) Rename a file
B) Move group of files into another directory
C) Both A and B
D) None of these

5) Which command is used to extract a column from a text file ?
A) paste B) get C) cut D) tar

6) Every process running on the system has a _____

A) Permissions B) Process ID

C) Both A and B D) None of these

7) The command bar is used to reduce the size of a file.

A) True B) False

8) In vi editor dw command is used to delete a single word.

A) True B) False

9) "?" Wild character is used for matching _____ character.

A) one or more B) zero or more

C) one D) None of these

10) Which of the following system variable is used to display list of all shell arguments ?

A) $* B) $!

C) $% D) $#

11) What is the purpose of >> operator ?

A) Used to send the output of one command becomes the input of a second command

B) Used to send both input and output to the same file

C) Used to overwrite the contents of a file

D) Used to append data to a file without overwriting it

12) Which of the following is the functionalities of shell ?

A) Authenticates user

B) Interprets commands

C) Allocates time and memory to programs

D) Controlling the hardware

13) The location for subdirectories for local programs and executables for user and administrative commands is in _____ directories.

A) /temp B) /mnt C) /opt D) /usr

14) The command "mkdir" cannot take multiple arguments.

A) True B) False

2. Answer **any seven** of the following : **14**
   1) What is the use of sed command ?
   2) Write a use of expr for performing arithmetic operations.
   3) Differentiate between hard link and soft link.
   4) Write a use talk command.
   5) What is a premature termination of process ?
   6) What is the concept of LILO ?
   7) Differentiate between output redirection operator > and >>.
   8) What is the purpose of super block ?
   9) List the advantages of background jobs.

3. A) Answer **any two** of the following : **10**
   A) Explain differences between Linux and Windows Operating System.
   B) Write a shell script to check the given number is prime or not.
   C) Explain the following commands.
      i) lpr ii) cut iii) uniq

   B) Explain file Archive command with suitable example. **4**

4. Answer **any two** of the following : **14**
   A) What are file permissions ? How to change file permissions ? Explain with suitable examples ?
   B) What is Vi editor ? Explain the Exit modes of Vi editor.
   C) Explain Security Enhanced Linux.

5. Answer **any two** of the following : **14**
   A) How grep command works ? Explain its option with suitable examples.
   B) Write a menu driven shell script.
      1) To change the ownership of a file.
      2) To compare two files.
      3) To rename the file “First. txt” to “second. txt”.
      4) To remove a directory.
      5) To kill a process with its given ID.
   C) Describe architecture of Linux system.

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Seat No.	

Set **P**

B.Sc. (E.C.S.) – II (Semester – IV) (New – CBCS) Examination, 2018
Paper – IV : COMPUTER GRAPHICS

Day and Date : Tuesday, 11-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*

1. Choose the **correct** alternative. **14**

1) The refresh buffer is not used in _____
   a) Raster scan display system b) Random scan display system
   c) Thin CRT d) DVST

2) The point about which an object is rotated is called _____
   a) Fixed point b) Central point
   c) Pivot point d) None

3) Which device is suitable to input a series of coordinate positions ?
   a) Locator b) Stroke
   c) Valuator d) String

4) The phenomenon of having a continuous glow of a beam on the screen even after it is removed is called as _____
   a) Fluorescence b) Persistence
   c) Phosphorescence d) Incandescence

5) Which of the following is not a rigid body transformation ?
   a) Translation b) Rotation c) Shearing d) Reflection

6) Which technique of color CRT is used for production of realistic image ?
   a) Beam penetration b) Shadow mask
   c) Both (a) and (b) d) None of above

7) If a point (x, y) is reflected about an axis which is normal to the XY plane and passing through the origin, the reflected point (X, Y) is _____

a) (x,– y) b) (– x, y) c) (– x, – y) d) (y, x)

8) Reflection of a point about x-axis, followed by a counter-clockwise rotation of 90 degree, is equivalent to reflection about the line _____

a) x = – y b) x = 0

c) x = y d) x + y = 1

9) The translation distances (dx, dy) is called as _____

a) Translation vector b) Shift vector

c) Both a and b d) Neither a nor b

10) The basic geometric structure that describes a scene on display is called _____

a) Attributes b) Output primitive

c) Lines d) Curves

11) The simplest output primitive is _____

a) Straight line b) Straight line segment

c) Point d) Circle

12) The quality of an image depends on _____

a) No. of pixel used by image

b) No. of line used by image

c) No. of resolution used by image

d) None

13) The technique used to summarize the financial, statistical, mathematical, scientific and economic data is _____

a) Computer Art b) Image processing

c) Presentation Graphics d) None of the above

14) Aspect ratio is _____

a) The ratio of image's width to its height

b) The ratio of window to viewport height

c) The ratio of image's intensity levels

d) The ratio of image's height to its width

2. Answer the following **(any seven)**. **14**

   1) Define Display Controller.
   2) What is Shearing and Reflection ?
   3) What is pixel phasing ?
   4) Consider a triangle ABC where coordinates are A(0, 0), B(1, 0) and C(1, 1). Rotate with an angle of 90 degree in anticlockwise direction.
   5) What is bitmap and pixmap ?
   6) Give the full form of the following :
      a) TIFF b) JPEG.
   7) What are the applications of Computer Graphics ?
   8) Define Circle with its syntax.
   9) Translate a square ABCD by 2 units in X-axis and 3 units in Y-axis where coordinates are A(0, 0), B(2, 0), C(0, 2) and D(2, 2).

3. A) Answer **any two** of the following : **10**

      1) Give the syntax of the following functions.
         a) initgraph() b) ellipse() c) drawpoly()
         d) setlinestyle e) setfillstyle()
      2) What is the need of homogeneous coordinate matrix ? Give the homogeneous matrix representation of the basic transformation.
      3) Write Bresenham's Line-Drawing algorithm for $|m|<1$.

   B) Explain Display File Interpreter and Display File Structure. **4**

4. Answer **any two** of the following : **14**

   1) Translate a triangle ABC by 5 units in X direction where coordinates are A(5, 5), B(10, 5) and C(10, 10).
   2) Explain Character Generation with its three basic methods.
   3) Differentiate between Raster Scan and Random Scan Display.

5. Answer **any two** of the following : **14**

   1) Perform 45 degree rotation of the triangle A(0, 0), B(1, 1) and C(5, 2) about an arbitrary point (–1, –1).
   2) Explain Aliasing and Anti-aliasing in detail.
   3) What are the types of input devices ? Explain any three of them.

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SLR-SL – 31

Set P

B.Sc. (ECS) – II (Semester – IV) (New CBCS Pattern) Examination, 2018
EMBEDDED SYSTEM – II (Paper – V)

Day and Date : Wednesday, 12-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

1. Multiple Choice Questions. **14**

1) In _____ type of embedded system the classification is based on the performance and functional requirement of embedded system.
   a) Stand alone b) Medium scale
   c) Small scale d) None of these

2) The _____ method is used to design and analysis the software before implementation.
   a) Software design b) Hardware design
   c) Program modeling d) All of these

3) In _____ type of programming model the data determines the flow as well as execution steps of program.
   a) FSM Model b) DFG Model c) CDFG Model d) All of these

4) In Sequential programming model the multiple functions are executed in the Sequence of _____
   a) LIFO b) FIFO
   c) FILO d) None of these

5) Software development process is performed on _____ type of system.
   a) Host system b) Target system
   c) Both a and b d) None of these

6) Mp3 players, digital Camera are the examples of _____ type of embedded system.
   a) Small scale b) Stand alone
   c) Real time d) Networked

7) _____ is a software used to Link the compile codes, object codes and the kernel of O.S.
   a) Locating Software b) Linking Software
   c) Both a and b d) None of these

8) IEEE stands for _____
   a) Institute of Electrical and Electronics Engineering
   b) International Electrical and Electronics Engineering
   c) Both a and b
   d) None of these

9) _____ type of software tool are used to create the object files from the Complete set of Opcodes.
   a) Assembler b) Compiler
   c) Interpreter d) None of these

10) _____ type of device used for modulation and demodulation process of signals.
   a) Modulator b) Modem
   c) Demodulator d) All of these

11) _____ are the Network elements.
   a) Router b) Switch
   c) Both a and b d) All of these

12) The file Format of Motorola is _____
   a) S-Record b) Hex File
   c) .exe file d) None of these

13) _____ is the communication link between processor and peripherals.
   a) Serial port b) Interface
   c) USB d) None of these

14) In IDE includes _____
   a) Editor b) Compiler
   c) Simulator d) All of these

2. Answer **any seven** of the following : **14**
   1) What are the types of embedded system ?
   2) What do you mean by Compiler ?
   3) Draw the pin diagram of RS232 Connector.

4) Write the names of software development tools.

5) Give the examples of Stand-alone and mobile embedded system.

6) What do you mean by Locator ?

7) Give the names of Laboratory tools.

8) Write the names of programming models in embedded system.

9) Give the any two features of USB.

3. A) Answer **any two** of the following : **10**

1) Explain the skills required for embedded system designer.

2) Explain the concept of Host and Target System.

3) Give the communication parameters of RS232.

B) Explain the steps in software development process. **4**

4. Attempt **any two** of the following : **14**

1) Explain in detail with e.g. the classification of embedded system.

2) Explain in detail with applications the different software development tools in embedded system.

3) Write a note on IEEE 802.11 protocol.

5. Attempt **any two** of the following : **14**

1) Explain in detail with e.g. DFG Models.

2) Explain the issues in Hardware and Software design and co-design.

3) Write a note on Linking and Locating Software.

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Seat No.	

Set **P**

B.Sc. (ECS) – II (CBCS) (Semester – IV) Examination, 2018
Paper – VI : PERIPHERALS AND INTERFACING – II (New)

Day and Date : Thursday, 13-12-2018 Total Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

1. Multiple Choice Questions : **14**

1) Address bus of 8086 is _____ bit.

a) 20 b) 12 c) 16 d) 32

2) Virtual memory of 80386 is _____

a) 64 TB b) 4 GB c) 64 d) 64 KB

3) 8257 is _____ IC.

a) PPI b) PTC c) DMA d) DAM

4) In 8086 instruction queue is _____ byte.

a) 12 b) 8 c) 6 d) 16

5) 8255 has _____ no of ports.

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

6) STC is _____ group of instruction.

a) Arithmetic b) Logical

c) Data transfer d) Processor

7) _____ instruction have implied addressing mode.

a) MOV b) ADD c) POP d) LXI

8) In 8086_____ no of pin is used for mode selection.

a) Pin 33 b) Pin 10 c) Pin 34 d) Pin 38

9) Real memory of 80286 is _____

a) 16 MB b) 20 MB

c) 24 MB d) None of these

10) _____ is logical group of instruction.

a) MOV b) ANI c) ADD d) POP

11) 8253 is _____ pin IC.

a) 24 b) 40 c) 20 d) 16

12) In 8086 _____ register shows address of next instruction.

a) BP b) AX c) IP d) SP

13) In 8086 _____ IC are used for clock generation.

a) 8282 b) 8286 c) 8288 d) 8284

14) The control word of 8255 is _____ bit.

a) 4 b) 8 c) 16 d) 20

2. Answer **any seven** of the following : **14**

1) Compare 8086 and 8088.

2) Draw flag structure in 8086.

3) List data transfer group of instruction of 8086.

4) Give application MMX Pentium.

5) Draw control word of 8255.

6) Explain pipeline concept of 8086.

7) Why we need interfacing ?

8) Write features of 80286.

9) Draw TMOD register of 8051.

3. A) Answer **any two** of the following : **10**

   1) Explain maximum mode pin functions in detail.

   2) Write a program to add two 8 bit numbers.

   3) Explain block diagram of 8255.

   B) Compare RISC and CISC architectures. **4**

4. Answer **any two** of the following : **14**

   1) Explain features of 80486.

   2) Explain memory mapped IO with diagram.

   3) Explain architecture of 8086.

5. Answer **any two** of the following : **14**

   1) Explain minimum mode configuration of 8086.

   2) Write a program for arranging data in ascending order.

   3) Explain architecture of 8051.

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Set P

B.Sc. (Entire Computer Science) – II (Semester – IV) (Old – CGPA)
Examination, 2018
OPERATING SYSTEM – II (Paper – I)

Day and Date : Friday, 7-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose and write **correct** answer from given **four** alternatives. **14**

1) UNIX operating system is an _____
   a) Time sharing OS b) Multiuser OS
   c) Multitasking OS d) All of these

2) FIFO algorithm _____
   a) executes first job that last entered the queue
   b) executes first job that first entered the queue
   c) executes first job that has been in the queue the longest
   d) executes first job with the least processor needs

3) Run time mapping from virtual to physical address is done by _____
   a) Memory management unit b) CPU
   c) PCI d) None of these

4) The address of a page table in memory is pointed by _____
   a) stack pointer b) page table base register
   c) page register d) program counter

5) In UNIX, which system call creates the new process ?
   a) fork b) create c) new d) none of these

6) File name, size, type, time, date and user identification are the file _____
   a) Content b) Attributes
   c) Properties d) None of these

7) The _____ is used as an index into the page table.
   a) frame bit b) page number
   c) page offset d) frame offset

8) In contiguous memory allocation, the memory is usually divided into two partitions, one for the resident operating system and one for _____
   a) System processes b) User processes
   c) Ready processes d) None of these

9) _____ begins at the root and follows a path down to the specified file.
   a) Relative Path Name b) Absolute Path Name
   c) Standalone Path Name d) All of these

10) Physical memory is broken into fixed sized blocks called _____
   a) Pages b) Frames c) Blocks d) Segments

11) _____ allocates the largest holes available in the memory.
   a) Best Fit b) Worst Fit
   c) First Fit d) None of these

12) Bankers algorithm is a _____
   a) Deadlock avoidance algorithm
   b) Deadlock prevention algorithm
   c) Deadlock detection algorithm
   d) None of the above

13) File type can be represented by _____
   a) File name b) File extension
   c) File identifier d) None of the mentioned

14) When a deadlock occurs, the system has to be in _____
   a) Safe state b) Unsafe state
   c) Any one of two states d) None of these

2. Solve **any seven** of the following : **14**

1) What is demand paging ?
2) What is physical address and logical address ?
3) What is rollback ?
4) What is file ?
5) Define deadlock.
6) Define dynamic loading and dynamic linking.
7) Define safe state and unsafe state.
8) What is compaction ?
9) What is shell ?

3. A) Attempt **any two** of the following : **10**

   1) Explain virtual memory.

   2) Explain architecture of the UNIX OS.

   3) Explain Deadlock detection technique.

   B) Write a note on swapping. **4**

4. Attempt **any two** of the following : **14**

   1) Explain segmentation.

   2) Explain structure of buffer header and buffer pool.

   3) Consider the following snap shot of a system having 5 processes (P0 to P4) and 4 resource types A, B, C, D.

Process	**Allocation**	**Max**	**Available**
ABCD	**ABCD**	**ABCD**	**ABCD**
P0	0012	0012	1520
P1	1000	1750	
P2	1354	2356	
P3	0632	0652	
P4	0014	0656	

   By using Bankers algorithm answer the following questions :

   i) What will be the content of the Need matrix ?

   ii) Is the system in safe state ?

   iii) If a request from process P1 arrives for (0, 4, 2, 0), can the request be granted immediately ?

5. Attempt **any two** of the following : **14**

   1) Explain process states and transitions in detail in UNIX.

   2) Explain Directory structure.

   3) Consider the following page reference string. 1, 2, 7, 8, 3, 4, 2, 1, 4, 2, 5, 6.

   How many page fault would occur for the following page replacements algorithms ?Assuming an allocation of 3 frames ? (i) LRU ii) FIFO.

Seat No.	

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Set P

B.Sc. (ECS) – II (Semester – IV) (Old – CGPA) Examination, 2018
Paper – II : OOP USING C++ – II

Day and Date : Saturday, 8-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Select the **correct** alternatives : **14**

1) Where does a cin stops it extraction of data ?
   a) By seeing a blankspace b) By seeing ()
   c) Both a and b d) None of the mentioned

2) When a base class is privately inherited by the derived class,then _____
   a) Protected members of the base class become private members of derived class
   b) Public members of the base class become private members of derived class
   c) Both a and b
   d) Only b

3) Where does the abstract class is used ?
   a) Base class only b) Derived class
   c) Both a and b d) None of the mentioned

4) Class X, class Y and class Z are derived from class BASE. This is _____ inheritance.
   a) Multiple b) Multilevel
   c) Hierarchical d) Single

5) What is meant by ofstream in C++ ?
   a) Writes to a file b) Reads from a file
   c) Both a and b d) None of the mentioned

6) Which of the followings are true about Virtual functions ?
   a) They must be non-static member function of the class
   b) They cannot be friends
   c) Constructor functions cannot be virtual
   d) All of these

7) Which function return the current position of the get or put pointer in bytes ?
   a) tellg() b) tellp()
   c) tell() d) Both a and b

8) In case of inheritance where both base and derived class are having constructor and destructor, then which if the following are true ?
   1) Constructors are executed in their order of derivation
   2) Constructors are executed in reverse order of derivation
   3) Destructors are executed in their order of derivation
   4) Destructors are executed in reverse order of derivation
   a) Only 2, 4 b) Only 1, 3
   c) Only 1, 4 d) Only 2, 3

9) What is meant by multiple inheritance ?
   a) Deriving a base class from derived class
   b) Deriving a derived class from base class
   c) Deriving a derived class from more than one base class
   d) None of the mentioned

10) Predict the output :

```
int x = 786;

cout <<setfill('*')<<setw(6)<<x;
```

   a) 786*** b) **786 c) ***786 d) ******

11) Reusability of the code can be achieved in CPP through
   a) Polymorphism b) Encapsulation
   c) Inheritance d) Both a and c

12) How many parameters are there in getline function ?
   a) 1 b) 2 c) 3 d) 4

13) During a class inheritance in CPP, if the visibility mode or mode of derivation is not provided, then by default visibility mode is _____
   a) Public b) Protected
   c) Private d) Friend

14) _____ header file is used for manipulators.
   a) <iomanipulator.h> b) < stdiomanip.h>
   c) <stdmanip.h> d) <iomanip.h>

2. Answer the following (**any 7**) : **14**
   1) When should a program throw an exception ?
   2) What is an abstract class ?
   3) How runtime polymorphism is achieved in C++ ?
   4) State the different stream classes for console operation.
   5) What is the use of precision() function in format console operation ?
   6) What is an exception ?
   7) State the difference between seekg() and seekp().
   8) What is the use of getline () function ?

3. A) Answer **any two** of the following : **10**
      1) Discuss the various forms of get() function supported by the input stream. How are they used ?
      2) What is Manipulator ? List out any four manipulators with their use.
      3) What are the advantages of using exception handling mechanism in a program ?

   B) What is containership ? How it is differ from inheritance ? **4**

4. Answer **any two** of the following : **14**
   1) Write a program that demonstrates the use of pure virtual function.
   2) When do we use multiple catch block ? Explain with example ?
   3) What are the different forms of inheritance ? Give an example for each.

5. Answer **any two** of the following : **14**
   1) Explain with example, how you would create space for an array of objects using pointer ?
   2) Write a program that copies content of one file into another file.
   3) What is file mode ? Describe the various file mode options available.

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Seat No.	

Set P

B.Sc. (E.C.S.) – II (Semester – IV) (Old – CGPA) Examination, 2018
Paper – III : DATA STRUCTURES ALGORITHMS ENGINEERING – II

Day and Date : Monday, 10-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. A) Choose **correct** alternatives : **10**

1) _____ search method requires data to be sorted first.
   a) Sequential b) Linear
   c) Binary d) Both a and b

2) The number of possible binary trees with 3 nodes is _____
   a) 18 b) 15 c) 9 d) 5

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 these

4) In a binary expression tree, parent node is always _____
   a) Operator b) Operand
   c) Parenthesis d) None of these

5) _____ is hierarchical data structure.
   a) Linked list b) Tree
   c) Graph d) Both b and c

6) AOV network is useful for _____
   a) Critical path b) Shortest path
   c) Topological sort d) None of these

7) Finding location of the element with a given value is _____
   a) Traversal b) Search
   c) Sort d) None of these

8) NULL links are replaced in _____ binary tree.

a) Extended b) Complete

c) Threaded d) AVL

9) Maximum degree of node in binary search tree is_____

a) 0 b) 1 c) 2 d) 3

10) Queue can be used to implement _____

a) Quick sort b) Radix sort

c) Selection sort d) None of these

B) State **true** or **false** : **4**

1) If we read binary search tree by pre order then we get descending order of element.

2) Graph is a non-linear data structure.

3) Preorder is same as breadth first order.

4) For linear sequential search the array must be in a sorted order.

2. Answer **any seven** of the following : **14**

1) What is topological sorting ?

2) Define AVL tree.

3) Give the applications of trees.

4) Define i) In-degree ii) Out-degree.

5) List out any two applications of sorting methods.

6) What is linear searching ?

7) Define the term : terminal nodes, siblings.

8) Describe the use of hash function.

9) List the applications of Graph.

3. A) Answer **any two** of the following : **10**

   1) What is Binary tree ? Explain strictly binary tree and complete binary tree.

   2) Write an algorithm for Binary Search method.

   3) What are tree traversals ? Explain in detail.

   B) Sort the given array using Quick Sort show all Passes.

   9, 20, 13, 45, 33, 22, 10, 77, 2, 60. **4**

4. Answer **any two** of the following : **14**

   1) Explain the process to insert new node in binary search tree.

   2) Explain Radix sort algorithm in detail.

   3) What are the different representations of graph ? Explain adjacency matrix representation of graph.

5. Answer **any two** of the following : **14**

   1) Give the uses of sorting techniques with suitable example.

   2) Explain the graph traversal methods.

   3) Explain threaded binary tree with its any two types.

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Seat No.	

Set **P**

B.Sc. (ECS) – II (Semester – IV) (Old CGPA) Examination, 2018
Paper – IV : SOFTWARE ENGINEERING – II

Day and Date : Tuesday, 11-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose the **correct** alternatives : **14**

1) The modification of the software to match changes in the ever changing environment, falls under which category of software maintenance ?
   a) Corrective b) Adaptive
   c) Perfective d) Preventive

2) Boundary value analysis belongs to.
   a) White Box Testing b) Black Box Testing
   c) White Box and Black Box Testing d) None of the mentioned

3) Data dictionary conations details of _____
   a) Data structure b) Data flow
   c) Data Stores d) All of these

4) The longest method of conversion is _____
   a) Direct b) Parallel c) Pilot d) Phased

5) _____ are sometimes referred as 'Bubble Diagram'.
   a) Flowchart b) ER-diagram
   c) Decision table d) DFD

6) In _____ aliases or synonyms are allowed when two or more entries show the same meaning.
   a) Data Flow Diagrams b) Data Dictionary
   c) Data Table d) Decision Table

7) _____ is a graphical description of a system's data and how the process transform the data.

a) System diagram b) Detail flowcharts

c) Data flow diagram d) Data direction diagram

8) Black box testing sometimes called

a) Data Flow Testing b) Loop Testing

c) Behavioral Testing d) Graph Based Testing

9) _____ is the process of translating the source document into machine readable format.

a) Data capture b) Data input

c) Data collection d) Data entry

10) The old system is replaced by the new system is called _____

a) Fact finding b) Pilot

c) Direct conversion d) Cutoff

11) The relationship between data items and removing unnecessary data item is known as _____

a) ERD b) DFD

c) Normalization d) None of these

12) The basic tool used in structured design is a _____

a) Structured Chart b) Data Flow Diagram

c) ER diagram d) Program flowchart

13) The first step of the implementation phase is _____

a) Implementation planning b) Select the computer

c) Prepare physical facilities d) None of these

14) In the_____ normal form, a composite attribute is converted to individual attributes.

a) First b) Second c) Third d) Fourth

2. Answer **any seven** of the followings : **14**
   1) What is the purpose of DFD ?
   2) What are benefits of CASE tools ?
   3) What is Software Maintenance ?
   4) Draw the different symbols of DFD.
   5) What are the different types of Cohesion ?
   6) What does level zero DFD represent ?
   7) What is Data Dictionary ?
   8) Why DFD and data dictionary are complement to each other ?
   9) What is coupling ? What are the various types of coupling ?

3. A) Answer **any two** of the followings : **10**
      1) Differentiate between physical and logical DFD.
      2) Explain white box testing in detail.
      3) Discuss the different methods of conversions from old system to new system.

   B) Draw an ER-diagram for College Admission System. **4**

4. Answer **any two** of the followings : **14**
   1) Explain the term Entity, Attribute and relationship with example.
   2) What is Data Capture ? Explain basic steps in data capturing process.
   3) Explain the benefit of integrated CASE environment.

5. Answer **any two** of the followings : **14**
   1) Draw the CLD and first level DFD for 'Payroll System'.
   2) What is Normalization ? Explain up to 3NF.
   3) Explain incremental approach to implementation in detail.

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Seat No.	

Set **P**

B.Sc. (ECS) – II (Semester – IV) (Old – CGPA) Examination, 2018
Paper – V : ORGANIZATION OF PC – II

Day and Date : Wednesday, 12-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Multiple Choice Questions. **14**

1) Address bus of 80286 is _____ bit.
   a) 24 b) 12
   c) 16 d) 32

2) _____ is first processor which has internal cache memory.
   a) 80486 b) Pentium
   c) 80286 d) 8086

3) The fan out of TTL is _____
   a) 50 b) 100
   c) 10 d) None

4) CISC stands for _____
   a) Computer Instruction Set Computer
   b) Content Instruction Set Computer
   c) Complex Instruction Set Computer
   d) None

5) Radio waves are _____ directional.
   a) Omini b) bi
   c) Uni d) None

6) _____ is multiport repeater.
   a) Hub b) Bridge
   c) Switch d) Router

7) ULSI contain _____ no. of gates.

a) 10 and 100 b) 100 and 800

c) Above 50000 d) Less than 200

8) Address bus of 80486 is _____

a) Uni directional b) Bi-directional

c) Multi directional d) None

9) Real memory of 80286 is _____

a) 16 MB b) 20 MB

c) 24 MB d) None of these

10) _____ topology has backbone.

a) Bus b) Star

c) Logical d) None

11) SMD stands for _____

a) Surface Mount Device

b) Surface Material Device

c) Surface Mount Digital

d) Smooth Mount Device

12) _____ consist fixed OR and programmable AND.

a) PLA b) PAL

c) PPL d) PLD

13) In OSI model _____ layer is present.

a) 8 b) 7

c) 5 d) 4

14) Pentium pro is a _____ way superscalar architecture.

a) 6 b) 4

c) 3 d) 2

2. Answer **any seven** of the following. **14**
   1) Write features 80486.
   2) Draw star topology.
   3) List SMD devices.
   4) Give application MMX Pentium.
   5) Draw CPLD architecture.
   6) Explain MOS family.
   7) Compare LAN and WAN.
   8) Write application of computer network.
   9) Write use of router.

3. A) Answer **any two** of the following : **10**
      1) Compare peer to peer and client server network.
      2) Write a note on CPLD.
      3) Write a note on Pentium processor.

   B) Give difference between TTL and MOS family. **4**

4. Answer **any two** of the following : **14**
   1) Explain different goals of network.
   2) Explain CISC and RISC concept.
   3) Explain characteristics of IC families.

5. Answer **any two** of the following : **14**
   1) Explain with suitable diagram PLA.
   2) Explain OSI model.
   3) Draw internal organization of Pentium. Explain integer pipeline stages.

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Seat No.	

Set **P**

B.Sc. (ECS) – II (Semester – IV) (Old (CGPA) Pattern)
Examination, 2018
Paper – VI : MICROPROCESSOR – II

Day and Date : Thursday, 13-12-2018 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions *: i)* ***All*** *questions are* ***compulsory*** *and carry* ***equal*** *marks.*
ii) Draw ***neat*** *diagrams* ***wherever*** *necessary.*

1. Multiple Choice Questions. **14**

1) 8255 has _____ no. of ports.
a) 8 b) 4 c) 2 d) 3

2) Speed of 80286 is _____ MHz.
a) 20 b) 10 c) 5 d) 66

3) 80486 has _____ byte instruction queue.
a) 20 b) 8 c) 16 d) 32

4) 8257 is _____ type IC.
a) PPI b) PTC c) DMA d) DAM

5) Virtual memory of 8086 is _____ MB.
a) 16 b) 1 c) 8 d) 4

6) 8255 is _____ pin IC.
a) 24 b) 40 c) 20 d) 16

7) _____ is processor instruction.
a) ANI b) CLI c) ORI d) ADI

8) 8086 has _____ bit flag register.
a) 16 b) 8 c) 32 d) 64

9) Real memory of 80486 is _____
a) 16 MB b) 1 MB c) 32 MB d) 4 GB

10) 80286 processor is developed in _____

a) 1982 b) 1991

c) 1992 d) 1993

11) $MN/\overline{MX}$ is connected to pin no. _____ in 8086.

a) 31 b) 33

c) 32 d) 34

12) 8086 has _____ no. of segment register.

a) 4 b) 8

c) 16 d) 24

13) _____ is bit manipulation instruction.

a) ADI b) DCX

c) ROR d) ADC

14) REPE is _____ instruction.

a) data transfer b) processor

c) arithmetic d) string

2. Answer **any seven** of the following. **14**

1) What is mean by instruction queue ?
2) Explain GPR's of 80486.
3) Explain AAA, DAA instruction.
4) Explain function of $MN/\overline{MX}$ and INTR pins.
5) Write names of modes used in 8253.
6) Compare real and virtual memory of 80186 and 80286.
7) Write program for addition and subtraction in 8086.
8) Give difference between 8086 and 8088.
9) Explain instruction MVI, ADI.

3. A) Answer **any two** of the following : **10**
   1) Explain flag register of 8086.
   2) Explain processor control instructions.
   3) Explain linear select decoding.

   B) Explain control word of 8255. **4**

4. Attempt **any two** of the following : **14**
   1) Explain architecture of 8086.
   2) Explain arithmetic and logical instructions.
   3) Explain 8237 with block diagram.

5. Attempt **any two** of the following : **14**
   1) Explain minimum and maximum mode of 8086.
   2) Explain data transfer and processor control instructions.
   3) Explain architecture of 80286.

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Seat No.	

Set P

B.Sc. III (Semester – V) (ECS) (New CBCS) Examination, 2018
ENGLISH (Compulsory) (Paper – I)
Literary Quest

Day and Date : Saturday, 17-11-2018 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose the correct alternative. **14**

1) What is referred to as 'mother of religions' by Swami Vivekananda ?
   a) Hinduism b) Christianity
   c) Judaism d) None of the above

2) What has destroyed civilization and sent whole nations to despair, according to Vivekananda ?
   a) sectarianism b) bigotry c) fanaticism d) all the above

3) What did Mother Teresa want to be as a child ?
   a) teacher b) nun c) missionary d) nurse

4) When did Mother Teresa receive Nobel Peace Prize award ?
   a) 1979 b) 1980 c) 1981 d) 1978

5) When you are defrauded it is easy to be
   a) angry b) jealous c) peaceful d) selfish

6) According to Lawrence, money is our vast _____ madness.
   a) individual b) personal c) collective d) none of the above

7) Science is addressed as
   a) daughter of Old Time b) enemy of Old Time
   c) wife of Old Time d) herald of New Time

8) Father Gilligan was tired because
   a) people were working hard b) people were tired
   c) people were sick d) people were celebrating

9) The young children in this school _____ (have: Simple Present) yoga classes twice a week.
   a) has b) are c) have d) is

P.T.O.

10) Karan _____ (work: past progressive) in Solapur.
   a) is working b) was working
   c) worked d) were working

11) Either Murali or Tara _____ (use: Present Perfect) these pens.
   a) have used b) had used
   c) has used d) has been used

12) What is the superlative form of 'young' ?
   a) younger b) more young
   c) most young d) youngest

13) What is the comparative form of 'fine' ?
   a) more fine b) finer
   c) most fine d) finest

14) What is the positive form of 'further' ?
   a) furthest b) more further
   c) far d) none of the above

2. Answer **any four** of the following questions. **16**
   1) What does one gain from being calm ?
   2) What are the solutions offered by Lawrence to the problems caused by money mindedness ?
   3) What is the theme of the sonnet 'To Science' ?
   4) What did God do when Father Gilligan fell asleep ?
   5) What is the central idea of the poem 'Money Madness' ?
   6) Why doesn't Father Gilligan have rest, joy and peace ?

3. Answer **any two** of the following questions. **12**
   1) How has India displayed religious tolerance to the world ?
   2) What Mother Teresa initially did after completing nursing course ?
   3) Write the dialogues for the following situation :

      Mahesh goes to his friend Sachin's house. They talk about which book they will gift to their friend Namdeo on his birthday.
   4) Write the dialogues for the following situation :

      You call a restaurant to ask how long it is open and to make a reservation.

4. Answer **any one** of the following questions. **14**

1) Write an argumentative speech on 'Smoking at Public Places'.

OR

2) Write a script of a debate on the topic- 'Should Plastic Bags be Banned ?' Use following points below to develop a debate. You can work in a group of four with two people choosing to argue for affirmative and two people arguing for the negative.

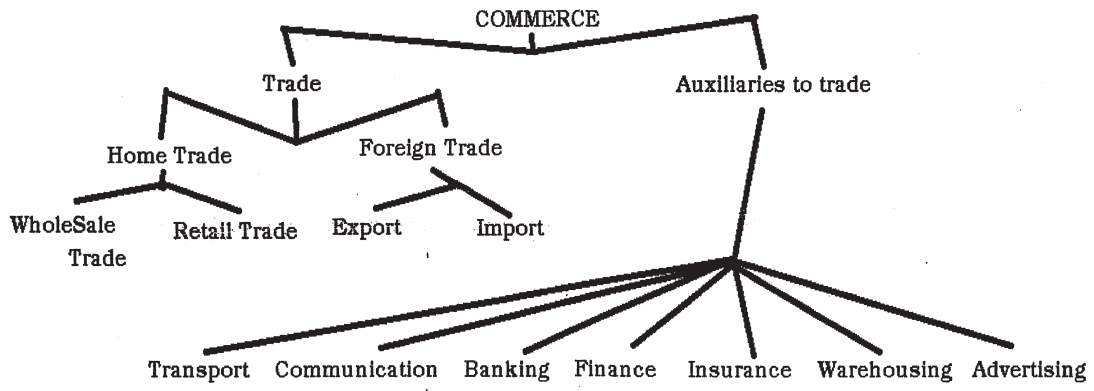
Affirmative :

1) Environmental damage
2) The Great Waste
3) Non-biodegradable
4) They litter our streets
5) Plastic bags suffocate and kill
6) Wildlife concerns
7) Spread Awareness.

Negative :

1) No need to ban, add a tax
2) Freedom of choice
3) People forget their re-useable bags
4) Causes loss of jobs
5) The environmental war needs to be won elsewhere
6) Loss of Technology
7) So what do we carry our shopping in ?
8) No need to ban just reduce the use of plastic.

5. Write a detailed paragraph on the following tree diagram. **14**



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Seat No.	

Set **P**

B.Sc. (E.C.S.) (Part – III) (Semester – V) Examination, 2018
COMPUTER SCIENCE (New CBCS)
Data Communication and Networking – I (Paper – II)

Day and Date : Monday, 19-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Multiple Choice Questions. **14**

1) Computer Network is _____
   A) Collection of hardware components and computers
   B) Interconnected by communication channels
   C) Sharing of resources and information
   D) All of the above

2) For a _____ channel, we need to use the Shannon capacity to find the maximum bit rate.
   A) Noiseless B) Noisy
   C) Low-pass D) Band pass

3) _____ provides a connection-oriented reliable service for sending messages.
   A) TCP B) IP
   C) UDP D) All of the above

4) Addressing mechanism is done at _____
   A) Physical Layer B) Data Link Layer
   C) Application Layer D) Physical Layer

5) Coaxial cable consists of _____ concentric copper conductors.
   A) 1 B) 2 C) 3 D) 4

6) HTTP is _____ protocol.
   A) Application layer B) Transport layer
   C) Network layer D) Physical layer

7) Physical or logical arrangement of network is _____
   A) Networking B) Routing
   C) Topology D) Linking

8) _____ Topology there is a central controller or hub.
   A) Mesh B) Star
   C) Ring D) Bus

9) The resources needed for communication between end systems are reserved for the duration of session between end systems in _____
   A) Packet switching B) Frequency switching
   C) Line switching D) Circuit switching

10) Which transmission media has the highest transmission speed in a network ?
   A) Coaxial cable B) Twisted pair cable
   C) Optical fiber D) Electrical cable

11) The physical layer translates logical communication requests from the _____ into hardware specific operations.
   A) Data link layer B) Network layer
   C) Transport layer D) Application layer

12) Wireless transmission can be done via _____
   A) Radio waves B) Microwaves
   C) Infrared D) All of the above

13) Application layer offers _____ service.
   A) End to end B) Process to process
   C) Both of the mentioned D) None of the mentioned

14) The packet of information at the application layer is called _____
   A) Packet B) Message
   C) Segment D) Frame

2. A) Answer the following **(Any Four)**. **8**
   1) Define data communication.
   2) What is point-point link ?
   3) What is the purpose of physical layer ?
   4) Define flow control.
   5) Define Period and Frequency.

   B) Write a notes on **(Any Two)**. **6**
   1) Pulse Coded Modulation.
   2) Attenuation.
   3) Connection oriented and connectionless services.

3. A) Answer the following **(Any Two)**. **8**
   1) Explain types of network topologies.
   2) Explain the message switching.
   3) Explain the Go Back N ARQ.

   B) Answer the following **(Any One)**. **6**
   1) Define the guided media. Explain the Twisted Pair Cable.
   2) Explain the Congestion Control in Virtual Circuit Subnet.

4. A) Answer the following **(Any Two)**. **10**
   1) What is multiplexing ? Explain Time division multiplexing.
   2) Explain the Data link layer Design issues in detail.
   3) Explain distance vector routing algorithm.

   B) Answer the following **(Any One)**. **4**
   1) Explain the concept of internet working.
   2) Explain the ALOHA.

5. Answer the following **(Any Two)**. **14**
   1) Define network model. Explain ISO-OSI Reference model.
   2) Define transmission mode. Explain parallel and serial transmission mode.
   3) What is Channelization ? Explain the FDMA and CDMA in detail.

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Seat No.	

Set P

B.Sc. – III (ECS) (Semester – V) (New CBCS) Examination, 2018
THEORY OF COMPUTER SCIENCE (Paper – III)

Day and Date : Tuesday, 20-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

1. Multiple Choice Questions : **14**

1) If S = {1, 2, 3} and R = {(1, 1), (2, 2), (3, 3)} then R is said to be _____
   a) Reflexive b) Transitive
   c) Symmetric d) Reflexive and Transitive

2) Every NFA with epsilon-moves can be converted into _____
   a) DFA b) NFA without epsilon-moves
   c) Both a and b d) None of these

3) If L (r) = {€, 0, 1, 00, 01, 10, 11, ... } then r = _____
   a) (0 + 1)* b) 0*1*
   c) 0*+1* d) 0 +1*

4) The productions required to generate the language L = {a, aa, aaa, ...} is _____
   a) A->aS|a b) A->aS|€
   c) A->aS|a|€ d) A->aSa|a|€

5) The _____ is mathematical model of machine or computer.
   a) FA b) Turing Machine
   c) PDA d) Regular Expression

6) Turing machine is language recognizer of _____ language.
   a) Context Free b) Context sensitive
   c) Phase structured d) All of the above

P.T.O.

7) CFL is closed under union, concatenation and _____ operation.

a) set difference b) kleene star

c) both a and b d) none of these

8) If A = {1, 2, 3, 4, 5} then power set of set A contains _____ number of elements.

a) 5 b) 10 c) 32 d) 31

9) Mealy machine and Moore machine represents _____

a) FA with output b) FA without output

c) Both a and b d) None of these

10) Pumping Lemma is used to prove that language is _____

a) Regular b) Not regular

c) Context free d) Context sensitive

11) _____ is capable of performing computations on inputs and producing a new result.

a) FA b) FA with output

c) NFA d) Turing machine

12) A->aAB|a, B->b all these productions are in the _____

a) CNF b) GNF

c) both a and b d) KNF

13) In case of _____ We can move from one state to another but without reading any input symbol.

a) NFA without €-moves b) NFA with €-moves

c) DFA \ d) None of these

14) Proper suffixes of the string “pqr” are _____

a) {p, q, r} b) {pq, qr, pr}

c) {€, r, qr} d) { r, qr, pqr}

2. A) Answer the following (**any four)** : **8**

1) Define :
a) set b) language

2) Construct DFA for the following :
L = {x €{a, b}|x ends with aab}

3) Describe in English the language represented by following expression.
a) (a + b)* a(a+b)* b) $a^+b^*c^+$

4) Give a context free grammar for the following language.
0(0 + 1)*01(0+1)*1

5) Define PDA.

B) Write notes on (**any two)** : **6**

1) Find the transitive closure and the symmetric closure of the relation.
{(1, 2), (2, 3), (3, 4), (5, 4)}

2) Construct FSM for checking number is divisible by 2.

3) Design Turing machine which accept string ending with ab over $\Sigma = \{a, b\}$.

3. A) Answer the following (**any two)** : **8**

1) Design Mealy machine for 2's complement.

2) For the grammar given below.
E->E + T |T
T->T*F|F
F->(E)| a | b
Give the derivation of a+b*b also draws the parse tree for the same expression.

3) Construct FA equivalent to RE.
(a+b)*(bbb+aaa)*

B) Answer the following (**any one**) : **6**

1) Consider the following NFA with ε–moves. ({p, q, r}, {a, b, c, ε}, δ, {p}, {r}) into DFA.

	ε	a	b	c
→p	-	p	q	r
q	p	q	r	-
r*	q	r	-	p

2) Write a note on Simplification of grammars.

Set P

4. A) Answer the following (**any two)** : **10**

   1) Find a grammar in CNF equivalent to grammar :

      E->E+T|T,

      T->T*F|F,

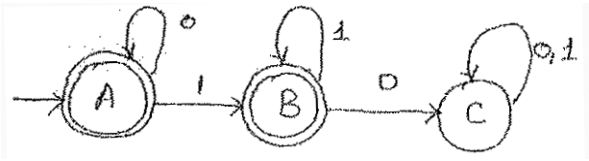
      F->(E)|a.

   2) Design PDA for well formedness of parenthesis.

   3) Design DFA over an Σ = {a, b} which accept the language that start and end with different symbol.

   B) Answer the following (**any one)** : **4**

   1) Find regular expression for following :



   2) Design a Turing machine to check whether a string over {a, b} contains equal number of ‘a’ s nd b’s.

5. Answer the following (**any two)** : **14**

   1) Check the following grammar is ambiguous or not ; if found the remove it.
      S->aB|bA
      A->a|aS|bAA
      B->b|bS|aBB
      For string aaabbabbba.

   2) Draw a transition diagram for a Turing machine accepting the following language.
      $L = \{a^i b^j | I < j\}$

   3) Give the GNF for following CFG.
      S->AB
      A->BS|b
      B->SA|a.

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Seat No.	

Set P

B.Sc. (ECS) – III (Semester – V) (CBCS) Examination, 2018
Paper – IV : VISUAL PROGRAMMING – I (New)

Day and Date : Thursday, 22-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figure to the ***right*** *indicates* ***full*** *marks.*

1. Choose **correct** alternatives : **14**

1) A shared assemblies are deployed into the _____
   a) GAC b) MAC
   c) 'D' Drive d) None of above

2) CLS stands for _____
   a) Common Language Specification
   b) Compound Language Specification
   c) Common Language Specified
   d) Compound Language Specified

3) Size of 'long' data type is _____ bits.
   a) 32 b) 8 c) 48 d) 64

4) Value types have fixed length and are stored on _____
   a) Stack b) Heap
   c) Queue d) None of above

5) Which of these access specifier should be used for Main( ) method ?
   a) Private b) Protected
   c) Public d) None of above

6) Indexer is declared using _____ keyword.
   a) new b) base c) get d) this

7) Following is not the method of Object class ?
   a) Equals( ) b) ToString( )
   c) Finalize( ) d) System( )

8) _____ block can have one or more statements that could generate an exception.
   a) try b) catch
   c) finally d) none of above

9) _____ constructor is called before any object of class is created.
   a) Copy b) Default c) Static d) Private

10) _____ method used to block the current thread for the specified time.
   a) Abort() b) Sleep() c) Join() d) Start()

11) _____ is a condition that caused by a run time error in a program.
   a) Error b) Exception
   c) File d) None of above

12) Return type of ReadLine() method is _____
   a) int b) Void c) String d) Float

13) Enums are _____ types.
   a) Value type b) Reference type
   c) Both (a) and (b) d) None of above

14) _____ keyword refers to the current instance of a class.
   a) this b) value c) base d) final

2. A) Answer the following (**Any four**) : **8**

1) What is parameter array ?
2) Define Garbage Collection.
3) What is inheritance ? List types of inheritance in C#.
4) What is Assembly ?
5) What are the functions of JIT Compiler ?

B) Write notes on (**Any two**) : **6**

1) CTS.
2) Command Line Arguments.
3) Enumeration.

3. A) Answer the following (**Any two**). **8**

1) What are the different data types supported in C# ?
2) What is interface ? How to implement interface explain with example.
3) Explain ref and out parameter with example.

B) Answer the following (**Any one**) : **6**

1) What is property ? Explain with example.
2) What is the use of StreamReader and StreamWriter ? Explain with suitable program.

4. A) Answer the following (**Any two**) : **10**

1) What is exception ? Explain try, catch and finally block with example.
2) What is Thread ? Write a program to demonstrate passing parameter to thread.
3) Differentiate value type and reference type.

B) Answer the following (**Any one**) : **4**

1) Why use of sealed classes ? Explain with example.
2) Write a note on foreach loop.

5. Answer the following (**Any two**) : **14**

1) What are the components of Dot Net framework ? Explain in detail with suitable diagram.
2) Write a program to demonstrate indexer.
3) What is collection ? Explain Stack, Queue and Hashtable non-generic classes in detail with example.

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Seat No.	

Set **P**

B.Sc. (ECS) (Part – III) (Semester – V) (CBCS) Examination, 2018
Paper – V : WEB TECHNOLOGY AND E-COMMERCE – I (NEW)

Day and Date : Saturday, 24-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Multiple Choice Questions. **14**

1) Invoice is present in _____ phase of e-commerce transaction.
   a) Pre-sale b) Execution
   c) Settlement d) After-sales

2) Data table object is available in _____ namespace.
   a) System.Data.OracleClient b) System.Data.SqlClient
   c) System.Data.ODBC d) System.Data

3) _____ of the following state management technique is not secure state management technique.
   a) Query String b) Session
   c) Application d) None of these

4) _____ method is used to run sql command in command object.
   a) ExecuteSql() b) RunSql()
   c) ExecuteNonQuery() d) RunCommand()

5) Default value for parameter direction is InOut.
   a) True b) False

6) According to the Seddon's definition of e-commerce, Management Information System era is in the _____ part of IT evolution.
   a) 1955-1974 b) 1975-1994
   c) 1995-2014 d) None of these

7) Circular Hotspot in Image Map require to set _____ number of parameter.
   a) 1 b) 2 c) 3 d) Can't say

8) _____ is default event for TextBox control.
   a) Click b) SelectionChanged
   c) SelectedIndexChange d) TextChanged

9) Suppose you want to display Welcome message to each user of web site then _____ event of website life cycle is used.
   a) Application_Start b) Application_BeginRequest
   c) Session_Start d) Session_BeginRequest

10) _____ property of radio button must be set to achieve single selection from group of radio buttons.
   a) GroupName b) TextMode
   c) Checked d) SingleGroup

11) Import directive has only one attribute and which is _____
   a) Interface b) CodeFile
   c) Language d) Namespace

12) Suppose you want to validate textbox having value other than 10. _____ property of RequiredField Validation control is need to be set.
   a) TextValue b) DefaultValue
   c) ValidValue d) None of these

13) _____ tag must be present in master page.
   a) Content b) Master
   c) ContentPlaceHolder d) ContentHolder

14) We cannot compare textbox value with constant value using CompareValidator Control
   a) True b) False

2. A) Answer the following (**Any four**). **8**

   1) Define NameSpace. Which NameSpaces is base namespace for web base application ?
   2) What is client side and server side validation ? List all validation controls.
   3) What is connection string ? What are part of connection string ?
   4) What is hidden field state management technique ?
   5) Explain steps to add control at runtime.

B) Answer the following (**any two**). **6**

1) Explain all definitions of E-commerce.

2) Explain Website Life cycle.

3) Explain Multiview and View control with example.

3. A) Answer the following (**any two**). **8**

1) What is Server side state management technique ? Explain in detail.

2) Differentiate ASP and ASP.Net.

3) What is image map ? Design web page which demonstrate image map control sing static and dynamic method.

B) Answer the following (**any one**). **6**

1) What is cookies ? Explain how to read and write cookies with example.

2) Explain e-commerce generic trade cycle.

4. A) Answer the following (**any two**). **10**

1) What is connected and disconnect classes ? Explain in detail.

2) What are services provided by CLR ? Explain each in detail.

3) Explain how to find total salary using stored procedure. Give example.

B) Answer the following (**any one**). **4**

1) Design web page explain XML control with example.

2) Explain DataAdapter and DataReader.

5. Answer the following (**any two**). **14**

1) What is Application folders ? Explain different application folders used in asp.net.

2) Design web page which display your exam schedule and 10 friends birthday on calendar control.

3) Design web page which insert, update, and delete record in table.

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Seat No.	

Set **P**

B.Sc. – III (ECS) (Semester – V) (New CBCS) Examination, 2018
PYTHON – I (Paper – V)

Day and Date : Saturday, 24-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose **correct** alternative . **14**

1) Which method is used to capitalizes the first character of the String ?
   a) Capitalize () b) Capitalizes ()
   c) Lower () d) Upper ()

2) In Python, Multi lined comment can be given inside triple quotes
   a) True b) False

3) Which of these in not a core data type ?
   a) Lists b) Dictionary c) Tuples d) Class

4) Which method is used to returns the type of an object ?
   a) type () b) id() c) object() d) None

5) Which arithmetic operators is used repeat a string number of times ?
   a) + b) * c) – d) / /

6) Suppose listExample is [‘h’, ‘e’, ‘l’, ‘l’, ‘o’], what is len (listExample) ?
   a) 5 b) 4 c) hello d) –5

7) In python, you cannot change the values in a ‘List’ once you have created it.
   a) True b) False

8) Which operator is overloaded by _lg_() function ?
   a) + b) = c) < d) | |

P.T.O.

9) In python, 'function' Keyword is used to start and declare a function ?
   a) True b) False

10) _____ special character matches at beginning or end of the String.
   a) \ B b) \ X c) \ A d) \ Z

11) Which membership operator return True if an element is found in the specified sequence ?
   a) in b) not in c) both a and b d) None of these

12) What is the value returned by math.pow (3, 3) ?
   a) 3 b) 9 c) 27 d) 3.0

13) Which is base class for all built in exceptions class ?
   a) Exception b) Error
   c) Exception and Error d) None

14) _____ exception occurs when following code in executed
print(4+'5')
   a) TypeError b) NameError c) ValueError d) IndexError

2. A) Answer the following **(Any four)** : **8**
   1) What is Module ?
   2) Explain membership operator.
   3) Define syntax for creating List.
   4) What is Object ?
   5) What is Regular Expression ?

   B) Write a notes on **(any two)**. **6**
   1) Random module.
   2) String and String Manipulation.
   3) Tuples.

3. A) Answer the following **(any two)**. **8**
   1) What is exception ? Explain various keyword to handle exception.
   2) Explain the characteristics of python.
   3) Write a program which is used to write data into any text file.

B) Answer the following **(any one)** : **6**

1) Write a program to display current date and time in four formats.

2) Explain types of regular expression in details.

4. A) Answer the following **(any two)** : **10**

1) What is String ? ExplainString methods with example.

2) Explain Function parameters with suitable example.

3) Write a program to check given string is palindrome or not.

B) Answer the following **(any one)** : **4**

1) Explain looping statement with suitable example.

2) Write a program to check given no is Armstrong or not.

5. Answer the following **(any two)** : **14**

1) Explain function overloading and overriding with suitable example.

2) Explain any five methods of Dictionary with suitable example.

3) Explain operators of python.

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Seat No.	

Set P

B.Sc. (ECS) – III (Semester – V) (Old CGPA) Examination, 2018
DATA COMMUNICATIONS AND NETWORKING – I (Paper – I)

Day and Date : Saturday, 17-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose the **correct** alternative. **14**

1) An example for dynamic routing algorithm is _____
   a) Shortest path b) Flooding
   c) Dijisktra d) Distance vector

2) _____ error detection method is used in internet.
   a) Checksum b) CRC
   c) Simple parity check d) None of mentioned

3) _____ mechanism is used to control congestion in virtual circuit subnet.
   a) Admission control b) Retransmission
   c) Discard d) None of these

4) The variation in the packet arrival time in the delivery of audio or video packet is called as _____
   a) Timeliness b) Jitter
   c) Reliability d) None

5) Point-to-point transmission with one sender and one receiver is sometimes called as _____
   a) Multicasting b) Unicasting
   c) Point casting d) None

6) In mesh topology for n nodes we can generate _____ links.
   a) N + 1 b) N(N + 1)
   c) N(N – 1)/2 d) 2N

7) Following is the dynamic routing algorithm.
   a) Flooding
   b) Optimality principal
   c) Shortest path
   d) Link state routing

8) Packet retransmission policy does not affect congestion at the _____ layer.
   a) Transport
   b) Data link
   c) Network
   d) Physical

9) By using _____ program user can copy files from one location to other by using Internet.
   a) Telnet b) RARP c) ARP d) FTP

10) In _____ check single parity bit is added to every data unit for error detection.
   a) CRC
   b) Internet checksum
   c) Simple parity
   d) None

11) _____ protocol is very efficient for sending frames in noisy links.
   a) Simplex
   b) Stop and wait
   c) Go Back n
   d) Selective repeat

12) The problem of resynchronization is resolved in _____
   a) Character count
   b) Byte stuffing
   c) Bit stuffing
   d) None

13) _____ primitive is used to block waiting for incoming connection.
   a) CONNECT
   b) LISTEN
   c) RECEIVE
   d) DISCONNECT

14) _____ noise generated from motors and appliances.
   a) Crosstalk
   b) Impulse
   c) Induced
   d) Thermal

2. A) Answer the following **(any four)**. **8**

   1) What is meant by Distortion ?

   2) What is a hamming distance ?

3) What is an optimality principle ?

4) What are the various standards of data communications ?

5) Which are the various components of Data communications ?

B) Write notes on **(any two)**. **6**

1) Explain Shannon's capacity formula.

2) Explain data link layer design issues.

3) Explain broadcast transmission technology.

3. A) Answer the following **(any two)**. **8**

1) Explain CSMA/CD in detail.

2) Explain serial transmission in detail.

3) Explain various service primitives in detail.

B) Answer the following **(any one)**. **6**

1) Frequency division multiplexing.

2) Congestion prevention policies.

4. A) Answer the following **(any two)**. **10**

1) Explain unbounded media in detail.

2) Explain TCP/IP reference model.

3) Explain Stop and wait ARQ protocol.

B) Answer the following **(any one)**. **4**

1) State the difference between connection oriented and connectionless services.

2) Explain network criteria.

5. Answer the following **(any two)**. **14**

1) Explain the difference between circuit switching and packet switching.

2) Explain various channelization methods in detail.

3) Explain shortest path algorithm with example.

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Seat No.	

Set **P**

B.Sc. (ECS) – III (Semester – V) (CGPA) (Old) Examination, 2018
DATABASE MANAGEMENT SYSTEM – I (Paper – II)

Day and Date : Monday, 19-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

1. Multiple choice questions. **14**

1) Monitoring jobs running on databases, should be supervised by
   a) Database System b) Database Manager
   c) Database Users d) Database Administrator

2) Functional dependencies are used for
   a) Testing instances of relations
   b) Specify constraints on legal relations
   c) Both a and b
   d) Specifying domain

3) Definition of 3NF permits certain functional dependencies that are not allowed in
   a) BCNF b) 1 NF c) 2 NF d) 3 NF

4) Model that uses a collection of tables to represent data and relationships among data, is known as
   a) Relational model b) View model
   c) Logical model d) Physical model

5) Mapping cardinalities can be of type
   a) 2 Type b) 3 Type c) 4 Type d) 5 Type

6) Generating a set of relation schemas that allows storing information without unnecessary redundancy, is goal of
   a) Normalization b) Assertion
   c) Association d) Integration

7) Algebraic operation that outputs specified attributes from all rows of input relation, is said to be
   a) Natural join b) Union operation
   c) Projection d) Selection

8) Command that is used to add attributes to an existing relation, is said to be
   a) Alter b) Delete c) Select d) Insert

9) Application resides at client machine and invokes database system functionality at server machine through query statement, is type known as
   a) One-tier architecture b) Two-tier architecture
   c) Three-tier architecture d) No-tier architecture

10) ON predicate is written like a
   a) From clause b) Select clause
   c) Where clause d) None of the above

11) Which of the following is an aggregate function in SQL ?
   a) Union b) Like c) Group d) Min

12) Which is a database objects from which multiple users can generate unique integer ?
   a) Views b) Sequences
   c) Synonyms d) None of the above

13) Which of the following database object does not physically exist ?
   a) Base table b) Index
   c) View d) None of the above

14) Which syntax is correct to remove index
   a) Drop index index _ name b) Delete index index_ name
   c) Alter index index _ name d) None of the above

2. A) Answer the following (**any four**) **8**

   1) What is DBMS ?

   2) What is the relationship and relationship set ?

3) Define Derived and stored attributes with suitable example.

4) Define weak entity and strong entity with suitable example.

5) What is Union and Set difference relational operators explain with suitable example ?

B) Write notes on (**any two**). **6**

1) Data dictionary.

2) IN and NOT IN operators in SQL.

3) Sequences.

3. A) Answer the following (**any two**). **8**

1) Explain components of DBMS in detail.

2) Explain Database languages in detail.

3) Draw E-R Diagram of 'Hospital Management System'.

B) Answer the following (**any one**). **6**

1) Explain Generalization and specialization with suitable example.

2) Explain operations in file.

4. A) Answer **any two** of the following. **10**

1) What are the advantages of Normalization ? And explain BCNF in Detail.

2) What is Join ? Explain types of Outer joins with proper syntax and suitable example.

3) Explain all Clauses in SQL with proper syntax and suitable example.

B) Answer the following (**any one**). **4**

1) What is sub query ? Explain its types with example.

2) Explain Data models in detail.

5. Answer **any two** of the following. **14**

1) What is view ? Explain view with proper syntax and suitable example.

2) What are benefits using of indexes ? Explain Indexes with proper syntax and suitable example.

3) Explain aggregate functions and string functions in SQL with proper syntax and suitable example.

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Seat No.	

Set **P**

B.Sc. (ECS) – III (Semester – V) Computer Science Examination, 2018
CORE JAVA (Old CGPA) (Paper – III)

Day and Date : Tuesday, 20-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) **All** questions are **compulsory**.*
*2) Figure to the **right** indicates **full** marks.*

1. Multiple choice questions : **14**

1) Java compiler requires a source file of _____ extension.
   a) .txt b) .java
   c) .doc d) .applet

2) _____ keyword prevents a method in a super class from being overridden by its subclass.
   a) super b) abstract
   c) static d) final

3) All exception classes inherit _____ class.
   a) Exception b) Error
   c) Throwable d) All of these

4) _____ member of a class are accessible outside the class, but within the same package.
   a) Public b) Private
   c) Protected d) All of these

5) Method overloading in java enables to define a method with _____
   a) Different number of arguments
   b) Different types of arguments
   c) Either different number or different types of arguments
   d) Different number and types of arguments

6) _____ is the default priority of thread.
   a) NORM_PRIORITY b) DEFAULT_PRIORITY
   c) MIN_PRIORITY d) MAX_PRIORITY

7) _____ of the following is the Wrapper class.
   a) int b) Float
   c) char d) double

8) _____ package is used for collection framework classes.
   a) java.applet b) java.awt
   c) java.event d) java.util

9) _____ layout arranges components into rows and columns.
   a) Border b) Flow
   c) Grid d) None of the above

10) _____ is a name given to a variable, class or method.
   a) Constant b) Reference
   c) Identifier d) Modifier

11) _____ type of listener is used for handling button click events ?
   a) MouseListener b) ItemListener
   c) KeyListener d) ActionListener

12) _____ classes are used for input and output operation on characters.
   a) InputStream and OutputStream b) Reader and Writer
   c) Both a and b d) None of these

13) _____ method is used to add element in Vector.
   a) addElement() b) add()
   c) insert() d) put()

14) API stands for _____
   a) Application Programming Interface
   b) Application Programming Interaction
   c) Application Programming Integration
   d) None of these

2. A) Answer the following **(Any Four)**. **8**
   1) Define java as a garbage collected language.
   2) Define thread synchronization.
   3) Write about, why java is secure than C++.
   4) Define Object class. State any two methods of Object class.
   5) Define Hash Table. Write its constructors.

   B) Write notes on **(Any Two)**. **6**
   1) Java Virtual Machine.
   2) Uses of final keyword.
   3) Method overloading.

3. A) Answer the following **(Any Two)**. **8**
   1) Write an object oriented program to check the number is palindrome or not.
   2) What is exception ? Explain the types of exception.
   3) Explain the use of static variable, static methods and static block with example.

   B) Answer the following **(Any One)**. **6**
   1) Explain the use of throw and throws keyword.
   2) Explain java as complied and interpreted language.

4. A) Answer the following **(Any Two)**. **10**
   1) Explain different types of wrapper classes.
   2) Write a program to implement multiple inheritance using interface.
   3) What is stream ? Explain different types of input output stream classes.

   B) Answer the following **(Any One)**. **4**
   1) What is applet ? Explain the life cycle methods of an applet.
   2) Explain user defined exception with example.

5. Answer the following **(Any Two)**. **14**
   1) Explain the life cycle of thread.
   2) Write an event handling program to implement keylistener interface.
   3) Write a program to demonstrate Vector class.

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Seat No.	

Set **P**

B.Sc. (ECS) – III (Semester – V) (Old CGPA) Examination, 2018
THEORY OF COMPUTER SCIENCE (Paper – IV)

Day and Date : Thursday, 22-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose **correct** alternatives. **14**

1) All possible subset of set is known as _____
   a) sub set b) power set
   c) super set d) None of these

2) Proper prefix of the string abc are_____
   a) {ε,c,bc,abc} b) {ε,c,bc}
   c) {ε,a,ab,abc} d) {ε,a,ab}

3) The empty string is denoted by _____
   a) ε b) ϕ
   c) Both a and b d) None of these

4) Function which mapping one to one from input to output such function is known as _____ function.
   a) Machine b) State
   c) Both a and b d) None of these

5) Push Down Automata has _____ tuples.
   a) 4 b) 5 c) 6 d) 7

6) Number of states requires accepting string ends with 10.
   a) 3 b) 2
   c) 1 d) can't be represented

7) NFA is more powerful than DFA.
   a) True b) False

8) A finite automata with output has final states.
   a) True b) False

9) Regular expression (a+b), (a+b) denotes the set _____
   a) {a} b) {aa,ba,ab,bb} c) {abab} d) {aabb}

10) Pumping lemma is a _____
   a) powerful tool for providing certain languages non-regular
   b) powerful tool for providing certain languages context sensitive
   c) Both a and b
   d) None of these

11) In GNF grammar is required in the form of _____
   a) A->BC|a b) A-> aα
   c) Both a and b d) None of these

12) The _____ is accepted unrestricted grammar.
   a) TM b) PDA
   c) DFA d) None of these

13) In PDA one situation has only one transition then it is known as _____
   a) TM b) DPDA
   c) NPDA d) Stack

14) TM is more powerful than PDA.
   a) True b) False

2. A) Answer the following **(Any Four)**. **8**
   1) Let R = {(a,b),(b,c),(c,a)}. Find R^+, R^*.
   2) Define :
      a) Regular Expression
      b) Language

3) Find language for the following regular expression.

a) ab* + ab*

b) (0+1)* 00(0 + 1)*

4) State difference between Moore and Mealy machine.

5) How many ways PDA accept language ? Give names.

B) Write note on **(Any Two)**. **6**

1) Construct Mealy machine for decrement of binary number 1.

2) Explain notations used in CFG.

3) Show that (a+b)*=(a+b)* + (a+b)*.

3. A) Answer the following **(Any Two)**. **8**

1) Find a deterministic acceptor equivalent to M = ($\{q_0, q_1, q_2\}$, {a, b}, q_0 $\{q_2\}$).

Δ	A	B
q_0	q_0, q_1	q_2
q_1	q_0	q_1
q_2	-	q_0, q_1

2) Convert the following right linear grammar to equivalent left linear grammar.

$S \rightarrow 0A \mid 1B$

$A \rightarrow 0C \mid 1A \mid 0$

$B \rightarrow 1B \mid 1A \mid 0 \mid 1A \mid 1$

$C \rightarrow a$

3) Design a PDA to check whether a given string over {a, b} ends in abb.

B) Write note on **(Any One)**. **6**

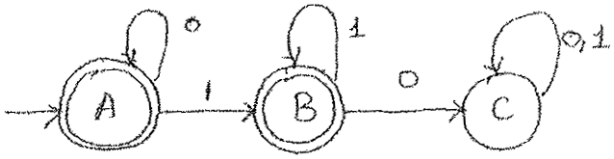
1) What is pumping lemma ? Using pumping lemma check $\{a^n b^{n+1} | n>=1\}$ is regular or not.

2) Check whether the following grammar is ambiguous or not ; if ambiguity found remove the ambiguity and rewrite an equivalent grammar S->iCtS | iCtSeS|a, C->b.

4. A) Answer the following **(Any Two)**. **10**
   1) Construct F.A. equivalent to R.E.
      (a+b)* (aaa+bab)* (a+b)*
   2) Find CNF for the following grammar :
      A->A+A | A*A | (A) |a
   3) Construct PDA that accepts the language generated by CFG.
      S->S+S|S*S|4

   B) Answer the following **(Any One)**. **4**
   1) Construct Turing Machine for checking well formdness of parenthesis.
   2) Construct DFA for find out given number is divisible by 3.

5. Answer the following **(Any Two)**. **14**
   1) Design TM for L = $\{a^n b^n | n > 1\}$.
   2) Construct RE for following DFA by using Arden's theorem.



   3) Explain simplification of grammar.

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Set **P**

B.Sc. (ECS) – III (Semester – V) (Old CGPA Pattern)
Examination, 2018
WEB TECHNOLOGY AND E-COMMERCE – I (Paper – V)

Day and Date : Saturday, 24-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose **correct** alternative. **14**

1) E-mail address can be validating by using _____ validation control.

a) E-mail expression b) Basic expression
c) Regular expression d) Pattern expression

2) _____ is a property common in every validation control.

a) ValidationExpression b) ValueToControl
c) ControlToCompare d) ControlToValidate

3) Invoice and payment are _____ phase of trade cycle.

a) Presale b) Execution c) Settlement d) After sales

4) _____ property of image map specify how to interact when specific area is clicked.

a) Area b) Click c) Hotspot mode d) None of these

5) _____ is the DataType return in IsPostback property.

a) bit b) Boolean c) int d) string

6) _____ is the last stage of web page life cycle.

a) Page-render b) Page-unload
c) Page-Exit d) None of these

P.T.O.

7) _____ property of bulleted list control is set to display items in hyperlink form.
   a) Display mode b) Display style
   c) Display hyperlink d) Hyperlink

8) _____ property of TextBox control determines whether TextBox is display to user or not.
   a) Enable b) Visible c) Show d) Hide

9) _____ activity of trade cycle concerned with customer inquiry and negotiates.
   a) Exception b) Settlement c) Order d) Presale

10) To create your application on a remote server which option you will choose in ASP.NET ?
   a) File System b) FTP c) HTTPS d) None

11) _____ is extension of Master page file.
   a) .master b) .aspx c) .ascx d) .masx

12) Before starting new company, people must consider _____ for competitive advantages.
   a) Finance
   b) IT
   c) Porter's model of competitive advantages
   d) Bank

13) Server side scripts are executed firstly than client side script.
   a) True b) False

14) To implement a specified.
   .NET Framework Interface <%@Implements%>directive is used.
   a) True b) False

2. A) Attempt **any four** of the following : **8**
   1) What is the use of <%@import%> Directive ?
   2) How to use sound as error notification in RequiredFieldValidation Control ?
   3) What is AutoPostBack Property ?
   4) What is use of link button and HyperLink Button Control ?
   5) Define E-Commerce.

B) Attempt **any two** of the following : **6**

1) Write Note on ASP.NET Application Location Options.
2) How Master page differs from Web page ?
3) What is Threat of substitution ?

3. A) Attempt **any two** of the following : **8**

1) Write any four CLR Services.
2) Write a Code for creating TextBox control at runtime.
3) Define EDI with its benefits.

B) Attempt **any one** of the following : **6**

1) Write down different Application Folders used in ASP.NET.
2) Explain Porters Model for Competitive Advantages.

4. A) Attempt **any two** of the following : **10**

1) Differentiate between ASP and ASP.NET.
2) Explain <%@Page %> directive with its attributes.
3) How we can post information from one page to another page ? Explain with Example.

B) Attempt **any one** of the following : **4**

1) What is need of Master Page ? How master page can be added dynamically ?
2) List out any four First Movers Advantages.

5. Attempt **any two** of the following : **14**

1) What is Client Side and Server side validation ? Explain Range Validator and Compare Validator Control with example.
2) Design web page for simple calculator using class file.
3) Explain Porter's Value Chain Model with diagram.

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Seat No.	

Set **P**

B.Sc. (ECS) – III (Semester – V)(CGPA) Examination, 2018
Paper – VI : VISUAL PROGRAMMING AND APPLICATION SOFTWARE – I (Old)

Day and Date : Monday, 26-11-2018 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose **correct** alternatives. **14**

1) A class can have _____ static constructor.
   a) One b) Two c) Three d) Many

2) Value type data stored on the heap.
   a) True b) False

3) An interface is implemented in _____
   a) Class only b) Structure only
   c) Both class and structure d) None of these

4) _____ is not member of an interface.
   a) Properties b) Indexers
   c) Constructors d) Methods

5) Which of the following is value type ?
   a) String b) Delegate
   c) Enum d) Class

6) _____ is a collection class operates in a LIFO manner.
   a) ArrayList b) List
   c) Stack d) HashTable

7) Every class directly or indirectly extends the _____ class.
   a) System b) Drawing
   c) Object d) Console

8) In C# Thread.Sleep(time) measures time in _____
   a) Seconds b) Milliseconds
   c) Nanoseconds d) Minute

9) _____ is used to hide the base class method.
   a) Base b) New c) Abstract d) Final

10) Which of the following defines rule for .Net languages ?
   a) CLR b) CTS c) CLS d) CST

11) Structure is a reference type
   a) True b) False

12) An enumeration is used to implement multiple inheritance.
   a) True b) False

13) In ArrayList _____ property is used to get or set the number of elements in the list.
   a) Count b) Total c) Capacity d) Length

14) Abstract method can be overridden by derived classes.
   a) True b) False

2. A) Answer the following (**any four**). **8**
   1) Define namespace.
   2) What is read-only property ?
   3) When do we use sealed classes ?
   4) What is use of foreach loop ?
   5) Which are the predefined reference types ?

   B) Write a note on (**any two**). **6**
   1) Explain nesting try block.
   2) List and explain characteristics of C# language.
   3) List the functions of CLR.

3. A) Answer the following (**any two**). **8**

   1) What is thread priority ? Explain it.

   2) What is run-time polymorphism ? Give one example.

   3) List the characteristics of abstract class.

   B) Answer the following (**any one**). **6**

   1) Explain the use of base keyword.

   2) Explain method overloading with suitable example.

4. A) Answer the following (**any two**). **10**

   1) What is a property ? Give one example of properties.

   2) Explain different advantages of generic collection classes.

   3) Explain the concept of thread synchronization with suitable example.

   B) Answer the following (**any one**). **4**

   1) What is visibility control ? List and explain visibility controls in C#.

   2) Define polymorphism and its implementation at runtime.

5. Answer the following (**any two**). **14**

   1) Define structure and explain with suitable example.

   2) Write a program to copy the content of one text file into another text file.

   3) What is Exception ? Explain multiple catch blocks with example.

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Seat No.	

Set P

B.Sc. (ECS) – III (Semester – VI) (CGPA) Examination, 2018
DATA COMMUNICATION AND NETWORKING – II (Paper – I)

Day and Date : Monday, 29-10-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose the correct alternative. **14**

1) Piconet can be combined to form

a) Scatter spot b) Scatternet

c) Pico spot d) Fibernet

2) _____ protocol is used to provide facility for remote logins to computer via Internet.

a) POP b) SNMP c) ARP d) Telnet

3) 190.160.10.0 address is belongs to following class.

a) B b) C c) D d) A

4) _____ server can serve files and printers that is faster and secure in Linux.

a) Samba b) Print c) Web d) FTP

5) Bluetooth is wireless technology for.

a) MAN b) LAN c) PAN d) WAN

6) Which protocol is used to find the hardware address of a local device ?

a) ARP b) RARP c) TCP d) UDP

7) Repeater works at _____ layer of OSI model.

a) Application b) Presentation

c) Physical d) Network

8) _____ substitutes one symbol with another.

a) Substitution cipher b) Transposition cipher

c) Round robin d) None of the above

9) In IP datagram the size of fragmentation Offset is _____ bit.

a) 8 b) 16 c) 13 d) 4

10) Wireless network uses _____ waves to transmit signals.

a) Sound b) Radio

c) Mechanical d) None

11) Default format for transferring text files by FTP is _____ file.

a) Binary b) ASCII c) EBCDIC d) Image

12) _____ is a asymmetric algorithm in cryptography.

a) IDEA b) DES c) AES d) RSA

13) _____ operates at the upper layer of OSI Model.

a) Browser b) Bridge c) Gateway d) Hub

14) POP stands for

a) Post Open Protocol b) Post Of Protocol

c) Page Off Procedure d) Post Office Protocol

2. Answer the following (**any seven**) : **14**

1) Explain Cryptography.

2) What is Repeater ?

3) What is Transposition cipher ?

4) What is mean by port number ?

5) What is Dig server ?

6) What is three way handshaking mechanism ?

7) Which are the recommended partitions in LINUX ?

8) What is mean by Active Hub and Passive Hub ?

9) What is meant by VPN ?

3. A) Answer the following (**any two**) : **10**

   1) Explain the four protocols used in SSL.

   2) What is the RARP ?

   3) Write a note on Proxy server.

   B) Explain the working of asymmetric key cryptography. **4**

4. Answer the following (**any two**). **14**

   1) Explain the architecture and working of GSM.

   2) Explain PGP in detail.

   3) Explain TCP in detail.

5. Answer the following (**any two**). **14**

   1) Explain User Management in LINUX.

   2) Explain gateway in detail.

   3) What is firewall ? Explain application Gateway in detail.

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Set P

B.Sc. (Part – III) (Entire Computer Science) (Semester – VI) (CGPA) Examination, 2018
DATABASE MANAGEMENT SYSTEM – II (Paper – II)

Day and Date : Tuesday, 30-10-2018 Total. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose an correct alternatives : **14**

1) A transaction must be
   a) Atomic b) Small
   c) Large d) All of these

2) A list of actions from a set of transactions is known as
   a) Statement b) Schedule
   c) Transaction set d) None of these

3) Timestamp has a property of
   a) Monotonicity b) Irreducibility
   c) Atomicity d) None of these

4) When transaction never progresses then we say that it is
   a) Aborted b) Starved
   c) Shared d) Locked

5) The blocks residing on the disk are called as
   a) Physical blocks b) Buffer blocks
   c) Disk buffer d) None of these

6) Shadow paging is used for
   a) Creating shadow
   b) Writing same item it different location
   c) Writing same item at same location
   d) None of these

7) The point of synchronization between the database and the transaction log file is called as
   a) Checkpoint b) Fuzzy checkpoint
   c) UNDO and REDO d) None of these

8) Two actions on same data object are conflict if one of them is a _____
   a) Read b) Write
   c) Read/Write d) None of these

9) A phase during which all locks are requested is known as
   a) Growing phase b) Shrinking phase
   c) Aborted phase d) None of these

10) The major factor for concurrency control is
   a) Locking b) Time stamping
   c) Granularity d) None of these

11) The process of restoring the database to a correct state in the event of a failure is known as
   a) Database recovery b) Database modification
   c) Reliability of database d) None of these

12) A sequence of log record is called as a
   a) File b) Database
   c) Log file d) None of these

13) Triggers are supported in
   a) Delete b) Update
   c) Views d) All of these

14) Shadow paging was introduced by
   a) Boehm b) E. F. Codd
   c) Lorie d) None of these

2. Solve **any seven** of the following : **14**

1) What is %type and %row type in PL/SQL ?
2) What are the states of transaction ?
3) Define upgrade and downgrade.

4) Define cascading rollback.

5) What is meant by log-based recovery ?

6) What is deadlock ?

7) What is trigger ?

8) Write a syntax of stored procedure.

9) List data types in PL/SQL.

3. A) Attempt **any two** of the following : **10**

   1) Explain locking techniques for concurrency control.

   2) What is shadow paging scheme ? Where it is used ?

   3) Write structure of PL/SQL block.

   B) What is transaction ? What are its ACID properties ? **4**

4. Attempt **any two** of the following : **14**

   1) Explain two phase locking protocol with an example.

   2) Write a PL/SQL function for reverse number.

   3) Explain Recovery schemas in detail.

5. Attempt **any two** of the following : **14**

   1) What is serializability ? Explain conflict and view serializable schedule.

   2) Explain timestamp ordering protocol.

   3) What is cursor ? Explain with an example.

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Seat No.	

Set P

B.Sc. (ECS) – III (CGPA) (Semester – VI) Examination, 2018
COMPUTER SCIENCE
Advanced Java (Paper – III)

Day and Date : Wednesday, 31-10-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. A) Choose correct alternative : **6**

1) The life cycle of a servlet is managed by _____
   A) ServletConfig B) ServletContext
   C) Servlet Container D) None of the above

2) Which method is used to execute queries that may return boolean result ?
   A) executeUpdate( ) B) execute( )
   C) executeQuery( ) D) executeBatch( )

3) Which JSP Action tag is used to prints the value of property of the bean ?
   A) jsp:out B) jsp:setProperty
   C) jsp:getProperty D) jsp:include

4) Which of these class is necessary to implement datagrams ?
   A) DatagramPacket B) DatagramSocket
   C) Both A) and B) D) None of these

5) Which is/are true about JSTL ?
   A) Fast Development B) Code reusability
   C) No need to use scriplettags D) All are true

6) The _____ interface provides the facility of dispatching the request to another resource it may be html, servlet or jsp.
   A) RequestHttp B) ResponseHttp
   C) RequestDispatcher D) ResponseDispatcher

B) **True** or **false** : **4**

1) Java swing components are platform-dependent.

2) Swing is not a part of JFC that is used to create GUI application.

3) A cookie is a small piece of information that is persisted between the multiple client Requests.

4) A JSP is transformed into a servlet as well as an applet.

C) Fill in the blanks : **4**

1) _____ servlet can handle any type of request so it is protocol-independent.

2) MVC stands for _____

3) _____ method of DatagramPacket is used to find the port number.

4) _____ JSTL Core tag is used for removing the specified scoped variable from a particular scope.

2. Answer **any seven** of the following : **14**

1) What is JDBC ?

2) What is UDP ?

3) What is Deployment descriptor ?

4) List out advantages of JSP over servlet.

5) Define methods of JTextArea.

6) What is cookies ?

7) Difference between statement and prepared Statement.

8) List out advantages of Java Networking.

9) Describe CallablStatement.

3. A) Answer **any two** of the following : **10**

   1) Explain servlet life cycle.

   2) Differentiate between AWT and Swing technology.

   3) Write a servlet to display “Hello” message (use doGet( )).

   B) Explain different types of JSP implicit objects. **4**

4. Answer **any two** of the following : **14**

   1) Write a program to create simple calculator by Swing Library.

   2) Explain types of JSTL SQL tags.

   3) What is session ? Explain session management through servlet.

5. Answer **any two** of the following : **14**

   1) Write a program to insert students information such as rollno, sname, cont–no, email, etc.

      (use Type-IV driver)

   2) Explain different methods of Statement interface.

   3) Explain exception handing in JSP with suitable example.

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Seat No.	

Set P

B.Sc. (ECS) – III (Semester – VI) (CGPA) Examination, 2018
COMPILER CONSTRUCTION (Paper – IV)

Day and Date : Thursday 1-11-2018 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

***Instructions** : 1) **All** questions are **compulsory**.*

*2) Figures to the **right** place indicate **full** marks.*

1. Choose the correct alternative : **14**

1) The source program into a sequence of atomic unit called _____

a) Identifier b) Token

c) Keywords d) None

2) A _____ reads the input one character at a time.

a) Lexical analyzer b) Parser

c) Symbol table d) None

3) A _____ describes the hierarchical structure of programs.

a) Lexical analyzer b) Syntax tree

c) Grammar d) None

4) _____ are data structures that hold information about identifiers.

a) Tokens b) Parser

c) Lexical Analyzer d) None

5) The set of words or strings of characters that match a given pattern is called a

a) Language b) Lexeme

c) Regular definition d) None

6) A _____ takes as input tokens from the lexical analyzer.

a) Parser b) Syntax directed translation

c) Code generation d) None

7) A _____ attribute at a parse tree node is computed from attributes at its children.
   a) Inherited b) Synthesized
   c) Both d) None

8) Procedure calls and returns are usually managed by a run time stack called the
   a) Heap b) Stack Allocation
   c) Control Stack d) None

9) _____ is the final phase of a compiler.
   a) Code generation b) Run time
   c) Both d) None

10) A _____ is a graphical representation of a program in which the nodes of the graph are basic block and edges show flow.
   a) Flow graph b) Loop
   c) DAG d) None

11) Three address code is sequence of statements of Z = op Y.
   a) True b) False

12) Code generator is not phase of compiler.
   a) True b) False

13) By value is one type of parameter passing technique.
   a) True b) False

14) Retract( ) used to retract lookahead pointer one character.
   a) True b) False

2. Attempt **any seven** of the following : **14**

1) What is Intermediate code generation ?

2) Explain regular definitions.

3) Consider CFG given below.

   $S \rightarrow aAb$

   $A \rightarrow aA|Bb$

   $B \rightarrow b$

   Solve input “aabbb” using Handle of shift reduce parser.

4) What is L-attributed definition ?

5) Explain Stack Allocation.

6) What is the definition of Backpatching ?

7) Explain flow graph.

8) What is copy propagation ?

9) Explain left recursive.

3. A) Attempt **any two** of the following : **10**

1) Explain Predictive parser. Construct the following grammar.

$S \rightarrow AB|€$

$A \rightarrow aAB|€$

$B \rightarrow bA$

2) Write a note on Parameter passing.

3) Explain loops in flow graph with example.

B) Explain Input Buffering. **4**

4. Attempt **any two** of the following : **14**

1) Explain phases of a compiler.

2) Write a note on source language issues.

3) Design and implementation of lexical analyzer explain with suitable example.

5. Attempt **any two** of the following : **14**

1) Explain Run time storage management.

2) What is Bottom-up parser ? How to implement shift reduce parser ? Solve the given example using Handle pruning.

$S \rightarrow xPy$

$P \rightarrow xP|Qy$

$Q \rightarrow y$

3) Explain construction of Syntax tree with example.

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Seat No.	

Set **P**

B.Sc. (ECS) – III (Semester – VI) (CGPA Pattern) Examination, 2018
WEB TECHNOLOGY AND E-COMMERCE – II (Paper – V)

Day and Date : Friday, 2-11-2018 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*

2) Figures to the ***right*** *indicate* ***full*** *marks.*

1. Choose correct alternative : **14**

1) How many types of authentication ASP.NET supports ?

a) Windows authentication b) .NET passport authentication

c) Forms authentication d) All

2) What are the types of cookies ?

a) Session cookies b) Persistent cookies

c) Dummy cookies d) a) and b)

3) In which file you should write the connection string, so you can access it in all the web page for same application ?

a) Code behind page file b) Web.config file

c) MasterPage file d) Machine.Config

4) From the following which is not a valid state management object ?

a) Querystate b) Cookies

c) Application state d) Hidden form fields

5) Which is not a function of e-commerce ?

a) Advertising b) Marketing

c) Warehousing d) Invoicing

P.T.O.

6) Which control is required of every AJAX page to manage the JavaScript files sent to the client and the communication between client and server ?
   a) UpdatePanel b) ScriptManager.
   c) AsyncPostBackTrigger d) None

7) What are the three primary kinds of parameters for stored procedure ?
   a) Input, integer, string
   b) Integer, string, datetime
   c) Int, varchar, nvarchar
   d) Input, output, inputoutput

8) If you want that command object should returns XML data then which method of command object will be used ?
   a) getXMLData() b) getXML()
   c) ExecuteXMLReader() d) None

9) Choose the correct option about DataReader object.
   a) DataReader object is a forward-only object
   b) It provides connection oriented environment
   c) DataReader is read only object
   d) All of the above

10) OTP stands for
   a) On Time Password b) One Time Password
   c) On Time Processor d) One Time Processor

11) Which of the following is true ?
   1) AJAX is a platform-independent technology
   2) AJAX can work with web application
   3) AJAX can only work with ASP.NET
   4) AJAX is a platform-dependent technology
   a) 1, 2 b) 1, 2, 3
   c) 1, 3, 4 d) All above

12) Web.sitemap file is a XML file.
   a) True b) False

13) Any number of 'ScriptManager' controls can be added on a ASP.NET web page.

a) True b) False

14) EDI stands for Electronic Data Interface.

a) True b) False

2. Attempt **any seven** of the following : **14**

1) What are the types of ASP.NET tracing ?

2) Define e-market.

3) Match the following List-1 to List 2.

List 1	**List 2**
a) Client-side navigation	i) Server.Transfer
b) Cross-page posting	ii) Response.Redirect
c) Client-side browser redirects	iii) PostBackUrl
d) Server-side transfer	iv) HyperLink

4) Write down four benefits of EDI.

5) Define the terms authentication and authorization.

6) List out two needs of AJAX.

7) Write syntax and use of ExecuteNonQuery( ).

8) List out disconnected environment ADO.NET classes.

9) List out different online payment methods.

3. A) Attempt **any two** of the following : **10**

1) Write note onUser.identify and User.IsInRole( )

2) Explain credit transaction trade cycle.

3) Explain cookies with example.

B) Define four pillars of security techniques in e-commerce. **4**

4. Attempt **any two** of the following : **14**

   1) Write note on e-visibility techniques.

   2) Design webpage which demonstrates use of ScriptManager and UpdatePanel AJAX controls.

   3) Design webpage which insert, update, search and delete record into database.

5. Attempt **any two** of the following : **14**

   1) Explain server side state management techniques.

   2) Explain website evaluation model with diagram.

   3) Design web page which calculates percentage of given roll numbers student by calling stored procedure.

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Seat No.	

Set **P**

B.Sc. – (ECS) – III (Semester – VI) (CGPA) Examination, 2018
VISUAL PROGRAMMING AND APPLICATION SOFTWARE – II
(Paper – VI)

Day and Date : Saturday, 3-11-2018 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. Choose the correct alternative : **14**

1) Which of the following control is not used to add and select data from the list ?
   a) TextBox b) CheckedListBox
   c) ComboBox d) ListBox

2) A delegate wrap more than one method is known as Multithreading Delegate.
   a) True b) False

3) The _____ application allows us to open only one document at a time.
   a) SDI b) MDI
   c) DSI d) DMI

4) Which of the following is NOT part of an assembly ?
   a) Manifest b) MetaData
   c) Intermediate Language Code d) Native Executable Code

5) _____ statement is used to execute LINQ query.
   a) Foreach b) Data source
   c) LINQ Queries d) Operators

6) A single assembly may contain multiple namespaces.
   a) True b) False

7) Which of the following is the purpose of delegate ?
   a) Callback methods b) Event handling
   c) Both a) and b) d) None of these

P.T.O.

8) The .dbml is the extension of LINQ to SQL class.
   a) True b) False

9) _____ control is used to select multiple items at a time.
   a) TextBox b) ComboBox
   c) ListBox d) PictureBox

10) An EventDelegate is a notification that some action has occurred.
   a) True b) False

11) LINQ query can work with _____
   a) DataSet b) Array
   c) Both a) and b) d) None of these

12) _____ control is used to select one option from a set of options.
   a) CheckBox b) GroupBox
   c) RadioButton d) ComboButton

13) Which of the following assemblies can be stored in Global Assembly Cache ?
   a) Private Assemblies b) Friend Assemblies
   c) Shared Assemblies d) Public Assemblies

14) _____ is the default event of TextBox.
   a) Click b) TextChanged
   c) CheckedChanged d) ClickEvent

2. Answer the following **(any seven)** : **14**

1) What's the difference between private and shared assembly ?
2) Differentiate between TextBox and Label.
3) Give the syntax of query in LINQ.
4) List the different sections of Crystal reports.
5) What is a .Net assembly ?
6) Give the list of mouse events.
7) List any two features of Crystall reports.
8) Give the advantages of events.
9) What are anonymous methods ?

3. A) Answer **any two** of the following : **10**

   1) Give the basic steps are needed to display a simple crystal report.

   2) Explain the different properties of ComboBox.

   3) What is Deployment ? Explain in detail.

   B) Write note on GAC. **4**

4. Answer **any two** of the following : **14**

   1) What is custom control ? Explain with example.

   2) Write a program to implement multicast delegate.

   3) Explain the term :

      a) Advantages of LINQ

      b) Grouping operator of LINQ.

5. Answer **any two** of the following : **14**

   1) Create a windows application for handle the user defined and predefined events.

   2) Explain the following controls.

      a) Panel

      b) Timer

      c) DateTimePicker.

   3) List and explain the contents of an assembly.
