SLR-W – 1

B.Sc. – I (ECS) (Semester – I) (CGPA Pattern) Examination, 2015
Paper – I : ENGLISH – I (Compulsory)
'On Track' English Skills for Success

Day and Date : Thursday, 29-10-2015   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 choosing the correct alternative :   **14**

    1) The man from the west lived in the city of _____ after moving away from New York.

       a) Washington   b) Mexico

       c) Chicago   d) New Jersy

    2) The note that the man from the west received was in fact from _____

       a) his friend Jimmy   b) his wife

       c) Chicago police   d) the owner of the restaurant

    3) In the end the narrator refused to accept all of Miss Krishna's possession except _____

       a) a cigarette lighter

       b) a little nine-inch clock

       c) a tiny glazed coffee cup

       d) a small Burmese box

    4) The writers attitude towards Miss Krishna was one of _____

       a) deep affection and admiration

       b) apathy and patience

       c) hatred and contempt

       d) tolerance and patience

P.T.O.

5) The word 'almighty tool' refers to _____

   a) a scientific tool   b) an electronic tool

   c) an all powerful method   d) the almighty god

6) 'The Myth of Artificial Intelligence' is written by _____

   a) Anita Desai   b) Attila Narin

   c) Nargis Dalal   d) Dr. Abdul Kalam

7) The phrase 'like the flame of her marriage' is the _____ used in the poem.

   a) simile   b) metaphor

   c) personification   d) alliteration

8) In the poem 'Bangle Sellers', bangles are token of _____

   a) freedom   b) sacrifice

   c) shackles   d) prosperity

9) The words 'Kiltartan cross' refer to _____

   a) a well known place in Ireland   b) an Irish Church

   c) the battle field   d) a pilgrim place

10) Kedar painted the picture _____

   a) hisself   b) herself   c) himself   d) itself

11) The population of the <u>tiger</u> has increased in India. The underlined word is a _____ noun.

   a) proper   b) common   c) collective   d) material

12) _____ Hutatma express runs between Solapur and Pune.

   a) A   b) An   c) The   d) No article

13) My brother returned home _____ 10 P.M.

   a) on   b) in   c) at   d) to

14) Mrs. Khanna looked _____ the orphan child after his parents death.

   a) after   b) about   c) at   d) for

2. Answer in brief **any seven** of the following questions :   **14**

   1) Why did Jimmy send another police officer to arrest Bob ?

   2) What had happened to 'Big Joe Brady's restaurant ?

   3) What is the narrator's initial opinion of Miss Krishna ?

4) Why does the narrator decide to terminate Miss Krishna's stay at her house ?

5) What are the many facets of intelligence ?

6) Why can computers 'not think' in the same way as human being ?

7) Which colours of bangles are suitable for a maiden's wrist ?

8) How does the Irish Airman imagine he will die ?

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

1) Importance of tree plantation

2) My hobby

3) Solar energy.

B) Answer **any two** of the following questions in about **eight** lines **each** : **6**

1) What sort of relationship did Bob and Jimmy share ?

2) How did Krishna's sister behave with the narrator ?

3) What image of bangle sellers at the temple do you gather from the poem ?

4. Write an essay on **any one** of the following : **14**

1) The reasons of farmers suicides.

2) The role of youth in nation building.

5. Read the following passage and make notes of it. Use an appropriate title for your notes. **14**

Advertising is the way in which the manufacturer is able to communicate with his customer. In India it is a gigantic task, when one remembers that there are nearly 400 million potential customers. Not all of them yet have reached the stage, when they have money for more than the barest minimum of goods and clothing but many have already started earning enough money to allow them to look for some modest improvement in their living standards. Thus, purchasing power is sure to increase as India's plans develop. More customers will be created, and it is through advertising that they will learn how their new earnings can buy them a fuller life.

Now, let us look for a moment at how advertising works – how it tells people about goods which will make the world a more comfortable place for them to live in. To be effective, advertising must first attract attention, but more important, it

must be noticed by people in the right way. Advertisements which clamour our for attention in a cheap or vulgar way do not bring any credit to the products they sell. Just as in life it is easy to be noticed, but, less easy to be respected; so it is with advertising. You can print your advertisement upside down and it will attract a lot of attention, but that does not mean that people will think more of the product. That is why the advertiser has to be very careful about humour, if he makes a reader laugh, he must be sure to see the laugh is not at the expense of the product. That does not mean humour has no place in advertising. It can brighten advertising and make it memorable.

The real job of the advertisement is to sell. It has to be convincing. Market research has revealed the needs and desires of the customers and the product has been designed to meet those needs. Now, the advertising must base itself on that research and must explain to the consumer how the product is going to benefit them.

All advertising must reach the right people. There are a number of ways communicating with the potential customers advertising media they are called they are the newspapers and magazines, cinema advertising, shop display material, posters and soon. The job of combining the right media to reach the greatest number of potential customers with the right sort of impact at the lowest cost is an intricate and important one.

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Seat
No.

B.Sc. (E.C.S.) – I (Semester – I) (CGPA Pattern) Examination, 2015
COMPUTER FUNDAMENTALS AND PROGRAMMING USING C – I
(Paper – II)

Day and Date : Friday, 30-10-2015   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 place** indicate **full** marks.
             3) Answer of **two** Sections should be written in **separate**
                answer sheet.

SECTION – I
(Computer Fundamentals)

1. Multiple choice questions :   **5**

    i) _____ performs all type of data processing operations.

       a) CPU   b) Operating system

       c) Program   d) Antivirus

    ii) _____ is not input device.

       a) Digitizer   b) Scanner   c) Lightpen   d) Plotter

    iii) _____ represents the physical and tangible component of computer.

       a) Software   b) Ram   c) Hardware   d) Printer

    iv) The computers of fourth generation used _____ circuits.

       a) Transistor   b) VLLI   c) ULSI   d) VLSI

    v) _____ is the extension of batch file.

       a) .doc   b) .bat   c) .XLS   d) .ppt

2. Answer **any five** of the following :   **10**

    i) What is the difference between primary and secondary storage device ?

    ii) Define the term interpreter and compiler.

    iii) Explain limitation of computer.

    iv) Explain features of operating system.

P.T.O.

v) Explain :

1) Type

2) Copy con.

vi) Give long form of ASCII, BCD.

vii) Explain advantages of fifth generation of computer.

3. A) Write short notes on **any two** of the following : **10**

i) What is memory and its types ?

ii) Explain output devices in details.

iii) Explain single user and multi user operating system.

B) Answer **any one** of the following : **10**

i) Explain evaluation of computer.

ii) What is DOS ? Explain internal and external commands in details.

SECTION – II
(Programming Using C – I)

1. Multiple choice questions : **5**

i) Define directive is end with semicolon.

a) True   b) False.

ii) void main ( )
```
   {
        int i;
     scanf ("%3d", & i);
     printf ("%d",i);
   }
```
if user enter 1001 then O/P is _____

a) 1   b) 10   c) 100   d) 1001

iii) _____ is derived data type.

a) float   b) int   c) array   d) none

iv) _____ is not character of 'C' language.

a) ∧   b) ~   c) | d) $

v) _____ string function accept only one parameter.

a) strlen   b) strcpy   c) strcat   d) strcmp

2. Answer **any five** of the following : **10**

   i) Give the list of tokens used in a 'C' language.

   ii) Explain the rules of identifier.

   iii) What is array ? Give the types of array.

   iv) C is the middle level language. Comment on it.

   v) Give the list of symbolic constant.

   vi) Define the variable and constants.

   vii) Why size of operator is used in C language ?

3. A) Write short notes on **any two** of the following : **10**

   i) What is string ? Explain inbuilt string function in details.

   ii) What is algorithm ? Write a algorithm to find out sum of digits.

   iii) Write a program to find out factorial number of entered number.

  B) Answer **any one** of the following : **10**

   i) What is array ? Explain types of array with examples.

   ii) Write a program to find the first 20 palindrome numbers.

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SLR-W – 3

B.Sc. (ECS) – I (Semester – I) Examination, 2015
(CGPA Pattern)
ELECTRONICS (Paper – III)
Linear and Digital Electronics – I

Day and Date : Saturday, 31-10-2015　　　　　　　　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.*

SECTION – I
(Linear)

1. Multiple choice questions :　　　　　　　　　　　　　　　　　　　**5**

　　i) Transformer transfers energy from primary to secondary as _____

　　　　a) ac to ac　　　　b) dc to ac　　　　c) dc to dc　　　　d) ac to dc

　　ii) LCR series resonant circuit acts as _____

　　　　a) rejector ckt.　　　　　　　　b) acceptor ckt.

　　　　c) rectifier ckt.　　　　　　　　d) none

　　iii) The potential barrier of a p-n junction is due to _____

　　　　a) majority carriers　　　　　　b) minority carriers

　　　　c) fixed donar and acceptor ion　　d) both b and c

　　iv) Collector-base junction of a transistor is always _____

　　　　a) forward biased　　　　　　b) reverse biased

　　　　c) zero biased　　　　　　　　d) none

　　v) Point of intersection of dc and ac load lines is the _____

　　　　a) operating point　　　　　　b) max. collector current point

　　　　c) mid point　　　　　　　　d) none

P.T.O.

2. Answer **any five** of the following : **10**

   i) Explain relation between α and β.

   ii) Explain seven segment display.

   iii) Explain terms :
     a) Rectification
     b) Ripple factor.

   iv) Draw diagram of half wave rectifier.

   v) Draw symbol of NPN and PNP transistor.

   vi) What is transistor ? Why is it so called ?

   vii) What is capacitor ? What is capacitance ?

3. A) Write short notes on **any two** of the following : **10**

   i) Explain basic relationship in transformer.

   ii) State and explain Norton's theorem with example.

   iii) Explain p-n junction diode.

  B) Answer **any one** of the following : **10**

   i) Explain CE characteristics of transistor and also explain the active, cut-off and saturation regions for a transistor.

   ii) What is voltage regulator ? Explain Zener diode as voltage regulator and also explain IC 78XX and 79XX series.

SECTION – II
(Digital Electronic – I)

1. Multiple choice questions : **5**

   i) _____ is a unweighted code.
     a) octal   b) grey   c) decimal   d) binary

   ii) The base of hexadecimal number system is _____
     a) 6   b) 8   c) 16   d) 10

   iii) NAND gate is equivalent to _____ gate.
     a) Bubbled OR   b) Bubbled AND
     c) XOR   d) EX-NOR

iv) IC 74138 is _____ decoder.

   a) Binary to octal   b) Octal to binary

   c) Octal to BCD   d) None

v) In combinational circuits the output at any instant of time depend upon the _____ inputs.

   a) present   b) present and past

   c) previous o/p   d) none

2. Answer **any five** of the following :   **10**

  i) Convert $(11001.101)_2$ into decimal.

  ii) Convert following hexadecimal into decimal

    a) E9A

    b) F4B.

  iii) Draw diagram of parallel adder.

  iv) State the features of logic families and explain any two of them.

  v) Draw diagram of IC 74148.

  vi) Explain any four Boolean identities.

  vii) Draw k-map for following truth table and simplify.

A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	0

3. A) Write short note on **any two** of following : **10**

    i) Draw and explain 8 : 1 multiplexer with truth table.

    ii) Explain priority encoder.

    iii) Draw k-map and simplify following equation

$$Y = \overline{A}B\overline{C}\,\overline{D} + A\overline{B}\,\overline{C}\,\overline{D} + \overline{A}\,\overline{B}\,\overline{C}D + AB\overline{C}D \cdot$$

  B) Answer **any one** of the following : **10**

    i) Explain hamming code and construct hamming code for 1001 using even parity and also find the correct data if hamming code received is 0010001 with even parity.

    ii) Explain half adder and full adder.

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Seat No.

B.Sc. (ECS) – I (Semester – I) (C.G.P.A. Pattern) Examination, 2015
MATHEMATICS (Paper – IV)
Graph Theory and Numerical Methods

Day and Date : Monday, 2-11-2015   Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

N.B. : 1) Write answers of Section – **I** and Section **II** on **separate** answer books.
2) **All** questions are **compulsory**.
3) **Use** of scientific calculators are **allowed**.
4) Figures to the **right** indicate **full** marks.

SECTION – I
(Graph Theory)

1. Multiple choice questions.   **5**

   1) A vertex of degree zero is called _____ vertex.

      a) One   b) Pendant   c) Isolated   d) None of these

   2) The complement of a null graph is _____ graph.

      a) complete   b) regular   c) simple   d) none of these

   3) A single vertex together with loop is a cycle of length _____

      a) one   b) two   c) zero   d) three

   4) A path in G which covers all edges of G is called _____

      a) Eulerian path   b) Hamiltonian path

      c) Euler circuit   d) None of these

   5) A tree whose center is a single vertex is called _____

      a) unicentral   b) bicentral   c) tricentral   d) none of these

2. Answer **any five** of the following :   **10**

   i) Find the number of edges in a graph G with 4 vertices in which two vertices have degree 3 and two vertices have degree 2.

   ii) Define self complementary graph.

   iii) Define edge connectivity with suitable example.

iv) Draw a graph which is Eulerian but not Hamiltonian.

v) Define spanning tree with suitable example.

vi) Which algorithm is used for finding the shortest spanning tree of a given weighted connected graph.
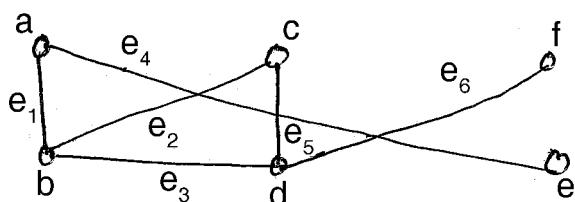
vii) Draw the graphs $k_{2,4}$ and $k_{3,2}$.

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

   i) Write a note on Koningsberg's 7-bridges problem.

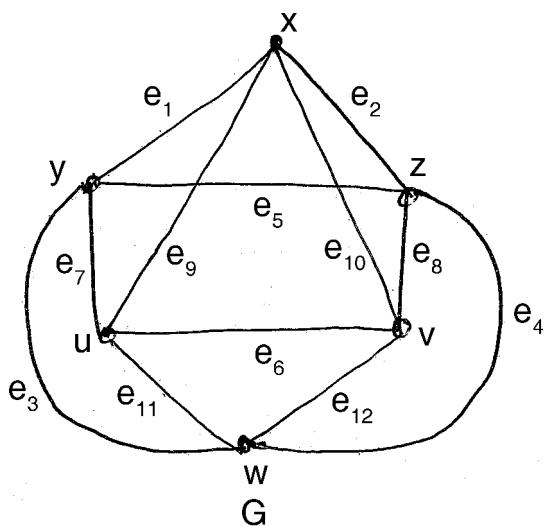   ii) Find and draw G1 × G2 for the following pairs of graphs.
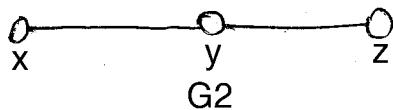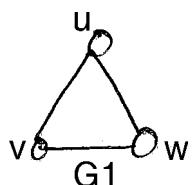
   iii) Define Isthmus and cut vertex. Find the all bridges and cut vertices in the following graph.
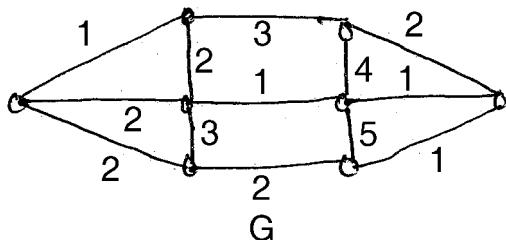

B) Attempt **any one** from the following : **10**

   i) Show that the following graph is Eulerian and hence by using Fleury's algorithm to trace.

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

G

SECTION – II
(Numerical Methods)

1. Choose the correct alternative. **5**

   1) If we represent the system of m-linear equations in n-variables in the form of augmented matrix its order is _____

      a) $m \times n$ b) $m \times (n + 1)$ c) $(m + 1) \times n$ d) $m \times (n – 1)$

   2) $0.4399E10 \times 0.5789E\text{-}12 = $ _____

      a) 0.2547E-2   b) 0.2547E2

      c) 0.2547E22   d) 0.2547E3

   3) One of the root of the equation $f(x) = 0$ lies in the interval (a, b) if $f(a)$ and $f(b)$ have _____ signs.

      a) same   b) opposite   c) positive   d) negative

   4) $E[f(x)] = $ _____

      a) $f(x)$ b) $f(x + h)$ c) $f(x – h)$ d) none of these

   5) Simpson's $(3/8)^{th}$ rule is obtained by putting n = _____ in general quadrature formula.

      a) 1   b) 2   c) 3   d) 4

2. Attempt **any five** from the following : **10**

   i) Write augmented matrix for following system of linear equations

   $x + 2y + 3z = 3; – 2y + 3z = 7; 2x + y = 6$

   ii) Find the value of $(0.4596E_3 + 4.6982E_4)$. Write your answer in normalised floating point form.

   iii) Find the interval of real number in which one of the root of the equation $x^3 – 4x – 9 = 0$ lies.

iv) Show that $(1 + \Delta) f(x) = E f(x)$.

v) State the formula for k_1, k_2, k_3 and k_4 in Runge Kutta 4th order method.

vi) Write trape zoidal rule for integration.

vii) State Regula Falsi method formula to find the root of the equation $f(x) = 0$ in the interval (x_0, x_1).

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

   i) Solve the following system by using Gauss Jordan elimination method.

   $x + y + 2z = 7$, $-x - 2y + 3z = 6$; $3x - 7y + 6z = 1$.

   ii) Show that $\Delta \left[\dfrac{f(x)}{g(x)} \right] = \dfrac{g(x) \Delta f(x) - f(x) \Delta g(x)}{g(x+h) . g(x)}$.

   iii) Find the real root of the equation $x^3 - 2x - 5 = 0$ correct upto 4-decimal places by using Newton-Raphson method.

   B) Attempt **any one** from the following : **10**

   i) Write the general quadrature formula and hence state and derive Simpson's $(1/3)^{rd}$ rule.

   ii) Write the Newton's forward difference interpolation formula from the following data estimate $f(24)$

x	21	25	29	33	37
$y = f(x)$	18.4708	17.8144	17.1070	16.3432	15.5154

Seat No.

B.Sc. (E.C.S.) – I (Semester – I) (CGPA Pattern) Examination, 2015
STATISTICS (Paper – V)
Theory – I : Descriptive Statistics and Probability

Day and Date : Tuesday, 3-11-2015   Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

N.B. : i) **Use** separate answer books for Section – **I** and Section – **II**.
 ii) Figures to **right** indicate **full** marks.
 iii) **Use** of any type of calculator is **allowed**.
 iv) Graph paper will be supplied on request.

SECTION – I

(**Descriptive Statistics**)

1. Select most correct answer :   **5**

   i) In _____ method of sampling same item may be selected more than once.
      a) SRSWOR   b) SRSWR
      c) SRS   d) All of these

   ii) While constructing less than ogive, l.c.f. is plotted against _____ of the respective classes.
      a) upper limit   b) lower limit
      c) midpoints   d) none of these

   iii) If each observation is increased by 10, then mode becomes
      a) as it is   b) increased by 10
      c) decreased by 10   d) none of these

   iv) The measures of dispersion that can be determined graphically is
      a) Range   b) S.D.   c) C.V.   d) Q.D.

   v) The first order central moment is _____
      a) A.M.   b) Zero always
      c) Zero sometimes   d) None of these

2. Attempt **any five** of the followings : **10**

   i) Define – Discrete variable.

   ii) State any two objectives of classification.

   iii) Define – Relative frequency.

   iv) Given – $n = 10$ $\sum(X - \overline{X})^2 = 400$, $\sum X = 55$. Find C.V.

   v) Given – $n = 20$, $\sum(X - 8) = 150$. Find $\overline{X}$.

   vi) Given – $\mu_2 = 7$, $\mu_3 = -49$, comment on skewness of frequency distribution.

   vii) The sum and difference of upper and lower quartiles are 50 and 30 respectively. Find coefficient of Q.D.

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

   1) Define – Median. Explain step-by-step how median is obtained in case of continuous frequency distribution.

   2) Explain stratified sampling method.

   3) The A.M. and S.D. of 10 values are 50 and 10 respectively. Later on it is noticed that one of the values 68 was wrongly taken as 58. Find correct A.M. and S.D.

   B) Attempt **any one** of the following : **10**

   1) Define – S.D., C.V. state merits and demerits of S.D. State formula for combined S.D.

   2) Draw less than ogive to represents the following data and hence obtain first and third quartiles :

Weight in kg.	No. of Workers
40 – 45	7
45 – 50	17
50 – 55	22
55 – 60	33
60 – 65	28
65 – 70	18
70 – 75	4

SECTION – II

(Probability Theory – I)

1. Select most correct answer : **5**

   i) If you have to make a choice of 7 questions out of 10 questions set, then you can do it in _____ number of ways.

   a) $3! \times {}^{10}C_7$ b) $7! \times {}^{10}C_7$ c) ${}^{10}P_7$ d) $\dfrac{{}^{10}P_7}{7!}$

   ii) Number of ways by which 2 persons out of 5 are selected so that one particular person is always excluded is

   a) ${}^4C_2$ b) ${}^5C_2$ c) ${}^4P_2$ d) ${}^5P_2$

   iii) 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

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

   a) -1 b) 0   c) 1   d) 2

   v) A family of a parametric distribution in which mean is equal to variance is

   a) Binomial distribution   b) Hypergeometric distribution
   c) Uniform distribution   d) Poisson distribution

2. Answer **any five** of the following : **10**

   i) Define Permutation and Combination.

   ii) Give mathematical definition of probability.

   iii) State additive property of Binomial distribution.

   iv) Define discrete uniform distribution.

   v) If ${}^5P_r = 60$, find r.

   vi) If $P(A) = 0.59$, $P(B) = 0.3$, $P(A \cap B) = 0.21$ then find $P(\overline{A} \cap B)$ and $P(A \cap \overline{B})$.

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

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

    i) Define hypergeometric distribution. State its mean and variance.
       If $X \sim h$ (N = 15, M = 8, n = 5), find P (X < 1).

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

    iii) 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.

  B) Answer **any one** of the following : **10**

    i) Give axiomatic definition of probability. State and prove addition law of probability.

    ii) 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.

_____

Seat No.

B.Sc. (ECS) I (Semester – II) (CGPA Pattern) Examination, 2015
COMPUTER SCIENCE (Paper – II)
Computer Fundamentals and Programming Using C – II

Day and Date : Friday, 6-11-2015   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.
3) Answer of **two** Sections should be written in **separate** answer sheet.

SECTION – I
(Computer Fundamentals)

1. Choose correct alternatives :   **5**

   1) Default extension of word file is

      a) .bmp   b) .jpg   c) .cpp   d) none of these

   2) _____ tag used in HTML to insert the image on web page.

      a) <picture>   b) <img>   c) <td>   d) <H>

   3) Data transmission in which data flows both the direction simultanously called as

      a) full duplex   b) half duplex   c) simplex   d) all of above

   4) When one node fails, whole network is fail is

      a) ring topology b) bus topology c) star topology d) none of these

   5) Mesh topology central controller is used to connect nodes.

      a) True   b) False

2. Attempt **any five** of the following.   **10**
   1) Define operating system.
   2) State any four html tags.
   3) List the aggregate function used in excel.

P.T.O.

4) State data types in javascript.

5) Define multitasking.

6) Define star topology.

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

1) How to insert the table in word ? Explain it.

2) Explain with the help of diagram the concept of 'Multiprogramming'.

3) Explain built in function used in java script.

B) Attempt **any one** of the following : **10**

1) Explain the functions of operating system.

2) Explain any two tag in HTML with the help of example.

<div align="center">

SECTION – II

(Programming Using C – II)

</div>

1. Choose correct alternatives. **5**

1) Main () function is user defined function

a) True   b) False

2) _____ is the variable to store the memory address of another variable.

a) Pointer   b) Function   c) Structure   d) Union

3) _____ function used in C to read the character from a file.

a) Fgetc ()   b) read ()   c) write ()   d) FeoF()

4) _____ is the collection of same of different data type of element.

a) Function   b) Array   c) Structure   d) None of these

5) _____ is the symbol to accessing the element of structure to main program.

a) *   b) ▪   c) &   d) ?

2. Attempt **any five** from the following : **10**

1) Define function. State the types of function.

2) What is meant by actual argument ?

3) Write the syntax of pointer declaration.

4) Write the syntax of union.

5) Define file.

6) Write the syntax of 'Fopen()' function.

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

   1) Define recursion. Explain with the help of example.

   2) Explain 'pointer arithmetic'.

   3) Write a program in C to display the student information by using structure.

   B) Solve **any one** of the following : **10**

   1) Write a program in C to read a file and to count the number of characters, blank spaces, and number of lines in that file.

   2) Differentiate the structure and union with the help of example.

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Seat No.

B.Sc. (E.C.S.) – I (Semester – II) (CGPA Pattern) Examination, 2015
LINEAR AND DIGITAL ELECTRONICS – II (Paper – III)

Day and Date : Saturday, 7-11-2015   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** place indicate **full** marks.
3) Answer of **two Sections** should be written in **separate** answer sheet.

SECTION – I
(Linear)

1. Choose correct alternatives :   **5**

1) In Hartely oscillator the feedback network consist of _____ tank circuit.

   a) LC   b) RC

   c) LR   d) None of these

2) The FET has _____ power gain.

   a) low   b) high

   c) poor   d) none of these

3) The I/P impedance of Op Amp is _____

   a) low   b) high

   c) poor   d) none of these

4) The bistable multivibrator has _____ stable states.

   a) 2   b) 3

   c) 4   d) 1

5) The frequency response cure for RC amplifier is _____

   a) low   b) good

   c) poor   d) none of these

2. Answer **any five** of the followings : **10**

   1) Give the parameters of ideal Op Amp.

   2) Explain parameters of JFET.

   3) Explain DC amplifier.

   4) Draw the circuit symbol for enhancement and Depletion MOSFET.

   5) Explain the crystal oscillator.

   6) Explain virtual ground concept.

   7) Give the difference between JFET and MOSFET.

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

   1) Explain construction and working of N channel JFET.

   2) Explain Op Amp as a adder and substractor.

   3) Explain frequency response curve of CE amplifier.

   B) Attempt **any one** of the followings : **10**

   1) Define amplifier. Explain different types of amplifier according to mode of operation.

   2) Define MVT. Explain AMVT and MMVT by using IC 555.

<div align="center">

SECTION – II
(Digital Electronics – II)

</div>

1. Choose correct alternatives : **5**

   1) ROM is a _____ memory.

     a) Volatile   b) Non-volatile

     c) Temporary   d) None of these

   2) In R – 2R ladder network _____ values registers are used.

     a) 0   b) 1   c) 2   d) 3

   3) For 2 bit flash ADC _____ comparators are used.

     a) 4   b) 1   c) 2   d) 3

   4) In T flip flop both J and K are _____

     a) Low   b) High

     c) Zero   d) None of these

   5) IC 7490 is a _____ pin IC.

     a) 14   b) 16   c) 20   d) 24

2. Answer **any five** of the followings : **10**

   1) Explain working of D Flip flop.

   2) Give applications of ADC.

   3) Explain static RAM.

   4) Explain mod 5 counter.

   5) Draw diagram of MSJK flip flop.

   6) Explain parameters of DAC.

   7) Explain parameters of memory.

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

     1) Explain R – 2R ladder network.

     2) Explain RS flip flop by using NOR gate.

     3) Write a note on diode matrix ROM.

  B) Attempt **any one** of the followings : **10**

     1) Define DAC. Explain counter and SAR type DAC.

     2) What is Shift register ? Explain any two types of 3 bit shift register.

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Seat
No.

B.Sc. (ECS) – I (Semester – II) Examination, 2015
(CGPA Pattern)
MATHEMATICS (Paper – IV)
Algebra and Operations Research

Day and Date : Monday, 16-11-2015   Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

N.B. : 1) *Write answers of Section **I** and Section **II** on **separate** answer books.*
2) ***All** questions are **compulsory**.*
3) *Use of scientific calculator is **allowed**.*
4) *Figures to the **right** indicate **full** marks.*
5) *To draw the graphs (if necessary) the graph paper will be **provided** on request.*

SECTION – I

(Algebra)

1. Choose the correct alternative :   **5**

   1) The conditional statement $\sim q \rightarrow \sim p$ is called as _____ form of the statement $p \rightarrow q$.

      a) converse   b) inverse

      c) contrapositive   d) special

   2) If $a * b = b * a = e$, where 'e' is the identity element w.r.t. binary operation $*$ then 'b' is called as

      a) identity element   b) inverse of a

      c) inverse of b   d) binary element

   3) If every element of set A is related to unique element of set B then such a relation is called as _____ from A to B.

      a) function   b) void relation

      c) co-domain   d) universal relation

P.T.O.

4) The imaginary part of complex number $4 - 5i$ is

    a) 5i   b) 5   c) -5 d) $-5i$

5) If aRb implies that bRa, then relation R is called as _____ relation defined on A, where a, b $\in$ A

    a) reflexive   b) symmetric

    c) antisymmetric   d) partial ordering

2. Attempt **any five** of the following :   **10**

    1) Compute modulus and argument of the complex number $z = 2 + 2i$.

    2) Define equivalence relation.

    3) Define domain and co-domain of a function.

    4) Prepare the truth table for conjunction and disjunction of the statements p and q.

    5) Find the positive integer 'n' for which it is true that $n! \geq 2^n$.

    6) Let A = {a, b, c}, let R = {(a, a), (a, c), (b, a), (b, c), (c, a)} be the relation defined on the set A. Write matrix of relation R. Also draw digraph of R.

    7) Let A = {p, q, r} and B = {x, y}. Find A $\times$ B and B $\times$ A.

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

    1) Let $Z_1 = 5 + 6i$ and $Z_2 = -2 + 3i$ then find real part and imaginary part of the complex numbers $\overline{Z}_1, \overline{Z}_2, Z_1 + Z_2, Z_1 - Z_2$ and $Z_1 . Z_2$.

    2) Prove by using principle of mathematical induction

$$1^2 + 2^2 + 3^2 + \ldots + n^2 = \frac{n(n+1)(2n+1)}{6}, \text{ for all } n \geq 1.$$

    3) Define one-one function and onto function. Hence show that the function

    $f : R \rightarrow R$ defined by $f(x) = \dfrac{4x - 7}{3}$, for all $x \in R$, is one-one.

B) Attempt **any one** of the following :   **10**

    1) Define tautology and contradiction. Test the validity of the following argument by using truth table

    $p \rightarrow q, \sim q \vee r, \sim p \vdash p \leftrightarrow \sim r$.

    2) Define transitive closure of relation R. Let A = {p, q, r, s}. Let R be the relation defined on the set A given by
    R = {(p, p), (p, q), (q, p), (q, s), (r, q), (s, r), (s, s)}. Find transitive closure of relation R by using Warshall's algorithm.

SECTION – II

(Operations Research)

1. Choose the correct alternative : **5**

   1) In the Canonical form of LPP, the objective function is of _____ type.

      a) maximise   b) minimise

      c) stabilize   d) either maximise or minimise

   2) Graphical method of solving LPP can be used only when the number of decision variables are

      a) 1   b) more than 2

      c) 2   d) any positive integer

   3) If in a T.P. the number of occupied cells are equal to m + n – 1 then the solution under test is _____ solution.

      a) degenerate   b) non-degenerate

      c) optimum   d) IBFS

   4) The opportunity cost i.e. dij value for occupied cell is

      a) $\in$ b) 0

      c) negative   d) any positive value

   5) Hungerian method is used to solve

      a) LPP   b) T.P.

      c) A.P.   d) Dual LPP

2. Attempt **any five** of the following : **10**

   1) Define slack variable.

   2) Define unbalanced T.P.

   3) Define balanced A.P.

   4) What is objective of solving A.P. and T.P. ?

   5) Write dual of the following LPP

      Minimise z = 3x + 2y

      Subject to 4x + 5y ≥ 4; 3x + 4y ≥ 5; 5x + 6y ≥ 7; x, y ≥ 0.

   6) Define decision variables in LPP.

   7) Write the names of the methods to find IBFS of a T.P.

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

1) Write a brief note on degeneracy in T.P.

2) Solve the following A.P. to minimise the assignment cost.

$$
\begin{array}{c c c c c}
 & \text{I} & \text{II} & \text{III} & \text{IV} \\
\text{A} & 40 & 50 & 60 & 65 \\
\text{B} & 30 & 38 & 46 & 48 \\
\text{C} & 25 & 33 & 41 & 43 \\
\text{D} & 39 & 45 & 51 & 59 \\
\end{array}
$$

3) Solve the following LPP by using simplex method

Maximise $z = 10x + y + 2z$

Subject to $x + y - 2z \leq 10$; $4x + y + z \leq 20$;

$x, y, z \geq 0$.

B) Attempt **any one** of the following : **10**

1) Find IBFS of the following T.P. by using
   i) North-West corner method.
   ii) Vogel's Approximation method.

	W_1	W_2	W_3	a_i
F_1	8	8	15	120
F_2	15	10	17	80
F_3	3	9	10	80
b_j	150	80	50	

2) Solve the following A.P. to miximise the total profit.

$$
\begin{array}{c c c c c c}
 & \text{P} & \text{Q} & \text{R} & \text{S} & \text{T} \\
\text{A} & 28 & 48 & 42 & 36 & 38 \\
\text{B} & 48 & 38 & 40 & 20 & 15 \\
\text{C} & 25 & 36 & 14 & 12 & 8 \\
\text{D} & 8 & 4 & 12 & 10 & 12 \\
\text{E} & 5 & 6 & 12 & 18 & 16 \\
\end{array}
$$

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SLR-W – 10

Seat No.

B.Sc. (ECS) (Part – I) (Semester – II) (CGPA Pattern) Examination, 2015
STATISTICS (Paper – V)
Descriptive Statistics and Probability Theory – II

Day and Date : Tuesday, 17-11-2015   Max. Marks : 70

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

N.B. :   i) **Use** separate answer book for Section **I** and Section **II**.
     ii) Figures to the **right** indicate **full** marks.
     iii) **Use** of any type of calculator is **allowed**.

SECTION – I
(Descriptive Statistics)

1. Select most correct alternative.   **5**

   i) The correlation between X and Y is said to be perfect if

     a) X and Y changes in same direction

     b) X and Y changes in opposite direction

     c) X and Y changes in proportion

     d) None of these

   ii) If cov (x, y) = 25, $\sigma_x^2 = 49$, $\sigma_y^2 = 64$, then by x =

     a) $25/49$ b) $25/64$ c) $5/7$ d) $5/8$

   iii) The correlation between a variable and its estimated value given by plane of regression is called

     a) total correlation   b) partial correlation

     c) multiple correlation   d) none of these

   iv) During _____ phase of cyclical variation economic activities shows rising trend.

     a) prosperity   b) recession

     c) depression   d) recovery

v) _____ price I. No. uses both quantities in base period and current period as a weights.

    a) Fisher's   b) Laspeyre's   c) Paasche's   d) All of these

2. Attempt **any five** of the following :   **10**

  i) Define correlation.

  ii) Define index number.

  iii) State normal equations to obtain constants of second degree curve.

  iv) Given : $\sum(x-\bar{x})(y-\bar{y})=-43$, $\sum(x-\bar{x})^2=73$, $\sum(y-\bar{y})^2=81$. Find r_{xy}.

  v) If $r_{12}=r_{13}=r_{23}=0.6$ find $R_{1.23}$.

  vi) The regression equations are $x+2y=24$ and $-2x-3y=-42$. Find $\bar{x}$, $\bar{y}$.

  vii) Given : $\sum P_1=150$, $\sum P_0=95$. Find price index number.

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

    i) Write short note on multiple correlation.

    ii) Explain seasonal variations.

    iii) Find Spearman's Rank correlation coefficient between x and y.

x :	50	54	47	63	58	72
y :	58	56	63	54	52	38

B) Attempt **any one** of the following :   **10**

    i) Define regression coefficients. State properties of regression coefficients.

    ii) Find Laspeyre's, Paasche's and Fisher's price and quantity I.No's. for the year 2010.

Commodity	Year 2009 Price	Year 2009 Qty.	Year 2010 Price	Year 2010 Qty.
A	15	5	20	4.5
B	70	2.5	85	3
C	45	1.5	40	2

SECTION – II

(Probability Theory – II)

1. Select most correct alternative. **5**

   i) If pmf of r.v. x is f(x) = Kx (2 – x) if $0 \le x < 2$ then value of K is

   a) $\frac{3}{4}$ b) 1   c) $\frac{1}{4}$ d) $\frac{4}{3}$

   ii) If X follows normal distribution with mean 60 and variance is 10. Then maximum height of its probability density curve is

   a) 60   b) 50   c) 65   d) 70

   iii) Testing $H_0 : \mu = \mu_0$ against $H_1 : \mu \ne \mu_0$ is

   a) one sided left tailed test   b) one sided right tailed test

   c) two sided test   d) none of these

   iv) Let $X \to U$ (4, 16). Then variance of r.v. x is

   a) 16   b) 4   c) 20   d) 12

   v) A statistical measure based on all units of population is called

   a) statistic   b) parameter   c) sample   d) none of these

2. Answer **any five** : **10**

   i) Define type – I and type – II errors.

   ii) Suppose r.v. x has uniform distribution over (2, 10). Calculate $p(2 \le x \le 8)$.

   iii) Define cumulative distribution function of an exponential distribution with mean θ.

   iv) Joint pmf of (x, y) is

   $p(x, y) = \dfrac{2x + 3y}{71}; \begin{array}{l} x = 0, 1, 2 \\ y = 1, 2, 3 \end{array}$. Find marginal pmf of r.v. x.

   v) A continuous r.v. x has pdf $f(x) = \dfrac{x^2}{3}$ if $-1 \le x \le 2$
   $= 0$ if o.w.

   calculate $p\left(-\frac{1}{2} \le x \le \frac{1}{2}\right)$.

vi) Define null hypothesis and alternative hypothesis.

vii) Let X be a continuous r.v. with pdf f(X). Then mean of X is

   a) $\int\limits_{0}^{\infty} Xf(X)dX$ b) $\int\limits_{-\infty}^{\infty} Xf(X)dX$

   c) $\int\limits_{-\infty}^{\infty} f(X)dX$ d) None of these

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

   i) Define exponential distribution. State mean, variance and cumulative distribution function of it.

   ii) Define cumulative distribution function of a continuous r.v. x. State any four properties of it.

   iii) A coin is tossed 400 times and it turned up head 210 times. Test whether the coin is an unbiased.

B) Answer **any one** :   **10**

   i) Write test procedure for testing equality of two population means.

   ii) The joint pmf of (x , y) is,

y \ x	1	2	3
2	3/24	1/24	2/24
4	6/24	6/24	0
6	3/24	1/24	2/24

   Calculate
   i) E (x)
   ii) E (y)
   iii) p (x = 3/y = 6)
   iv) Marginal pmf of x
   v) Marginal pmf of y.

_____

SLR-W – 11

B.Sc. (ECS) – II (Semester – III) Examination, 2015
(New CGPA Pattern)
Paper – I : OPERATING SYSTEM

Day and Date : Thursday, 19-11-2015　　　　　　　　　　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 the correct alternative :　　　　　　　　　　　　　　　　**14**

　　1) Cluster computer share _____

　　　　a) hardware　　　　　　　　b) resources

　　　　c) storage　　　　　　　　　d) all

　　2) The CPU can only execute program which are stored in _____

　　　　a) hard disk　　　　　　　　b) ROM

　　　　c) main memory　　　　　　d) PROM

　　3) OS should perform job scheduling to have max utilization of the _____

　　　　a) resources　　　　　　　　b) CPU

　　　　c) users　　　　　　　　　　d) all

　　4) A process execution begins and ends with _____

　　　　a) I/O burst　　　　　　　　b) CPU burst

　　　　c) quantum　　　　　　　　d) all

　　5) To round robin algorithm is designed for _____ systems.

　　　　a) stand alone　　　　　　　b) binary

　　　　c) timesharing　　　　　　　d) online

　　6) The major problem with priority scheduling is _____

　　　　a) size of jobs　　　　　　　b) time required

　　　　c) definite blocking　　　　　d) starvation

P.T.O.

7) Throughput is number of jobs _____
   a) executed simultaneously
   b) in a ready queue
   c) completed in unit time
   d) a) and b)

8) A semaphore is to deal with _____ problem.
   a) mutual exclusion   b) indefinite waiting
   c) bounded buffer   d) setting quantum

9) _____ examine an interrupt and determine how to handle it.
   a) IST   b) ISR   c) IRQ   d) OAL

10) A parent process is terminating then all its children must also terminated is called _____
    a) exit system call   b) cascading termination
    c) interruption   d) all

11) _____ is shared between all threads in a process.
    a) local variable   b) scheduler priority
    c) file descriptor   d) register values

12) _____ algorithm is used for scheduling.
    a) FIFO   b) LIFO   c) Bakery   d) All

13) Windows 2000 schedules threads using priority based _____ scheduling algorithm.
    a) preemptive   b) non preemptive
    c) queuing   d) time sharing

14) _____ problems is an example of concurrency control problem.
    a) Synchronization   b) Interrupt
    c) Critical section   d) Scheduling

2. Answer (**any 7**) :   **14**
   1) List various functions of operating system.
   2) List various categories of system programs.
   3) What is thread ?
   4) What is Context Switch ?

5) What is Program Execution ?

6) What is Binary Semaphore ?

7) What is virtual machine ? Where it is used ?

8) What is deadlock and starvation ?

3. A) Answer (**any 2**) : **8**

   1) Explain process control block in detail.

   2) Explain multilevel schedules.

   3) Explain dining philosophers problem.

   B) Define process. Explain different states of process with the help of process state diagram. **6**

4. Answer (**any 2**) : **14**

   1) Explain the different types of operating systems.

   2) What is interrupt ? Discuss various types of interrupts and how they are handled.

   3) What is critical section problem ? What is the solution for multiple processes ?

5. Answer (**any 2**) : **14**

   1) Define OS. Discuss various elements of O.S. with example.

   2) Discuss system calls provided by operating system.

   3) What is CPU scheduler ? What are the different criteria used for evaluating algorithm ? Explain disadvantages of FCFS and SJF.

Seat No.

B.Sc. (ECS) – II (Semester – III) (New CGPA) Examination, 2015
OBJECT ORIENTED PROGRAMMING USING C++ – I (Paper – II)

Day and Date : Friday, 20-11-2015   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) The region of source code over which the definition of a variable is visible is called _____ of variable.

       a) scope   b) extent

       c) both a and b   d) none of these

    2) _____ process binds data and functions together.

       a) Polymorphism   b) Data abstraction

       c) Data encapsulation   d) Class

    3) Friend function can be defined inside class body.

       a) True   b) False

    4) << is called

       a) cout   b) extraction   c) insertion   d) cin

    5) OOP follows _____ approach.

       a) bottom up   b) top down

       c) both a and b   d) none of these

    6) _____ is a default parameter passing technique in C++.

       a) Pass by pointer   b) Pass by value

       c) Pass by address   d) Both a and b

    7) Constructor cannot virtual whereas destructor are virtual.

       a) True   b) False

8) If function dose not return any value then its return type is

   a) friend   b) public   c) null   d) void

9) We can overload scope resolution operator (::) operator.

   a) True   b) False

10) Static member functions can access only static data of class directly

    a) True   b) False

11) A function cannot modify its argument that has been declared as

    a) public   b) private

    c) const.   d) none of above

12) Run time polymorphism is achieved by

    a) function overloading   b) operator overloading

    c) virtual function and pointer   d) both a and b

13) When _____ statement is executed within the loop, the control goes to the top of the loop.

    a) continue   b) break   c) static   d) exit ()

14) Object oriented programming approach focus on

    a) function   b) data

    c) algorithm   d) both b and c

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

   1) Define Manipulator. Write use and syntax of end 1 manipulator.

   2) Write difference between value variable and reference variable.

   3) How to use private member function of a class ?

   4) Write syntax and use of 'sizeof' operator.

   5) What is nesting of class ?

   6) How data hiding is achieved in C++ ?

   7) Explain data abstraction as OOP's concept.

   8) Write some applications of C++ language.

   9) What is dynamic constructor ?

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

   1) What is inline function ? How inline function is differ from normal function ?

   2) What is operator overloading ? Explain different ways to overload operator in C++.

   3) Write a program that demonstrates the constructor with default values argument.

   B) Write a program to demonstrate use of common friend function for multiple classes. **4**

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

   1) What is destructor ? List out its characteristics and give one example.

   2) What is function ? Explain different component of function with example.

   3) Write a program to demonstrate the passing object to member function by pass by reference method.

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

   1) Write a program to overload + (arithmetic Addition) operator by using friend function.

   2) Explain copy constructor with example.

   3) Explain features of object oriented programming.

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Seat No.

B.Sc. (ECS) (Part – II) (Semester – III) Examination, 2015
COMPUTER SCIENCE
Data Structures and Algorithms (Paper – III)
(New CGPA Pattern)

Day and Date : Saturday, 21-11-2015　　　　　　　　　　　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. A) Choose the correct alternatives :　　　　　　　　　　　　　　　　**10**

　　1) _____ is a non-linear data structure.

　　　　a) stack　　　　b) queue　　　　c) tree　　　　d) linked-list

　　2) The smallest element of array index is called as _____

　　　　a) max bound　　　　　　　　b) min bound

　　　　c) upper bound　　　　　　　d) lower bound

　　3) The data structure required to evaluate a postfix expression is _____

　　　　a) stack　　　　b) queue　　　　c) tree　　　　d) none of these

　　4) Queue is a _____ Data structure.

　　　　a) FILO　　　　b) LIFO　　　　c) FIFO　　　　d) Non-linear

　　5) The postfix form of A*B+C/D is _____

　　　　a) *AB/CD+　　　　　　　　b) AB*CD/+

　　　　c) A*BC+/D　　　　　　　　d) ABCD+/*

　　6) The minimum time required to delete a node 'X' from a doubly linked list having 'n' nodes is _____

　　　　a) O(n)　　　　b) O(log n)　　　　c) O(1)　　　　d) O(n log n)

　　7) A doubly linked list contains _____ NULL links.

　　　　a) one　　　　b) two　　　　c) three　　　　d) zero

P.T.O.

8) A linear collection of data elements where the linear node is given by means of the pointer is called _____

    a) linked-list   b) node-list

    c) primitive-list   d) none of these

9) Which of the following is an example of divide and conquer technique ?

    a) stack   b) quick sort

    c) tree   d) none of these

10) Which of the following condition satisfies the empty linked-list ?

    a) start = –1   b) start = 1

    c) start = NULL   d) start = size – 1

B) State **true/false** :   **4**

1) Backtracking algorithm involves NP-problem.

2) We can implement queue by using doubly linked list.

3) The prefix expression is exactly opposite to infix expression.

4) In singly linked list we can traverse in both directions.

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

1) What is ADT ? State the examples of ADT.

2) What is pointer ? What are the advantages of pointer ?

3) Explain the overflow condition of stack.

4) What is the advantage of circular queue over linear queue ?

5) What is the difference between static and dynamic data structure ?

6) What is the advantage of singly linked list over doubly linked list ?

7) What is priority queue ? Give its example.

8) What are the different asymptotic notations ? Define any two.

9) What is dequeue ? What are the types of dequeue ?

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

   1) Write an algorithm for evaluation of postfix expression using stack.

   2) Explain the various operations on circular queue.

   3) Write a function to insert a node in between a doubly linked list.

  B) Explain the difference between stack and queue. **4**

4. Attempt **any two** : **14**

   1) Write a menu driven program to implement stack using linked-list.

   2) Explain polynomial manipulation as application of linked list.

   3) Write a program to implement linear queue using array.

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

   1) What is structure ? Explain pointer to structure with example.

   2) Write a program to display reverse string using stack.

   3) Write a menu driven program to implement singly linked list with the operations – create, insert at beginning, delete, display.

_____

Seat
No.

B.Sc. (ECS) – II (Semester – III) (New CGPA) Examination, 2015
SOFTWARE ENGINEERING – I (Paper – IV)

Day and Date : Monday, 23-11-2015   Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. Choose the correct alternative   **14**

    1) The spiral model has two dimensions namely _____ and _____ .
       a) diagonal, angular   b) radial, perpendicular
       c) radial, angular   d) diagonal, perpendicular

    2) _____ includes review of the existing procedures and information flow.
       a) Feasibility study   b) Feasibility report
       c) System design   d) System analysis

    3) _____ is a tabular method for describing the logic of the decisions to be
       taken.
       a) Decision Table   b) Decision tree
       c) Decision Data   d) Decision Method

    4) A linear sequential software development model is also referred to as
       a) Prototype Model   b) RAD Model
       c) Spiral Model   d) None of these

    5) Design phase will usually be
       a) top-down   b) bottom-up
       c) random   d) centre fingering

    6) Detailed study of existing system is referred to as
       a) System planning   b) Design DFD
       c) Feasibility study   d) System analysis

7) During software development which factor is most crucial ?

   a) People   b) Process   c) Product   d) Project

8) The model remains operative until the software is retired

   a) Waterfall   b) Spiral   c) Incremental   d) None of these

9) The user system requirements are the parts of which document ?

   a) SDD   b) SRS   c) DDD   d) All of these

10) Software engineering aims at developing

    a) Reliable Software
    b) Cost Effective Software
    c) Reliable and Cost effective Software
    d) None of above

11) Cost-Benefit Analysis is performed during _____ phase.

    a) Analysis   b) Design
    c) Feasibility study   d) Implementation

12) Which one of the following is not a form of Decision Table ?

    a) Limited-Entry   b) Extended-Entry
    c) Mixed-Entry   d) Double-Entry

13) Which type of system development life cycle is based on iterative structure
    of system development ?

    a) Waterfall model   b) Prototype model
    c) Object-oriented model   d) Dynamic systems development model

14) The efforts are taken to locate and fix an error in a software product is called
    as

    a) Reusability   b) Portability
    c) Reliability   d) Maintainability

2. Answer the following (**any 7**) :   **14**

   1) Differentiate between open and closed system.

   2) What is main objective of a system analyst ?

   3) How can you measure the performance of a software system ?

   4) What is requirement engineering process ?

5) How system analyst keeps the relation between company and computer system ?

6) Identify six stages of system development life cycle.

7) Which are the various principles of flowcharting ?

8) What are the benefits of software prototyping ?

9) What is requirement anticipation ?

3. A) Answer the following (**any 2**) : **10**

    1) State the advantages and disadvantages of HIPO.

    2) Which are the various software characteristics ?

    3) Which are the general activities in the requirement analysis ?

  B) What is a decision table ? State the merits and demerits of decision tables. **4**

4. Answer the following (**any 2**) : **14**

1) Discuss the role of system analyst in designing and implementing information system.

2) Explain in detail software qualities of software.

3) What is SRS ? What are the things that can be included in an SRS ?

5. Answer the following (**any 2**) : **14**

1) The spiral model is a realistic approach to the development of large scale system and software - elaborate.

2) Explain various activities involved in system design.

3) What are the main components of HIPO chart ?

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Seat No.

B.Sc. (ECS) – II (Semester – III) (New) (CGPA) Examination, 2015
ORGANIZATION OF PC (Paper – V)

Day and Date : Tuesday, 24-11-2015   Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

1. Multiple choice questions :   **14**

    1) In First generation of computer _____ is used.
        a) Transistor   b) Vacuum Tube
        c) Integrated Circuit   d) None of these

    2) _____ printer works like typewriter.
        a) Golf ball   b) Inkjet
        c) Daisy wheel   d) Laser

    3) The hard disk derive was first introduced in _____
        a) 1965   b) 1962   c) 1952   d) 1956

    4) The _____ format is called double density format.
        a) MF   b) FM   c) MFM   d) FMF

    5) _____ Technique is also known as polling.
        a) Interrupt I/O   b) DMA
        c) Programmed I/O   d) None of these

    6) CD ROM _____ beam is used for writing data.
        a) Laser   b) Electrical
        c) Electromechanical   d) None of these

    7) The _____ supports multiprogramming and virtual memory.
        a) PC-XT   b) PC   c) PC-AT   d) None of these

    8) CRC stands for _____
        a) Cyclic Reduced Check   b) Cyclic Redundancy Check
        c) Cyclic Round Check   d) Cyclic Reduced Control

9) The PC-XT is basically _____ systems.

   a) Multiprogramming   b) Multitasking

   c) Uniprogramming   d) None of these

10) The instruction fetched from memory is transfer to _____

   a) CU   b) ALU

   c) CPU   d) IR

11) In _____ data transfer mode the CPU is not engaged.

   a) DMA   b) Programmed I/O

   c) Interrupt driven I/O   d) None of these

12) PCI stands for _____

   a) Personal Computer Interconnect

   b) Peripheral Component Interface

   c) Peripheral Computer Interface

   d) Peripheral Component Interconnect

13) The 8088 is invented in _____

   a) 1982   b) 1981

   c) 1983   d) 1984

14) The physical memory of 80286 is _____

   a) 16 MB   b) 61 MB

   c) 16 GB   d) 16 KB

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

   1) Draw the Diagram of floppy disk drive.

   2) Write the steps of booting process.

   3) What is function of address bus, data bus and control bus ?

   4) What is analog and digital signals ?

   5) Give the difference between CD and DVD.

   6) Explain the OG interrupts.

   7) Differentiate between TTL and composite video interface.

   8) Draw the diagram of ALU.

   9) Define impact and non impact printer.

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

    1) Explain the working of laser printer.

    2) What is interrupt ? Explain different types of interrupt.

    3) Explain the PC hardware in old generation.

  B) Answer the following : **4**

    1) Explain how recording of data is done on magnetic disk ?

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

    1) Explain the block diagram Keyboard and keyswitches in detail.

    2) Write a short note on cache memory and explain the memory hierarchy in detail.

    3) What is the need of the DMA ? Write a note on cycle stealing concept.

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

    1) Explain the any two I/O techniques with neat diagram.

    2) What is virtual memory ? Explain virtual memory mechanism in detail.

    3) What are OG and NG ? Explain NG interrupts in detail.

Seat No.

B.Sc. (ECS) – II (Semester – III) Examination, 2015
(New CGPA)
Microprocessor – I (Paper – VI)

Day and Date : Thursday, 26-11-2015　　　　　　　　　　　Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. A) Choose and write a correct answer from given alternatives. **14**

   1) In MMU address used by a programmer is _____ address.

      a) Virtual　　　b) Physical　　　c) Logical　　　d) Both a and c

   2) One of the following is electromechanical memory device

      a) Pen drive　b) Hard disk　　c) OMR　　　d) Scanner

   3) Transfer of information from main memory to cache memory referred as

      a) Mapping　　　　　　　　b) Direct mapping

      c) Associative mapping　　　d) Translation

   4) Stack is accessed from one end only called as

      a) PUSH　　　b) POP　　　c) IP　　　d) Top of stack

   5) _____ is volatile memory.

      a) ROM　　　b) RAM　　　c) EPROM　　　d) EEPROM

   6) Which of the following is the software priority interrupt ?

      a) Parallel　　b) Daisy chaining　c) Polling　　d) DMA

   7) The data manipulation instruction is _____

      a) JZ　　　b) ADD　　　c) CLR　　　d) TEST

8) To design the 512 byte ROM how much address lines are required ?

   a) 10   b) 16   c) 9   d) 20

9) In asynchronous communication interface _____ register indicate transfer register is empty or full.

   a) Status   b) Control   c) Receiver   d) Transmitter

10) In general register organization destination is selected by using

   a) MUX   b) DECODER   c) ALU   d) DE-MUX

11) _____ memory is internal memory.

   a) Primary   b) CPU register   c) Cache   d) Secondary

12) Which one of the following is IOP ?

   a) 8086   b) 8089   c) 8085   d) 8255

13) Mean time before failure is related to

   a) Reliability   b) Access time   c) Cost   d) Capacity

14) In asynchronous communication _____ start bits are transmitted.

   a) 3   b) 2   c) 1   d) 4

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

   1) What is stack ?

   2) Explain cost and capacity characteristics of memory.

   3) State polling priority interrupt.

   4) Explain instruction format.

   5) Explain data transfer instruction.

      i) MOV   ii) IN and OUT.

   6) What is memory hierarchy ?

   7) Draw the block diagram of DMA transfer.

   8) What is isolate I/O ?

   9) Explain immediate addressing mode.

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

    1) Explain RAM with its signals.

    2) Explain input output interface.

    3) What is optical memory ? Explain it.

  B) What is segmentation ? **4**

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

    1) Explain memory connection with CPU.

    2) Write a note on bit slice processor.

    3) Explain asynchronous data transfer with strobe mode.

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

    1) Write a note on combinational and sequential ALU.

    2) Explain logical and bit manipulation instruction.

    3) Explain in detail DMA controller.

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SLR-W – 18

B.Sc. (ECS – II) (Semester – III) Examination, 2015
OPERATING SYSTEM – I (Paper – I) (Old)

Day and Date : Thursday, 19-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Multiple choice questions :   **10**

    1) FIFO scheduling is _____
      a) Preemptive scheduling
      b) Non-preemptive scheduling
      c) Deadlock scheduling
      d) None of these

    2) _____ is the solution to critical section problem.
      a) Mutual exclusion   b) Race condition
      c) System calls   d) None of these

    3) _____ is a program that acts as an intermediary between computer user and computer hardware.
      a) Process management   b) Storage management
      c) Operating system   d) All the above

    4) _____ provides interface to services made available by operating system.
      a) Programming execution   b) I/O operation
      c) System calls   d) Accounting

    5) The RR scheduling is designed specially for _____ system.
      a) Time sharing   b) Distributed
      c) Real time   d) Multiprogramming

6) A process can be defined as _____

   a) Any user program   b) Any program in execution

   c) Real time   d) Multiprogramming

7) The dining philosophers problem is an example of _____

   a) Critical section   b) Memory management

   c) Free space allocation   d) None of these

8) The short term schedular selects _____

   a) The process which is ready to execute and allocate CPU

   b) The jobs are admitted to the system for processing

   c) The process loads them into memory

   d) None of these

9) A major problem with priority scheduling algorithm is _____

   a) Saturation   b) Starvation

   c) Deadlock   d) None of these

10) PCB means _____

   a) Program Control Block   b) Process Communication

   c) Process Control Block   d) None of these

2. Answer **any five** of the following :   **10**

   1) Define process and threads.

   2) Define throughput and turn around time.

   3) Define system calls.

   4) What is operating system ? Explain components of operating system.

   5) Explain time sharing operating system.

   6) Explain ready queues.

3. A) Answer **any two** of the following :   **6**

   1) Explain design goals of operating system.

   2) Explain structure of PCB.

   3) Write a note on semaphores.

B) Consider the following 4 workloads, calculate the following using FCFS algorithm : **4**

Job	Burst Time
J$_1$	7
J$_2$	5
J$_3$	5
J$_4$	10

   i) Prepare a Gantt chart for it.

   ii) Calculate average turn around time.

   iii) Calculate average waiting time.

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

   1) What are the services provided by operating system ?

   2) Write a note on process states with neat diagram.

   3) Explain layered structure of operating system.

5. Answer **any two** of the following : **10**

   1) Explain reader-writer problem in detail.

   2) Explain critical section with an example.

   3) Explain multilevel queues and priority queues in detail.

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Seat
No.

B.Sc. (ECS) – II (Semester – III) Examination, 2015
OBJECT ORIENTED PROGRAMMING USING C++ - I (Old) (Paper – II)

Day and Date : Friday, 20-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose correct alternatives : **10**

   1) _____ is insertion operator.

      a) <   b) >   c) >>   d) <<

   2) The member function declared in private access specifier called as _____

      a) Friend function   b) Private member function

      c) Inline member function   d) None of these

   3) Constructor should be declared public section only.

      a) True   b) False

   4) _____ operator can not be overloaded.

      a) +   b) *   c) /   d) @

   5) Return type of constructor is _____

      a) void   b) int   c) char   d) none of these

   6) When unary operator overloads it take _____ argument.

      a) 1   b) 0   c) 2   d) 3

   7) Wrapping up data and functions into single unit called as _____

      a) encapsulation   b) data hiding

      c) inheritance   d) none of these

   8) Constructor name and class name must not be same.

      a) True   b) False

P.T.O.

9) _____ is a special member to remove the memory which is created by constructor.

   a) Copy constructor   b) Default constructor

   c) Destructor   d) None of these

10) In operator overloading, prefix and postfix meaning of both is same.

   a) True   b) False

2. Answer **any five** of the following :   **10**

   1) Define class.

   2) State any two advantage of OOP.

   3) Define Friend Function.

   4) Write use of new and delete operator.

   5) State logical operators used in C++.

   6) Write advantages of inline member function.

3. A) Answer **any two** of the following :   **6**

   1) What are the rules of operator overloading ?

   2) Explain copy constructor with example.

   3) Explain 'Private Member Function'.

  B) Write a program in C++ to implement any one unary operator overloading.   **4**

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

   1) Explain data types in C++.

   2) Write difference between procedure oriented and object oriented programming.

   3) Explain constructor overloading.

5. Answer **any two** of the following :   **10**

   1) Explain nested class with example.

   2) Write a short note on 'Arrays of objects'.

   3) Write an OOP to test the given number is perfect or not by using inline member function.

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Seat No.

B.Sc. (ECS) – II (Semester – III) (Old) Examination, 2015
DATA STRUCTURES AND ALGORITHMS – I (Paper – III)

Day and Date : Saturday, 21-11-2015　　　　　　　　　　　Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

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

　　1) Array elements are stored in memory by _____ manner.

　　　　a) Sequential　　　　　　　　　b) Non-sequential

　　　　c) Random　　　　　　　　　　d) None of these

　　2) Doubly circular linked list contains _____ NULL links.

　　　　a) Zero　　　　b) One　　　　c) Two　　　　d) Three

　　3) Which of the following is an use of pointer ?

　　　　a) Return more than one value using function

　　　　b) Accessing dynamically allocated memory

　　　　c) Both a & b

　　　　d) None of these

　　4) The term Push and Pop related to _____

　　　　a) Array　　　　b) Lists　　　　c) Queue　　　　d) Stack

　　5) Linked list are most suitable for random access.

　　　　a) True　　　　　　　b False

　　6) Two main measures for the efficiency of an algorithm are _____

　　　　a) Time and Space　　　　　　　b) Data and Space

　　　　c) Processor and Memory　　　　d) Complexity and Capacity

P.T.O.

7. Which of the following data structures is not linear data structure ?

 a) Arrays b) Linked lists

 c) Both a and b d) None of these

8) The operation of processing each element in the list is known as _____

 a) Inserting b) Merging

 c) Traversing d) Sorting

9) One difference between a Stack and Queue is _____

 a) Queue require dynamic memory but stack do not

 b) Stack require dynamic memory but queue do not

 c) Queues use two ends of the structure while stacks use only one

 d) Stacks use two ends of the structure while queues use only one

10. Algorithm is a solution to a problem independent of programming language.

 a) True b) False

2. Answer the following **(any 5)**. **10**

 1) What is multidimensional array ?

 2) Give the difference between Push and Pop.

 3) What is a postfix expression ?

 4) Why use structures ?

 5) Define Circular Queue.

 6) Give the advantages of data structures.

3. A) Answer the following **(any 2)**. **6**

 1) Differentiate Stack and Array.

 2) What is singly linked list ? Give it's disadvantage.

 3) Give the applications of queue.

 B) Write note on priority queue. **4**

4. Answer the following **(any 2)**.   10

   1) Explain following operations of linear linked list.

     a) Delete   b) Search.

   2) Write an algorithm for deletions of elements from a circular queue.

   3) Explain the steps to evaluate the postfix expression.

5. Answer the following **(any 2)**.   10

   1) Write a program to implement stack dynamically.

   2) Explain the term

     a) Divide and conquer

     b) Greedy algorithm.

   3) What is ADT ? Explain ADT for queue.

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Seat	
No.	

B.Sc. (ECS) – II (Semester – III) (Old) Examination, 2015
COMPUTER SCIENCE (Paper – IV)
Software Engineering – I

Day and Date : Monday, 23-11-2015   Total Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative :   **10**

    1) HIPO is _____ tool.

       a) design tool   b) development tool

       c) documentation tool   d) all of these

    2) _____ or conceptual system is an orderly arrangement of independent ideas.

       a) Abstract   b) Physical

       c) Both a) and b)   d) None of these

    3) _____ is quality of software in which for incorrect input also performs well.

       a) Reliability   b) Robustness

       c) Correctness   d) None of these

    4) _____ is an agreement between system developer and user.

       a) Requirement specification   b) Requirement Investigation

       c) Both a) and b)   d) None of these

    5) Which of the following is not technique of fact finding method ?

       a) Record review   b) Performance

       c) Observation   d) Interview

6) Study of physical system contains

    a) What is purpose of activity ?

    b) What output is expected ?

    c) Which persons, departments are involved ?

    d) All of these

7) A channel for communicating across boundary between 2 or more subsystems are known as _____

    a) Interface   b) Entity

    c) Data path   d) All of these

8) Most artificial systems are man-machine system.

    a) True   b) False

9) Waterfall model is also called as linear sequential model.

    a) True   b) False

10) Structured charting tools are _____

    a) Structured flow charts

    b) HIPO chart

    c) Warnier-Orr diagrams

    d) All of these

2. Answer **any five** of the following :   **10**

    1) Write definition of system analysis.

    2) What is need of Prototyping ?

    3) State demerits of decision tables.

    4) Write principles of flowchart.

    5) Write advantages of interview.

    6) What is Requirement Anticipation ?

3. A) Answer **any two** of the following : **6**

   1) Write role of system analyst.

   2) Write note on system design.

   3) What is Questionnaire ? How to design a questionnaire ?

  B) What is program flowchart ? Explain with example. **4**

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

   1) Explain different types of interview.

   2) Explain Spiral model.

   3) What is Decision table ? Explain its types with example.

5. Answer **any two** of the following : **10**

   1) Explain System Analysis phase in detail.

   2) Explain different qualities of a software.

   3) Explain elements of system.

_____

Seat No.

B.Sc. (ECS) – II (Semester – III) (Old) Examination, 2015
ELECTRONICS (Paper – V)
Organization of PC – I

Day and Date : Tuesday, 24-11-2015   Total Marks : 50

Time : 2.30 p.m. to 4.30 p.m.

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

1. Multiple Choice Questions :   **10**

    1) The instruction fetched from memory is transfer to _____
       a) Control Unit   b) ALU
       c) Instruction Register   d) CPU

    2) In DMA data transfer mode the _____ is incharge for data transfer.
       a) CPU   b) ALU
       c) DMA controller   d) None

    3) CRC techniques allow detection of _____ bit failures.
       a) Single   b) Double   c) Multiple   d) None

    4) The PC-AT uses an advanced microprocessor such as _____ processor.
       a) 8086   b) 8088   c) 8085   d) 80286

    5) 8088 has 20 bit address bus and it can address upto _____ locations.
       a) 1 MB   b) 2 MB   c) 64 KB   d) 32 KB

    6) The PC-AT supports _____
       a) multiprogramming   b) uniprogramming
       c) flash memory   d) virtual

    7) Usually the boot program is stored in _____
       a) RAM   b) Hard disk   c) ROM   d) USB

    8) The spindle motor is used to rotate the floppy diskette at _____
       a) 225   b) 300   c) 350   d) 325

9) The DRAM memory are used in PC and these should be refreshed periodically.
   a) True   b) False   c) Both a and b   d) None

10) The cache memory is the buffer memory between main memory and _____
   a) CPU   b) ALU   c) CU   d) None

2. Answer **any five** of the following :   **10**

   1) Define impact printer and non impact printer.

   2) Write names of interrupt.

   3) What is cold booting and warm booting ?

   4) What is write-through policy and write-back policy ?

   5) What is use of FM and MFM recording format ?

   6) What is function of CPU ?

3. A) Answer **any two** of the following :   **6**
   1) Explain bus concept of CPU.
   2) Explain block diagram of CPU.
   3) Briefly explain Reset logic.

   B) Draw diagram of different types of key switches with brief explanation.   **4**

4. Attempt **any two** of the following :   **10**

   1) What is a interrupt ? Explain different types of interrupt.

   2) Write a short note on cache memory.

   3) Explain working of Laser printer.

5. Attempt **any two** of the following :   **10**

   1) Write a short note on CD-ROM operation.

   2) Explain concept of DMA.

   3) Write short note on latest motherboard.

_____

Seat
No.

B.Sc. (ECS) (Part – II) (Semester – III) Examination, 2015
MICROPROCESSOR – I (Paper – VI) (Old)

Day and Date : Thursday, 26-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

N.B. :   1) **All** questions are **compulsory**.
           2) Figures to the **right** indicate **full** marks.
           3) **Neat** diagrams must be drawn **wherever** necessary.

1. Choose correct alternatives :   **10**

   1) Push is _____ instruction.

      a) Data transfer   b) Processor

      c) Logical   d) Arithmetic

   2) In memory mapped I/O control signals are _____

      a) Common   b) Separate

      c) Same   d) None of these

   3) Dynamic memory uses _____ to store the information.

      a) Capacitor   b) Flip flop

      c) Particle   d) Pits and land

   4) MOV R1, R2 is _____ address instruction.

      a) Three   b) Two

      c) One   d) Zero

   5) To access 128 byte memory it requires _____ address lines.

      a) 8   b) 7   c) 16   d) 20

P.T.O.

6) Cache memory is used in _____ level hierarchy.

   a) 1   b) 2   c) 3   d) 4

7) Intel 8089 IOP is _____ pin IC.

   a) 20   b) 14   c) 24   d) 40

8) DPU is a part of _____

   a) ALU   b) CPU

   c) IAC   d) MMU

9) Daisy chaining is _____ used in priority scheme.

   a) Software   b) Program

   c) Instruction   d) Hardware

10) SP is used to point _____

   a) TOS   b) BOS

   c) IC   d) Memory

2. Attempt **any five** of the following :   **10**

   a) Explain volatile memory.

   b) What is mean by polling ?

   c) Explain three address instruction.

   d) Explain recording on magnetic disk.

   e) Explain i/o interface.

   f) Explain JMP, CALL, RET, SKP instruction.

3. A) Attempt **any two** of the following :   **6**

    1) Explain memory stack.

    2) Explain strobe method of data transfer.

    3) Explain optical memory.

   B) Explain characteristics of memory.   **4**

4. Attempt **any two** of the following :   **10**

    1) Explain CPU-IOP communication.

    2) Explain Bit Slice Processor.

    3) Explain virtual memory.

5. Attempt **any two** of the following :   **10**

    1) Explain data transfer and data manipulation instruction.

    2) Explain memory mapped I/O.

    3) Explain memory connection to CPU.

_____

Seat	
No.	

B.Sc. (ECS) – II (Semester – III) (Old) Examination, 2015
ENGLISH – I (Paper – VII)

Day and Date : Friday, 27-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. A) Fill in the blanks in the following sentences by choosing the correct alternatives.   **6**

     1) First information report is always written by an _____

        a) Group   b) Collective

        c) Individual   d) None of above

     2) _____is placed between three or more items in a series.

        a) Colon   b) Comma

        c) Semicolon   d) Full stop

     3) _____ contains name and address of a company.

        a) Address bar   b) Letter head

        c) Body of the letter   d) None

     4) _____ report is required when an organization intends to launch a new product in the market.

        a) Project   b) Survey

        c) Missing   d) Investigation

     5) Minutes of the meeting are always written in _____ tense.

        a) simple present   b) simple past

        c) future   d) continuous

     6) Righteous conduct is _____

        a) Attitude   b) Tendency

        c) Value   d) Activity

B) Match the pairs. **4**

A	**B**
1) Report of weekly sales	a) Peace
2) Abstract	b) Minutes
3) Drafted by secretary	c) Summary of a report
4) Universal value	d) Periodic
	e) Paper work

2. Give brief answers to the following questions **(any five)**. **10**

   1) What is narration ?

   2) Define the term Attitude and Value.

   3) Draw a Pie diagram of any information.

   4) What are the contents included in bio-data ?

   5) Give the examples of Notice agenda and minutes of the meeting.

   6) What is the difference between routine and nonroutine reports ?

3. A) Write short notes on **any two** of the following. **6**

   1) Explain terminal and instrumental values with suitable examples.

   2) Explain five universal values.

   3) Explain the paper work for regular meeting.

   B) Attempt **any two** of the following. **4**

   1) Write a paragraph on the availability of wards in a hospital by drawing imaginative Pie – diagram.

2) Represent the information given below in a bar-diagram.

Percentage of admissions to the three faculties in college.

Courses	2008/09	2009/10	2010/11
B.B.A.	52 %	56 %	58 %
B.C.A.	27 %	24 %	21 %
B.C.S.	21 %	20%	21 %

3) Explain Punctuation marks.

4. Attempt **any one** of the following. **10**

1) Draft an application for the post of software Engineer with resume.

2) Difference between minutes and reports.

5. Narrate your first experience of how you taken your younger brother's admission at college. **10**

_____

Seat No.	

B.Sc. (ECS) – II (Semester – IV) Examination, 2015
OPERATING SYSTEM – II (New) (Paper – I)

Day and Date : Saturday, 28-11-2015　　　　　　　　　　Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Multiple choice questions :　　　　　　　　　　　　　　　　　　**10**

　1) The minimum number of process involved in any deadlock can be

　　a) One　　　　　　　　　　　　b) Two

　　c) More than two　　　　　　　d) Any number

　2) Compaction is a solution for

　　a) Internal fragmentation　　　b) External fragmentation

　　c) Both　　　　　　　　　　　d) None of these

　3) In contiguous file allocation

　　a) The blocks allocated in memory have to be continuous

　　b) The blocks need not be continuous

　　c) The blocks can be continuous or noncontinuous

　　d) None of the above

　4) UNIX operating system is an

　　a) Time sharing OS　　　　　　b) Multiuser OS

　　c) Multitasking OS　　　　　　d) All the above

　5) The process can be moved during its execution from one memory segment to another at

　　a) Compile time　　　　　　　b) Load time

　　c) Execution time　　　　　　d) Both a and b

6) When a page must be replaced, _____ chooses the page that has not been used for the longest period of time.

   a) LRU   b) FIFO   c) Optimal   d) None of these

7) _____ allocation solves all problems of contiguous allocation.

   a) Contiguous   b) Linked   c) Direct   d) Indirect

8) When a deadlock occures, the system has to be in

   a) Safe state   b) Unsafe state

   c) Any one of two states   d) None of these

9) Demand paging is a _____ system.

   a) Virtual memory   b) Job scheduling

   c) CPU scheduling   d) None

10) To enable a process to be larger than the amount of memory allocated to it, we can use

   a) Swapping   b) Paging   c) Overlays   d) None of these

2. Answer **any five** of the following :   **10**

   1) Explain tree structure directory.

   2) What is deadlock ?

   3) Explain disadvantages of buffer cache.

   4) Explain different file access methods.

   5) What is paging ?

   6) Explain features of UNIX OS.

3. A) Answer **any two** of the following :   **6**
   1) Write a note on swapping.
   2) Explain FIFO page replacement algorithm with suitable example.
   3) Explain layout of system memory.

   B) Explain different allocation method used in a file system.   **4**

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

   1) Write a note on deadlock prevention.

   2) Explain process states and transitions.

   3) Explain structure of buffer header and buffer pool.

5. Answer **any two** of the following : **10**

   1) Write a note on segmentation.

   2) What is safe and unsafe states of a system ? It is possible that a system is in unsafe state but not deadlocked ?

   3) Explain architecture of the UNIX OS.

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Seat No.

B.Sc. (ECS) – II (Semester – IV) Examination, 2015
OBJECT ORIENTED PROGRAMMING USING 'C++' – II (New) (Paper – II)

Day and Date : Monday, 30-11-2015　　　　　　　　　　Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose correct alternative : 　　　　　　　　　　　　　　　　　　**10**

　　1) All parameterized manipulator belongs to _____ header file.

　　　　a) manip.h　　　　b) iomanip.h　　c) format.h　　d) both b) and c)

　　2) _____ allows reusability of code.

　　　　a) Data Encapsulation　　　　　　b) Polymorphism

　　　　c) Inheritance　　　　　　　　　　d) None of these

　　3) File can be opened by using _____

　　　　a) Open ()　　　　　　　　　　b) Constructor

　　　　c) Both a) and b)　　　　　　　d) Friend function

　　4) _____ class cannot be instantiated.

　　　　a) Friend　　　　　b) Inherited　　c) Abstract　　d) Both b) and c)

　　5) _____ mode is used to seek the end of file at opening.

　　　　a) ios : : in　　　b) ios : : app　　c) ios : : ated　　d) ios : : out

　　6) Constructors are executed from _____ class to _____
　　　class in inheritance.

　　　　a) Base, Derived　　　　　　b) Base, Base

　　　　c) Derived, Base　　　　　　d) Derived, Derived

　　7) 'cin' is predefined object of _____ class.

　　　　a) istream　　　　　　　　b) ostream

　　　　c) both a) and b)　　　　　d) none of these

8) If we declare function as _____ in base class then it is necessary to define in its derived class.

a) inline   b) abstract   c) pure virtual   d) friend

9) In _____ type of inheritance, virtual base class is used.

a) Single   b) Multiple   c) Hierarchical   d) Mutli-path

10) In private derivation of class, public data of base class becomes _____ for derived class.

a) Public   b) Private   c) Protected   d) Not inherited

2. Answer **any five** from following :   **10**

1) What is Manipulator ? List out any four manipulators with their use.

2) Define : Pure Virtual Function.

3) What is File ? List out different file opening modes.

4) Write behaviour of constructor and destructor in inheritance.

5) Explain 'this' keyword.

6) What is Stream ? Write use of input and output streams.

3. A) Answer **any two** from following :   **6**

1) Explain types of derivation of new class in detail.

2) Explain functions of istream class.

3) Explain nesting of classes.

B) Write a program to implement multi-level inheritance.   **4**

4. Answer **any two** of following :   **10**

1) Write a program that reads 10 numbers and write only odd numbers into file.

2) Explain try, catch and throw with example.

3) What is Runtime polymorphism ? How it is achieved in C++ ?

5. Answer **any two** of following :   **10**

1) Write a program that demonstrates the use of pure virtual function.

2) Write a program to implement custom manipulator.

3) What is Inheritance ? Explain its different types.

_____

Seat
No.

B.Sc. (ECS) – II (Semester – IV) (New) Examination, 2015
Paper – III : DATA STRUCTURES AND ALGORITHMS – II

Day and Date : Tuesday, 1-12-2015   Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose correct alternatives.   **10**

    1) _____ is hierarchical data structure.

      a) Linked list   b) Tree   c) Graph   d) Both b & c

    2) _____ operation is fast in case of AVL tree.

      a) Insert   b) Remove   c) Search   d) Both a & b

    3) _____ sorting method uses divide and conquer strategy.

      a) Bubble   b) Quick   c) Merge   d) Both b & c

    4) _____ search method requires data to be sorted first.

      a) Sequential   b) Linear   c) Binary   d) Both a & b

    5) In a binary expression tree, parent node is always _____

      a) Operator   b) Operand   c) Parenthesis   d) None of these

    6) For implementation of DFS traversal of graph _____ data structure is used.

      a) Array   b) Queue   c) Stack   d) Linked list

    7) Traversing binary tree with preorder method gives ascending order of element.

      a) True   b) False

    8) _____ sort is an example of exchange sort method.

      a) Bubble   b) Quick   c) Selection   d) All of these

9) The degree of node of binary tree may be greater than two.

    a) True   b) False

10) The node whose indegree is 1 and outdegree is 0 then it is called 'Pendant node'.

    a) True   b) False

2. Answer **any five** of the followings.   **10**

    1) What is Tree ? List out its applications.

    2) What is Sorting ? List out different sorting methods.

    3) What is Strictly and complete binary tree ?

    4) What is Directed and Undirected graph ?

    5) What is 'Collision' in hashing ?

    6) Give advantages of Threaded binary tree.

3. A) Attempt **any two** of the followings.   **6**

    1) Explain 'Selection' sort method in detail.

    2) Write an algorithm to insert node in binary search tree.

    3) Explain following Hash Functions :

        I) Truncation Method

        II) Mid square Method.

  B) Represent any directed graph using adjacency matrix and adjacency list.   **4**

4. Answer **any two** of the followings.   **10**

    1) Write a program to implement bubble sort method.

    2) Explain BFS traversal of graph with example.

    3) What is searching ? Explain 'Binary Search' method in detail.

5. Answer **any two** of the followings.   **10**

    1) What is Traversal ? Explain tree traversal methods in detail.

    2) Explain 'Insertion Sort' method in detail.

    3) Explain 'Indexed sequential Search' in detail.

_____

Seat No.

B.Sc. (ECS) (Part – II) (Semester – IV) (New) Examination, 2015
Paper – V : ORGANIZATION OF PC – II

Day and Date : Thursday, 3-12-2015   Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose correct alternatives.   **10**

   1) Intel _____ chip set is designed for the intel pentium III processor.

      a) 865 G   b) 810 E   c) 745 A   d) None of these

   2) The power dissipation of _____ logic family is less.

      a) TTL   b) MOS   c) IIL   d) None of these

   3) _____ uses dual ring architecture in network.

      a) SMD   b) SMT   c) FDDI   d) NIC

   4) The _____ processor is designed for uniprocessor based PC.

      a) Pentium III   b) Celeron   c) 80486   d) None of these

   5) For 2 to 1 PAL _____ fuses are used.

      a) 5   b) 6   c) 7   d) 8

   6) A signal shared medium is an Ethernet

      a) Node   b) Frame   c) Segment   d) Medium

   7) The gates used in VLSI technology are

      a) greater than 50000   b) less than 50000
      c) 50000   d) none of these

   8) A _____ is essentially a multiport bridge.

      a) domain   b) switch   c) source   d) none of these

P.T.O.

9) The 80286 works in _____ modes.

   a) 2   b) 3   c) 4   d) 5

10) _____ topology scheme combine multiple topology into one large topology.

   a) Hybrid   b) Logical   c) Tree   d) None of these

2. Attempt **any five** of the following :   **10**

   1) Give the network software.

   2) Draw internal organisation of 80286.

   3) List the hardware component used in IBM PC.

   4) Give specification of latest motherboard.

   5) Give network goals.

   6) Give different IC logic families.

3. A) Attempt **any two** of the following :   **6**

   1) Explain networking methods.

   2) Give difference between Pentium and 80486.

   3) Give hardware of the network.

   B) Write a note on PLD.   **4**

4. Attempt **any two** of the following :   **10**

   1) Explain Pentium master checker configuration.

   2) Explain classification of transmission media.

   3) Explain PLA.

5. Attempt **any two** of the following :   **10**

   1) Explain networking structure.

   2) Explain SMD and SMT.

   3) Explain RISC and CISC approach.

_____

Seat
No.

B.Sc. (E.C.S.) (Part – II) (Semester – IV) (New) Examination, 2015
Paper – VI : MICROPROCESSORS – II

Day and Date : Friday, 4-12-2015   Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose correct alternatives :   **10**

    1) _____ is the data transfer instruction.
       a) IN   b) JUMP   c) ADD   d) CLS

    2) The memory capacity of 8086 is _____
       a) 1 MB   b) 64 KB   c) 1 GB   d) 64 MB

    3) The 8255 has _____ I/O Ports.
       a) 1   b) 2   c) 3   d) 4

    4) The 8086 works in _____ modes.
       a) 1   b) 2   c) 3   d) 4

    5) MOV AX, [BX] is _____ type addressing mode.
       a) Register to register   b) Register indirect
       c) Indirect addressing   d) None of these

    6) _____ is the processor control instruction.
       a) JNZ   b) CLD   c) POP   d) HOLD

    7) The Pentium II processor introduced in _____
       a) 1995   b) 1997   c) 1999   d) 2000

    8) The bit length of segment register is _____ bit.
       a) 16   b) 20   c) 8   d) 14

    9) The 80286 is a _____ bit processor.
       a) 16   b) 20   c) 8   d) 14

    10) In absolute decoding each location has _____ address.
        a) Variable   b) Fixed   c) Zero   d) None of these

P.T.O.

2. Attempt **any five** of the following. **10**

    1) Explain flag registers of advanced processor.

    2) Explain arithmetic instructions.

    3) Give difference between 8086 and 8088.

    4) Explain instruction queue in 8086.

    5) Explain general purpose registers of advanced processor.

    6) Give features of advanced processor.

3. A) Attempt **any two** of the following. **6**

    1) Explain logical instructions.

    2) Explain channels of 8257.

    3) Explain segment register of 8086.

   B) Explain control word of 8255. **4**

4. Attempt **any two** of the following. **10**

    1) Explain conditional and unconditional instructions of 8086.

    2) Explain maximum mode operation of 8086.

    3) Explain interfacing between K/B and display.

5. Attempt **any two** of the following. **10**

    1) Explain different data transfer instructions with example.

    2) Explain EU section of 8086.

    3) Explain 8253 with suitable diagram.

Seat No.	

B.Sc. (ECS) – II (New) (Sem. – IV) Examination, 2015
ENGLISH – II (Paper – VII)

Day and Date : Saturday, 5-12-2015   Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. A) Fill in the blanks in the following sentences by choosing the correct alternatives. **6**

   1) Handshake indicates _____
      a) Oral Communication
      b) Verbal Communication
      c) Non-verbal Communication
      d) Mutual Communication

   2) Academic intelligence is not mere sufficient to success in life.
      a) An opinion   b) Argument
      c) Fact   d) None of above

   3) Human skills is the ability _____
      a) to work well in cooperation with oneself
      b) to work well in cooperation with other persons
      c) to work well in cooperation with organization
      d) to work well in cooperation with an entity

   4) Bodily-Kinesthetic means _____
      a) Control of one's own body motion and the ability to manipulate objects with precision
      b) Control of one's mind
      c) Control of other's mind
      d) All of the above

P.T.O.

5) An interview is a _____

    a) Conversation between two different parties

    b) Conversation between the interviewer and the interviewee

    c) Conversation between one person to more people

    d) Conversation between two same category

6) LTM stands for _____

    a) Low Timed Memory

    b) Lower Traced Memory

    c) Long Term Memory

    d) Left Term Memory

1. B) State whether following statement are **true** or **false**.   **4**

    1) Self-esteem as a confidence and satisfaction in oneself.

    2) Group dynamics is the study of groups and also a general term for group process.

    3) Strength and weakness are not the inner feelings.

    4) A conclusion is where the whole group decides in favour or against the topic.

2. Give brief answers to the following questions (**any five**).   **10**

    1) What is group dynamics ?

    2) What is an exit interview ?

    3) What is conceptual ability ?

    4) What is group discussion ?

    5) What is the difference between self-concept and self image ?

    6) What is face to face interview and telephone interview ?

3. A) Write short notes on **any two** of the following. **6**

    1) How to prepare the resume ?

    2) What is learning ? Explain the process of learning.

    3) Explain taking notes and making notes.

3. B) Attempt **any one** of the following. **4**

    1) State the importance of writing skills.

    2) How to conduct seminar ?

4. Attempt **any one** of the following. **10**

    1) Give full information interview process.

    2) Discuss the secretes of effective group discussions.

5. Write a presentation of newly developed software about library. **10**

_____

Seat No.	

B.Sc. (ECS) – II (Semester – IV) Examination, 2015
OPERATING SYSTEM – II (Old)
Paper – I

Day and Date : Saturday, 28-11-2015   Max. Marks : 50
Time: 10 .30 a.m. to 12 .30 p.m.

1. Multiple Choice Questions.   **10**

   1) Paging suffers from

      a) internal fragmentation   b) external fragmentation

      c) both   d) none of the above

   2) Out of four necessary conditions _____ must hold simultaneously for a deadlock to occur.

      a) One   b) Two   c) Three   d) Four

   3) Virtual Memory is _____

      a) An extremely large main memory

      b) An extremely large secondary memory

      c) An illusion of extremely large main memory

      d) A type of memory used in super computers

   4) What is a shell ?

      a) It is a hardware component

      b) It is a command Interpreter

      c) It is a part of compiler

      d) It is a tool in CPU scheduling.

   5) _____ allocation method does not support direct access.

      a) Index   b) Contiguous   c) Linked   d) All of the above

   6) Compaction is a solution for

      a) Internal Fragmentation   b) External Fragmentation

      c) Both   d) None of these

P.T.O.

7) _____ 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 the above

8) Physical memory is broken into fixed sized blocks called _____

    a) Pages   b) Frames   c) Blocks   d) Segments

9) The base register is used for static relocation.

    a) True   b) False

10) The UNIX OS was written in _____ language.

    a) 'C'   b) C++   c) JAVA   d) C#

2. Write short notes on the following **(any five)** :   **10**

    1) File attributes.

    2) Differentiate between logical address and physical address.

    3) Safe and Unsafe states.

    4) Concepts of swapping.

    5) Buffer headers in UNIX OS.

    6) Fragmentation.

3. A) Answer **any two** of the following :   **6**
    1) Explain operations of files in detail.
    2) Explain concept of demand paging in detail.
    3) What are the advantages and disadvantages of Buffer cache ?

   B) Explain Memory allocation method of Multiprogramming with Variable Number of Tasks in detail.   **4**

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

    1) Explain Bankers algorithm in detail.

    2) Explain Architecture of UNIX OS.

    3) Write a note on directory structure.

5. Answer **any two** of the following :   **10**

    1) Explain File Allocation methods in detail.

    2) Write a note of page Replacement algorithms with an example.

    3) Write a note on file system in UNIX operating system.

_____

SLR-W – 33

B.Sc. (ECS) – II (Semester – IV) Examination, 2015
OBJECT ORIENTED PROGRAMMING USING C++ – II (Paper – II)
(Old)

Day and Date : Monday, 30-11-2015

Max. Marks : 50

Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose correct alternatives :   **10**

   1) The manipulator setfill ( ) is performed following action
      a) sets the fill character   b) sets the field width
      c) sets the floating point precision   d) none of these

   2) Function seekg ( ) includes in _____ header file.
      a) iostream.h   b) ifstream.h
      c) string.h   d) conio.h

   3) Which allows you to create a derived class that inherits properties from more than one base class ?
      a) Multilevel inheritance   b) Multiple inheritance
      c) Hybrid inheritance   d) Hierarchical inheritance

   4) The file ifstream includes
      a) The declaration of the basic file standard input library
      b) The declaration of the basic file standard output library
      c) Both a and b
      d) None of these

   5) There is a unique function in C++ program where all C++ programs start their execution.
      a) start ( )   b) begin ( )
      c) main ( )   d) output ( )

P.T.O.

6) The mechanism of deriving a new class from an old/existing class is called

   a) inheritance
   b) polymorphism
   c) encapsulation
   d) abstraction

7) Thrown exception can caught by _____ function.

   a) try
   b) catch
   c) throw
   d) exception

8) The seek call fout.seekg (O, ios : : beg) perform following action

   a) go to the beginning of the file
   b) go to end of file
   c) stay at the current location of file
   d) none of the above

9) Function seekg ( ) performs following action

   a) Moves put file pointer to a specific location
   b) Moves get file pointer to a specific location
   c) Return the current position of the get pointer
   d) Return the current position of the put pointer

10) Manipulator setw ( ) is equalent to _____ ios class member function.

   a) width ( )
   b) precision ( )
   c) fill ( )
   d) setf ( )

2. Answer **any five** of the following : (5×2 = 10)

   1) What is meant by polymorphism in C++ ?

   2) What is the use of 'this' pointer ?

   3) What is virtual base class ?

   4) Draw access privilege table/diagram for members of a base and derived class.

   5) List out the manipulators used in C++.

   6) What is file ?

3. A) Answer **any two** of the following : **(2×3 = 6)**

   1) What are the differences between ASCII and Binary files ?

   2) What is command line argument ? Give an example.

   3) Explain the need of virtual function.

   B) What is inheritance ? Explain the need of inheritance with suitable example. **4**

4. Answer **any two** of the following : **(2×5 = 10)**

   1) What is a file modes ? Describe the various file mode options available in C++.

   2) What are the virtual classes ? Explain the need for virtual classes while building class hierarchy.

   3) Draw console stream class hierarchy diagram and explain its members.

5. Answer **any two** of the following : **(2×5 = 10)**

   1) Explain static and dynamic binding with suitable example.

   2) Explain various file stream classes needed for file manipulations.

   3) Explain the following terms in details :

   A) Try

   B) Catch

   C) Throw.

_____

Seat No.	

B.Sc. (ECS) – II (Semester – IV) (Old) Examination, 2015
Paper – III : DATA STRUCTURES AND ALGORITHMS – II

Day and Date : Tuesday, 1-12-2015　　　　　　　　　　Total Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose the correct alternatives : **10**

　　1) A node that does not have any child is called _____
　　　　a) leaf node　　　b) terminal node　c) both a) and b) d) none of these

　　2) The searching technique suitable for unsorted arrays
　　　　a) binary search　　b) linear search　c) both a) and b) d) none of these

　　3) Which of the following sorting algorithm is of divide and conquer type ?
　　　　a) Bubble sort　　　b) Insertion sort　c) Quick sort　　d) All of these

　　4) A B-tree is kept balanced by requiring that all leaf nodes are at the same path.
　　　　a) True　　　　　　b) False

　　5) A binary tree with n internal nodes has _____ maximum of external nodes.
　　　　a) n　　　　　　　b) n + 1　　　　c) n + 2　　　　d) n + 3

　　6) A technique for direct search is _____
　　　　a) linear search　　b) binary search c) hashing　　　d) tree search

　　7) The total number of levels in a tree is the _____ of the tree.
　　　　a) height　　　　　b) count　　　　c) length　　　　d) degree

　　8) Searching refers finding the location of a particular record in the stored data structure.
　　　　a) True　　　　　　b) False

　　9) Hashing is a _____ technique.
　　　　a) insertion　　　　b) merging　　　c) sorting　　　d) searching

　　10) Graph is a non-linear data structure.
　　　　a) True　　　　　　b) False

2. Answer **any five** of the following : **10**

   1) Give postorder tree traversal example.

   2) Give the advantages of dynamic representation of binary tree.

   3) Give the advantages of non-linear data structures.

   4) What is connected graph ?

   5) What is searching ?

   6) What is complete binary tree ?

3. A) Answer **any two** of the following : **6**

   1) What is the concept of sorting ?

   2) Give the drawbacks of linear search.

   3) What is strictly binary tree ? Give one example.

   B) Give the applications of tree. **4**

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

   1) Explain the following terms :

      i) Directed graph

      ii) Undirected graph.

   2) Write a function to check whether a binary tree is binary search tree or not.

   3) Explain DFS in detail.

5. Answer **any two** of the following : **10**

   1) Construct a binary search tree whose preorder traversal is

      67   34   12   45   38   60   80   78   95   90

   2) Explain the technique of radix sort

   3) Explain tree data structure.

   _____

Seat
No.

B.Sc. (ECS) – II (Semester – IV) (Old) Examination, 2015
(Paper – IV) : COMPUTER SCIENCE
Software Engineering – II

Day and Date : Wednesday, 2-12-2015   Max. Marks : 50
Time : 10.30 a.m. to 12.30 p.m.

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

1. Choose correct alternative :   **10**

   1) Which of the following is not part of DFD ?

     a) arrow   b) process

     c) disk storage   d) data store

   2) _____ that can support one or two activities within software process like configuration control or coding.

     a) Workbench   b) Environment

     c) Both a and b   d) None of these

   3) In statistics of data flow

     a) no of data flows incoming and outgoing from each process

     b) rate of each data flow

     c) response time expected

     d) all of these

   4) If different branches work with varying speeds then bottom up approach implementation at bottom generates problem.

     a) True   b) False

   5) _____ is a process of executing a program with an objective of finding an error.

     a) Software testing   b) Software analysis

     c) Software design   d) None of above

6) Parallel method is type of conversion in which both old and new system executes parallel till new system execution completed independently

   a) True   b) False

7) Which of the following is not considered during output design ?

   a) Format   b) Content

   c) Delay   d) Type of stationary

8) Data flow analysis uses

   a) Data flow diagrams   b) Data dictionaries

   c) Structure chart   d) All of these

9) Features of an online system are

   a) Interactive   b) Discrete

   c) Unscheduled   d) All of these

10) Cost of testing is less if it is White Box Testing (WBT)

   a) True   b) False

2. Answer **any five** of the following :   **10**

   1) Write benefits of CASE tool.

   2) What are advantages of top-down approach ?

   3) Why is Normalization necessary ?

   4) What is Data Dictionary ?

   5) What is software maintenance ?

   6) Write steps in training.

3. A) Answer **any two** of the following :   **6**

   1) Explain process of testing.   .

   2) Explain the different methods of conversion from old system to new system.

   3) Write weakness of CASE Tools.

  B) Write note on Incremental approach.   **4**

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

   1) Draw CLD for college admission system.

   2) Explain statistics on data store.

   3) State design principles of output.

5. Answer **any two** of the following : **10**

   1) Explain White Box Testing.

   2) Explain integrated CASE environment

   3) What is data capture ? State its objectives.

_____

Seat No.

B.Sc. (ECS) – II (Semester – IV) (Old) Examination, 2015
Paper – V : ORGANIZATION OF PC II

Day and Date : Thursday, 3-12-2015　　　　　　　　　　　　Total Marks : 50

Time : 10.30 a.m. to 12.30 p.m

Instructions : i) **All** questions are **compulsory** and carry **equal** marks.
　　　　　　　　ii) Draw **neat** diagram **wherever** necessary.

1. Fill in the blanks with correct alternative and rewrite :　　　　　**10**

　　1) TTL logic uses power supply _____

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

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

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

　　3) The _____ uses a four level memory protection.

　　　　a) 80186　　　　b) 80286　　　　c) 80386　　　　d) 80486

　　4) Inter pentium is _____ bit up.

　　　　a) 8　　　　　　b) 16　　　　　　c) 32　　　　　　d) 64

　　5) Radio waves are _____

　　　　a) unidirectional　　　　　　　　b) bidirectional

　　　　c) omnidirectional　　　　　　　d) none of these

　　6) _____ is a embedded processor.

　　　　a) 4051　　　　　b) 8051　　　　　c) pentium pro　　d) 8041

　　7) Bluetooth is _____ media.

　　　　a) wired　　　　　b) guided　　　　c) wireless　　　　d) both a and c

　　8) In _____ two systems can communicate in both direction simultaneously.

　　　　a) simplex　　　　b) half duplex　　c) full duplex　　d) both a and b

P.T.O.

9) A _____ takes weakened or corrupted signal and regenerate it.
   a) Hub   b) Switch   c) Repeater   d) Router

10) In a _____ topology each node is connected to a central hub.
   a) Star   b) Ring   c) Bus   d) Mesh

2. Answer **any five** of the following :   **10**

   a) Define :
      1) Propagation delay
      2) Fanout.

   b) Give features of CISC.

   c) Give advantages of repeater.

   d) Write seven layer of OSI reference model.

   e) What is LSI and VLSI in IC ? Give brief idea.

   f) Give advantages of MOS.

3. A) Answer **any two** of the following :   **6**
      1) Explain CMOS characteristics briefly.
      2) Give features of pentium.
      3) Give characteristics of embedded system.

   B) Explain FPGA.   **4**

4. Attempt **any two** of the following :   **10**
   1) Explain PLD and GAL in detail.
   2) Explain NIC.
   3) Give advantages of SMT techniques.

5. Attempt **any two** of the following :   **10**
   1) Explain bridge and router.
   2) Explain network topologies.
   3) Explain fibre optics cable and its advantages.

_____

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

1. Choose correct alternatives.   **10**

   1) In linear decoding _____ line is used to generate chip select.

      a) A_{14} b) A_{19} c) A_{16} d) $A_{14\text{-}19}$

   2) 8253 contains _____ counters.

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

   3) XLAT is _____ instruction.

      a) Arithmetic   b) Logical
      c) Data transfer   d) String

   4) Clock speed of 80386 is _____ MHz.

      a) 66   b) 50   c) 60   d) 100

   5) AAA is _____ instruction.

      a) logical   b) string   c) arithmetic   d) processor

   6) 8237 is _____ pin IC.

      a) 20   b) 24   c) 14   d) 40

   7) _____ is program control instruction.

      a) JCXZ   b) AAA   c) STC   d) ANI

   8) 80286 is _____ pin IC package.

      a) 20   b) 40   c) 68   d) 24

   9) 8255 has _____ I/O ports.

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

   10) Address bus of 80286 is _____ bit.

      a) 24   b) 16   c) 20   d) 32

P.T.O.

2. Attempt **any five** of the following. **10**

   1) Explain mode set register of 8257.

   2) Explain rotate instructions.

   3) Explain features of 80386.

   4) Explain any two modes of 8253.

   5) Explain features of pentium IV.

   6) Explain AAA, DAA, AAS, DAS instructions.

3. A) Attempt **any two** of the following. **6**

   1) Explain string instructions.

   2) Explain absolute address decoding.

   3) Compare pentium pro and p-II.

   B) Explain flag register of 32 bit processor. **4**

4. Attempt **any two** of the following. **10**

   1) Explain features of pentium – III.

   2) Explain data transfer instruction of 8086.

   3) Explain 8255 with block diagram.

5. Attempt **any two** of the following. **10**

   1) Compare features of 80286 and 80486.

   2) Write program for addition, subtraction, multiplication and division.

   3) Explain interfacing of keyboard.

_____

**Seat
No.**

B.Sc. (ECS) (Part – II) (Semester – IV) Examination, 2015
(Old)
ENGLISH – II (Paper – VII)

Day and Date : Saturday, 5-12-2015　　　　　　　　　　Max. Marks : 50

Time : 10.30 a.m. to 12.30 p.m.

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

1. Rewrite the following sentences by choosing the correct alternative given below each : **10**

　1) The _____ and Sushruta Samhitas which contain ideas on medicine and surgery.
　　a) Pushpaka Viman　　　　　b) Charaka
　　c) Mahabharata　　　　　　d) Labour Management

　2) Mary Ann is a character from
　　a) Nobody Here But
　　b) Going Back in Time
　　c) Engine Trouble
　　d) Breaking The Ice

　3) Engine Trouble is written by
　　a) R.K. Narayan　　　　　　b) Issac Asimov
　　c) Toru Dutta　　　　　　　d) Jayant Narlikar

　4) A showman came to the place is called
　　a) Gaiety land　　　　　　　b) Island
　　c) Waste land　　　　　　　d) Ice land

5) New medical technologies can be improved upon in such a way that
   a) all families get employment
   b) there are no side effects
   c) they are provided free of cost
   d) all women have access to them

6) _____ watches the sun-rise.
   a) A grey baboon   b) A statue
   c) A kokila   d) A man

7) A baby watched a
   a) Ford   b) Lake
   c) River   d) Pond

8) We are all
   a) Casualties   b) Tragedy
   c) Comedy   d) Tragi-comedy

9) Shukra Neeti has written a book on
   a) Labour Management   b) Personal Management
   c) Account Management   d) House Management

10) Cliff and Bill were working on
   a) C++   b) Computer
   c) Telephone   d) Calculating machine

2. Answer **any five** of the following questions in brief :   **10**
   1) Who is the narrator of the story 'Nobody Here But' ?
   2) Which book describes flying vehicles in Sanskrit ?
   3) What prize did the talkative man get ?
   4) What is amniocentesis ?
   5) Who is watching the sun-rise ?
   6) Write the theme of 'Wagtail and Baby.

3. A) Write short answers on **any two** of the following : **6**
   1) Negative effects of work, food and health.
   2) Describe the 'Gaiety land'.
   3) Write the theme of 'Our Casuarina Tree'.

   B) Write short answers on **any two** of the following : **4**
   1) Write the expression of discouraging.
   2) How to write a report ?
   3) Prepare five questions for interview in industry.

4. Attempt **any one** of the following : **10**
   1) Write an application for the post of lecturer.

   <div align="center">OR</div>

   2) Write a report on youth festival held in your college.

5. Write an interview with a well-known Hindi firm star 'Amir Khan'. **10**

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Seat No.

B.Sc. (ECS) – III (Semester – V) (New) Examination, 2015
DATA COMMUNICATION AND NETWORKING – I
(Paper – I)

Day and Date : Thursday, 29-10-2015   Max. Marks : 50

Time : 2.30 p.m. to 4.30 p.m.

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

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

1. Choose the correct alternative :   **10**

   1) Lightning causes _____ noise.

     1) Thermal   2) Impulse   3) Background   4) Random

   2) _____ involves grouping many separate wires into a common cable enclosure.

     1) SDM   2) TDM   3) FDM   4) All

   3) _____ creates a redundant connection.

     1) Star   2) Ring   3) Hierarchical   4) Mesh

   4) _____ is example of session layer.

     1) Browser   2) Network file system

     3) SNMP   4) LLC

   5) Packet switching uses _____ transmission.

     1) queuing   2) store and forward

     3) master-slave   4) polling and selection

   6) Cordless telephone uses _____ characteristic.

     1) Unidirectional   2) Omnidirectional

     3) Bidirectional   4) Focused beam

P.T.O.

7) The _____ of the link between the source and destination is required for effective data exchange.
   1) initiation
   2) maintenance
   3) termination
   4) all

8) Sender times out too early, acknowledgment is on the way _____ will send a duplicate frames.
   1) CRC
   2) Hamming code
   3) ARQ
   4) Pathrouting

9) Congestion is caused by
   1) Slow links
   2) Slow processors
   3) Packets from many lines
   4) All

10) _____ are based on treating bit strings as representation of polynomials with co-efficients of 0 and 1 only.
   1) Parity bit
   2) Baud rate
   3) CRC
   4) Harmonics

2. Attempt (**any five**) : **10**

   1) Explain Fiber optics.

   2) Why flow control is required in Datalink layer ?

   3) Explain Analog Vs Digital signal.

   4) List components of Computer Network.

   5) What is congestion ?

   6) Explain Shortest Path Routing.

3. A) Attempt (**any two**) : **6**
   1) What are different types of multiplexing ?
   2) What are services of data link layer ?
   3) Differentiate between virtual circuit and datagram.

   B) What is Internetworking ? List various applications of Internet. **4**

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

    1) State Nyquist and Shannon theorem.

    2) Explain simplex stop-and-wait protocol.

    3) What is Routing ? Explain Multicast Routing.

5. Attempt (**any two**) : **10**

    1) Write a note on Message switching.

    2) Write a note on Error detection and correction.

    3) Write a note on OSI Vs TCP/IP reference model.

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Seat No.

B.Sc. (ECS) – III (Semester – V) (New) Examination, 2015
Paper – II : DATABASE MANAGEMENT SYSTEM – I

Day and Date : Friday, 30-10-2015
Time : 2.30 p.m. to 4.30 p.m.

Max. Marks : 50

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

1. Choose the correct alternatives : **10**

   1) DBA stands for _____
      a) Database Access
      b) Database Administrator
      c) Database Analyst
      d) None of the above

   2) Specialization represents top-down manner
      a) True
      b) False

   3) Total number of column in relation is called _____
      a) Cardinality
      b) Degree
      c) Sum
      d) None of these

   4) _____ character represent zero or more characters while matching the pattern.
      a) *
      b) –
      c) +
      d) %

   5) Natural join is called as _____
      a) Unary operation
      b) Binary operation
      c) Database
      d) None of these

   6) _____ is used for backup and Archival data.
      a) Optical storage
      b) Flash memory
      c) Tape storage
      d) Main memory

   7) _____ is a facility to undo the change made recently which are uncommitted.
      a) Commit
      b) Savepoint
      c) Rollback
      d) None of these

P.T.O.

8) The overall design of database is known as _____
   a) Data   b) Instances   c) Schema   d) Record

9) Grant and Revoke are _____
   a) DDL   b) DML   c) DCL   d) None of these

10) Projection operation denoted by Greek symbol
   a) Sigma (σ)   b) Pie (π)   c) Rho (ρ)   d) Cross ($\times$)

2. Attempt **any five** :   **10**

   1) Define DBMS. List out application.

   2) What is specialization ?

   3) Write a syntax for view.

   4) What is hashing ?

   5) List out date functions.

   6) List out types of database user's.

3. A) Attempt **any two** :   **6**
   1) Explain DML operations.
   2) Explain mapping cardinality.
   3) Explain joint operation in Relational Algebra.

   B) Write a note on Functional Dependency.   **4**

4. Attempt **any two** :   **10**
   1) Write Dr. E. F. Codds Rules for Relational data model any five.
   2) Write a difference between file based system and database system.
   3) Explain various methods of indexing.

5. Attempt **any two** :   **10**
   1) Explain different integrity constraints.
   2) Write a note on Aggregate function.
   3) Draw notations for E-R diagram.

_____

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Seat No.

B.Sc. (ECS) – III (Semester – V) Examination, 2015
CORE JAVA (Paper – III) (New)

Day and Date : Saturday, 31-10-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. A) Choose correct alternatives.   7

   1) All Event handling classes are belongs to _____ package.
      a) java.awt.*   b) java.awt.event.*
      c) javax.awt.*   d) none

   2) By default method in Interface _____ type.
      a) static   b) abstract   c) public   d) both b and c

   3) _____ is the super class for all classes including your classes also.
      a) Class   b) Object   c) Exception   d) Wrapper

   4) We can block the running thread using _____ method.
      a) Sleep   b) Wait   c) Suspend   d) All

   5) JVM is machine independent.
      a) True   b) False

   6) What is default priority of thread ?
      a) 1   b) 5   c) 10   d) 7

   7) Primitive data types can be converted into objects by using _____
      a) Type operator   b) Type casting
      c) Wrapper classes   d) None of these

   B) State whether **True** or **False**.   3

   1) Converting a primitive datatype into an object is called 'unboxing'.

   2) Static and transient variables can not be serializable.

   3) notify( ) method is used to suspend a thread execution for a specified time.

                                                                      P.T.O.

2. Solve **any five** questions.　　　　　　　　　　　　　　　　**10**

　　1)　Differentiate between class variable and instance variable.

　　2)　Write the use of *'new'* and *'instanceof'* operator.

　　3)　What is role of JIT in JVM ?

　　4)　What is Garbage collector ?

　　5)　What is method overloading ?

　　6)　What is use of final keyword ?

3. A)　Solve **any two** questions.　　　　　　　　　　　　　　　　**6**

　　　1)　Explain Datagram programming.

　　　2)　Explain JVM architecture.

　　　3)　Explain types of Java Applet.

　　B)　Write a program to display given string in reverse order.　　**4**

4. Solve **any two** questions.　　　　　　　　　　　　　　　　**10**

　　1)　Write a program that demonstrates any checked exception.

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

　　3)　Write a program that demonstrates use of *'super'* keyword.

5. Solve **any two** questions.　　　　　　　　　　　　　　　　**10**

　　1)　What is Array ? Explain Jagged array with suitable example.

　　2)　Write an Applet to display current date on an Applet.

　　3)　Explain event model.

_____

Seat No.

B.Sc. [ECS] – III (Semester – V) Examination, 2015
THEORY OF COMPUTER SCIENCE (Paper – IV) (New)

Day and Date : Monday, 2-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

2) **All** questions carry **equal** marks.

1. Choose correct alternatives :   **10**

   1) If $L(r) = \{\varepsilon, X, XX, XXX, XXXX, XXXXX\}$ then r = _____

      a) $(\varepsilon + X)$ b) $(\varepsilon + X)^5$ c) $(\varepsilon + X)^n$ d) None

   2) 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

   3) The language accepted by finite automates are described or represented by simple expression called _____

      a) Grammar   b) Regular Set

      c) Language   d) Regular expression

   4) If the grammar $\{S \rightarrow aB|bA, A \rightarrow a|aS|bAA, B \rightarrow b|bS|aBB\}$ then generated string is _____

      a) aaabbb   b) bbbaaa   c) baba   d) All of the above

   5) The_____is accepted unrestricted grammar.

      a) TM   b) PDA   c) DFA   d) None of these

   6) A grammar that produce more than one parse tree for some sentence is called _____

      a) Unambiguous   b) Regular   c) Ambiguous   d) None of these

7) If r = (a/b) then L(r) = {_____}.

   a) {a, b}   b) {a.b}   c) {a, ab}   d) None of these

8) A finite automata with output has final states.

   a) True   b) False

9) TM is more powerful than PDA.

   a) True   b) False

10) In PDA one situation has only one transition then it is known as _____

   a) TM   b) DPDA   c) NPDA   d) Stack

2. Solve **any five** of the following :   **10**

  1) Construct DFA for accepting string over {a, b, c} which string start with 'a' and not having substring 'abc' in it.

  2) Construct a CFG for generating L = {WcW^R| W∈ (a + b)*}.

  3) Design Moore machine for accepting 2's complement binary number.

  4) Give pictorial representation of PDA.

  5) Find language for the following regular expression.
    a) ab* + ab*   b) (0 + 1)* 00 (0 + 1)*

  6) Define :
    a) Alphabet   b) Language.

3. A) Solve **any two** :   **6**

  1) Construct RE for following DFA by using Arden's theorem.
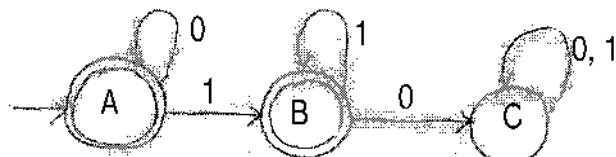
  2) Convert the following right linear grammar to equivalent left linear grammar.

    S → bB, B → bC, B → aB

    C → a, B → b

3) Convert the following NFA to its equivalent DFA.

	0	1
p	{p,q}	{p}
q	{r}	{r}
r	{s}	Φ
*s	{s}	{s}

B) Construct F.A. equivalent to R.E. **4**

(a/b)* (aaa + bbb)* (a/b)*

4. Solve **any two** of the following questions : **10**

1) What is pumping lemma ? Using pumping lemma check $\{a^n b^{n+1} \mid n => 1\}$ is regular or not.

2) Find a grammar in CNF equivalent to grammar E–> E+T|T,T–>T*F|F,F–>(E)|a.

3) Explain closure properties of CFL with example.

5. Solve **any two** of the following questions : **10**

1) Check whether the following grammar is ambiguous or not; if ambiguity found remove the ambiguity and rewrite an equivalent grammar.

E–>E+E|E*E|id.

2) Construct DFA for find out given number is divisible by 3.

3) Explain with example how to convert CFG into DFA.

Seat
No.

B.Sc. (ECS) III (Semester – V) Examination, 2015
COMPUTER SCIENCE (New)
Web Technology and E-Commerce – I (Paper – V)

Day and Date : Tuesday, 3-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

Instructions : 1) **All** questions are **compulsory**.
                         2) **All** questions carry **equal** marks.

1. Choose the correct alternative :   **10**

    1) Default event for Checkbox control is

        a) Click   b) Select

        c) OnCheckedChange   d) None of these

    2) _____ property is used for password textbox.

        a) password   b) textpass   c) textmode   d) none of these

    3) Postback occurs in which of the following forms

        a) Winforms   b) HTML forms

        c) Webforms   d) None of the above

    4) The first event triggers in an aspx page is

        a) page_init()   b) page_load()   c) page_click()   d) none of these

    5) Which of the following is not a way to maintain state?

        a) view state   b) cookies   c) hidden fields   d) request object

    6) Which property determines whether a control is displayed to the user ?

        a) Hide   b) Show   c) Visible   d) Enabled

    7) The Cancel Button property belongs to which object

        a) Button   b) Form   c) Label   d) Timer

    8) Which method of a ListBox will remove just one item at a time ?

        a) Items.RemoveAt   b) Item.RemoveAt

        c) Items.ClearAt   d) Items.Clear

P.T.O.

9) Setting the SelectedIndex property of a ListBox to – 1 will

   a) cause an error   b) cannot be done

   c) de-select any selected item   d) both a and b

10) Which of the following is not function of E-Commerce ?

   a) marketing   b) advertising   c) warehousing   d) all of the above

2. Answer **any five** of the following :   **10**

   1) Hidden field control.

   2) Competitive advantages of e-commerce.

   3) Write Short note on CLR.

   4) Regular Expression Validator.

   5) Define e-market.

   6) Image Map Control.

3. a) Solve **any two** :   **6**

   1) What is meant by cross page posting explain with example ?

   2) Explain Global.asax file in Brief.

   3) Explain strategic implication of IT-Technology in Business.

  b) Explain difference between ASP and ASP.NET.   **4**

4. Solve **any two** :   **10**

   1) Create Web form in Asp.Net for opening a new account in bank using Asp Controls. Also provide appropriate validations.

   2) What are validation controls ? List its type and explain them briefly.

   3) What is Page Directives ? Explain @Register, @Assembly, @Import page Directives.

5. Solve **any two** :   **10**

   1) What is e-commerce ? What are the potential benefits of e-commerce ?

   2) Explain Porter's Value chain model.

   3) Explain following server controls :
     a) Textbox   b) Dropdown List

_____

Seat
No.

B.Sc. (ECS) – III (Semester – V) (New) Examination, 2015
COMPUTER SCIENCE (Paper – VI)
Visual Programming and Application Software – I

Day and Date : Wednesday, 4-11-2015　　　　　　　　　　Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative :　　　　　　　　　　　　　　　　　**10**

　　1) _____ keyword is used to manually throw an exception.
　　　　a) Try　　　　　　　b) Catch　　　　c) Finally　　　　d) Throw

　　2) Generics are used to make reusable code classes to _____
　　　　a) Decrease the code redundancy
　　　　b) Improve code performance
　　　　c) Improve code documentation
　　　　d) All of the above

　　3) Sealed modifier is used to _____
　　　　a) Prevents method overloading　　b) Prevents inheritance of a class
　　　　c) Both a) and b)　　　　　　　　　d) None of these

　　4) The Read () function returns a single character as _____
　　　　a) char　　　　　　b) int　　　　　c) byte　　　　　d) float

　　5) Structure is implicitly sealed.
　　　　a) True　　　　　　　　　　　　　b) False

　　6) Which of the following namespace allows us to perform multithreading
　　　　in C# ?
　　　　a) Thread　　　　　b) System　　　c) Threading　　d) Multithreading

　　7) Static field is shared among all objects created by a single class.
　　　　a) True　　　　　　　　　　　　　b) False

P.T.O.

8) The enum enumerates a list of words by assigning the value starting from _____

a) Zero   b) One   c) Any number   d) Null

9) The compiler checks whether a _____ parameter has been assigned a value before calling the method.

a) ref   b) out

c) both a) and b)   d) none of these

10) Arrays are reference types.

a) True   b) False

2. Answer **any five** of the following :   **10**

1) What is the use of using statement in C# ?

2) What is the difference between method overloading and method overriding ?

3) Give the benefits of MSIL code.

4) What do you mean by string objects are immutable ?

5) What is an internal modifier ?

6) Give the use of static constructor.

3. A) Answer **any two** of the following :   **6**

    1) Give the limitations of an interface.

    2) Explain the use of base keyword.

    3) Explain the advantages of generic collection classes.

B) Write note on applications of reflection.   **4**

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

1) Why custom exceptions are used ? Write a program to demonstrate custom exception.

2) Explain StreamReader and StreamWriter classes in detail.

3) Write a program to implement an indexer using interface.

5. Answer **any two** of the following :   **10**

1) Explain need of operator overloading wih suitable example.

2) What is synchronization ? Give one example.

3) Write a program to reverse a given number using read-only property.

_____

Seat No.

B.Sc. (ECS) – III (Semester – V) Examination, 2015
DATA COMMUNICATIONS AND NETWORKING – I (Paper – I)
(Old)

Day and Date : Thursday, 29-10-2015   Max. Marks : 50

Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative :   **10**

   1) When the angle of incidence is _____ the critical angle, the light beam bends along the interface.
      a) More than   b) Less than   c) Equal to   d) Zero

   2) _____ layer is responsible for defining the direction of transmission.
      a) Data Link   b) Physical   c) Transport   d) Session

   3) Satellite has several _____ devices that accept signal with a specified frequency range and rebroadcast it over different frequencies.
      a) Transmitter   b) Receiver   c) Transponder   d) Responder

   4) In _____ sequence of redundant bits are added at the end of data unit for detecting the errors.
      a) Parity check   b) CRC
      c) Hamming code   d) Checksum

   5) A _____ connection provides a dedicated link between two devices.
      a) Point-to-Point   b) Multipoint   c) Primary   d) Secondary

   6) _____ framing method is not suitable for unicode characters.
      a) Character count   b) Bit stuffing
      c) Byte stuffing   d) Physical layer code violation

   7) In _____, each node maintains a vector of minimum distances to every node.
      a) Path vector   b) Distance vector
      c) Link state   d) Switching

8) In _____ topology the traffic is only in one direction.

   a) Mesh   b) Bus   c) Star   d) Ring

9) In _____ layer Packet Discarding policy is adopted for controlling congestion.

   a) Network   b) Data link   c) Transport   d) Presentation

10) In _____ ARQ, if a NAK is received, only the specific damaged or lost frame is retransmitted.

   a) Stop and wait   b) Go-Back-N

   c) Selective Repeat   d) None of the above

2. Answer the following (**any 5**) :   **10**

   1) What is a noise ?

   2) What is a static routing ?

   3) What is p-persistent method ?

   4) What is meant by FDM ?

   5) Which are the various properties of routing algorithm ?

   6) What is meant by jitter ?

3. A) Answer the following (**any 2**) :   **6**

   1) Mention the steps of Link State Routing.

   2) What is Internet working ?

   3) Which are the various key elements of protocol ?

  B) What is framing ? Explain framing methods in detail.   **4**

4. Answer the following (**any 2**) :   **10**

   1) Why performance, reliability and security is needed in computer network ?

   2) Explain RS 232-C in detail.

   3) Explain CDMA in detail.

5. Answer the following (**any 2**) :   **10**

   1) Explain Shortest path routing in detail.

   2) Explain Nyquist bit rate formula.

   3) Explain Selective Repeat ARQ protocol.

_____

SLR-W – 46

Seat
No.

B.Sc. (ECS) – III (Semester – V) Examination, 2015
(Old)
Paper – II : DATABASE MANAGEMENT SYSTEM – I

Day and Date : Friday, 30-10-2015　　　　　　　　　　　　Total Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternatives.　　　　　　　　　　　　　　　**10**

　　1) A Generalization represents top-down manner.

　　　　a) True　　　　　　b) False

　　2) The statement in SQL which allows to change the definition of a table
　　　　is _____

　　　　a) Alter　　　　b) Update　　　c) Select　　　d) Create

　　3) The statement containing a sub query is called a parent statement.

　　　　a) True　　　　　　b) False

　　4) Which of the following level of abstraction describes only part of the entire
　　　　database ?

　　　　a) Physical　　　b) Logical　　　c) View　　　d) Conceptual

　　5) 2NF is based on the concept of _____

　　　　a) Semi functional dependency

　　　　b) Full functional dependency

　　　　c) Transitive dependency

　　　　d) None of these

　　6) _____ symbol is used to represent the select operation.

　　　　a) σ　　　　　　b) π　　　　　c) ∪　　　　　d) α

　　7) The overall design of the database is called _____

　　　　a) instance　　　b) data　　　c) schema　　　d) snapshot

　　8) Indexing a table increases the speed of execution of queries based on it.

　　　　a) True　　　　　　b) False

P.T.O.

9) Overall logical structure of a database can be expressed graphically by
   _____

   a) Records   b) Instances   c) Schemas   d) ER Diagram

10) Which of the following is a disadvantage of file management system ?

   a) Lack of data independence   b) Data redundancy

   c) Difficult to update   d) All of these

2. Answer **any five** of the following.   **10**

   1) What is relational algebra ?

   2) Define an entity set.

   3) List the components of DBMS.

   4) What is a 3NF ?

   5) Give the use of foreign key.

   6) Give the syntax of sequence statement.

3. A) Answer **any two** of the following.   **6**

   1) Explain the concept of self join.

   2) What are the responsibilities of DBA ?

   3) Explain different operations on a file.

   B) Write note on views with its advantages.   **4**

4. Answer **any two** of the following.   **10**

   1) Describe the advantages of normalization.

   2) Explain the terms :

      i) Domain

      ii) Degree.

   3) Explain various methods of indexing.

5. Answer **any two** of the following.   **10**

   1) Explain subqueries with suitable example.

   2) Differentiate between 2-tier and 3-tier architecture.

   3) Explain Codd's rules.

   _____

Seat No.	

B.Sc. (ECS) – III (Semester – V) Examination, 2015
COMPUTER SCIENCE (Paper – III) (Old)
Core Java

Day and Date : Saturday, 31-10-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

N.B. :   1) **All** questions are **compulsory**.

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

1. A) Choose the correct alternatives :   **7**

    1) Which of the following is get called by garbage collector ?
      a) finally ()   b) final ()   c) finalize ()   d) finalized ()

    2) _____ helps us to refer to the object that invoked it.
      a) static   b) this   c) super   d) none of these

    3) The static methods can access _____ and _____
      a) static method, static data
      b) non-static method, static data
      c) static method, non-static data
      d) non-static method, non-static data

    4) In Java's terminology inherited class is called
      a) superclass   b) subclass   c) primeclass   d) None of the above

    5) Variables declared inside the Interface are implicitly _____ and _____
      a) final, private   b) final, void   c) final, static   d) None of the above

    6) A new thread can be created by using
      a) Runnable interface   b) Thread class
      c) Both a and b   d) None of these

    7) System out is a object of class.
      a) PrintWriter   b) PrintStream   c) Both a and b   d) None of these

P.T.O.

B) State **true** or **false** :   **3**

   1) Exceptions are occurred by compile-time errors.

   2) At any given point of time only one thread can own the monitor.

   3) All methods and variables in a interface are implicitly public.

2. Solve **any five** :   **10**

  a) Throw clause

  b) Garbage collector

  c) Character streams

  d) Vector class

  e) Thread priority

  f) Abstract class

3. A) Solve **any two** :   **6**

   1) How java is compiled as well as interpreted language ?

   2) Note on access protection achieved by using packages.

   3) Explain method overloading with example.

B) Explain Java's thread model.   **4**

4. Solve **any two** :   **10**

   1) What is multiple inheritance ? How Java implements it ? Explain with example.

   2) What is method synchronization ? Explain with example.

   3) Explain use of static data and static methods with example.

5. Solve **any two** :   **10**

   1) Write a program that will converts last character of each word into capital from given file.

   2) Explain detail differences between Abstract class and Interface.

   3) What is exception ? How Java deals with it.

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Seat
No.

B.Sc. (ECS) (Part – III) (Semester – V) Examination, 2015
COMPUTER SCIENCE (Paper – IV) (Old)
Theory of Computer Science

Day and Date : Monday, 2-11-2015　　　　　　　　　　　Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose correct alternatives : **10**

　1) If L(r) ={a,aa,aaa,aaaa,aaaaa} then r = _____
　　a) (£+a)*　　　b) (a)^5　　　c) (£+a)$^+$　　　d) None of these

　2) Function which mapping one to one from input to next state such function is known as _____
　　a) STF　　　　　　　　　b) MAF
　　c) Both a) and b)　　　　d) None of these

　3) The _____ is denoted by capital letters in CFG.
　　a) Terminal　　　　　　　b) Non-terminal
　　c) Both a) and b)　　　　d) String

　4) The language of PDA is _____ language.
　　a) CGL　　　b) CFG　　　c) CFL　　　d) RL

　5) In _____ machine output is associated with state.
　　a) FA　　　b) PDA　　　c) Mealy　　　d) Moore

　6) The grammar S →Ca | Bb, C → Bb, B → Ba | b is _____ grammar.
　　a) Left-linear　　　　　　b) Right-linear
　　c) Context-free　　　　　d) Context-sensitive

7) How to derive string is known as instantaneous description of Turing machine ?

    a) True   b) False

8) In CNF the grammar is required in the form of _____

    a) $A \rightarrow B$ b) $A \rightarrow a\alpha$ c) $AB \rightarrow a\beta$ d) $A \rightarrow AB \mid c$

9) $(a^*.b^*)^*=(a+b)^*$.

    a) True   b) False

10) A _____ is defined as a set of strings of symbols from someone alphabet.

    a) alphabet   b) string

    c) symbol   d) language

2. Solve **any five** :   **10**

   1) Define :

     a) string

     b) regular expression.

   2) What are the applications of finite automata ?

   3) What is difference between reflexive and transitive closure ?

   4) What is difference between Moore and Mealy machine ?

   5) If $S \rightarrow aSb \mid aAb$, $A \rightarrow bAa$, $A \rightarrow ba$ then find out the CFL.

   6) What are the different types of languages acceptances by a PDA and define them ?

3. A) Solve **any two** :   **6**

   1) Design a PDA to recognize the language generated by the following grammar :

     $S \rightarrow S+S \mid S^*S \mid 4 \mid 2$.

   2) Explain DFA minimization with example.

   3) Design a Turing machine to make a copy of a string over $\sum = \{a, b\}$.

B) Construct F.A. equivalent to R.E.   **4**

   $(a/b)^*a(a/b)^*b(a/b)^*$.

4. Solve **any two** :   **10**

   1) What is pumping lemma ? Using pumping lemma check $\{a^n b^{2n+n} \mid n>0\}$ is regular or not.

   2) Construct a PDA accepting $\{a^n b^n a^n \mid m, n >=1\}$ by null store.

   3) Find a grammar in GNF equivalent to grammar $S \rightarrow AB$, $A \rightarrow BS \mid b$, $B \rightarrow SA \mid a\}$.

5. Solve **any two** :   **10**

   1) Check whether the following grammar is ambiguous or not ; if ambiguity found remove the ambiguity and rewrite an equivalent grammar.

      $S \rightarrow ABA$, $A \rightarrow aA \mid £$, $B \rightarrow bB \mid £$.

   2) Construct a regular expression for following DFA using formula R_{ij}^{k}.
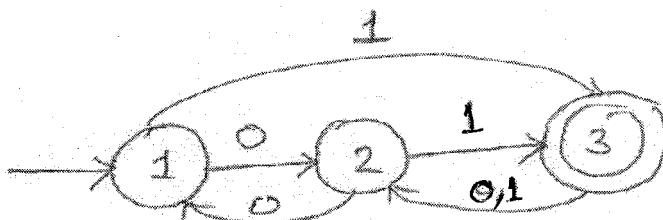
   3) Construct a Mealy machine that accepts strings ending in '00' and '11'. Convert the same to a Moore machine.

   _____

Seat
No.

B.Sc. (ECS) – III (Semester – V) Examination, 2015
WEB TECHNOLOGY AND E-COMMERCE – I
(Paper – V) (Old)

Day and Date : Tuesday, 3-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

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

    1) The first event triggered in an .aspx page is _____

        a) Page_Init()   b) Page_Load()

        c) Page_Click()   d) Page_Render()

    2) _____ state management technique is used to maintain data across
       users.

        a) Session   b) Server   c) Users   d) Application

    3) _____ is extension of Master page file.

        a) .master   b) .aspx   c) .ascx   d) .masx

    4) The advertisement file is in _____ form.

        a) HTML document   b) XML document

        c) Text document   d) Image document

    5) The default event for ListBox control is _____

        a) TextChanged   b) CheckedChanged

        c) SelectedIndexChanged   d) Click

    6) _____ event is fired when an unhandled exception is encountered within
       the application.

        a) Page_Error   b) Application_Error

        c) System_Error   d) Server_Error

P.T.O.

7) The _____ validation control allows comparing a value entered into control against another control.

   a) Regular Expression   b) Compare

   c) Compare Value   d) Range

8) _____ property of Radio Button is used to make group.

   a) Group   b) Category   c) Class   d) Groupname

9) IIS stands for _____

   a) Internet Information Server   b) Internet Inform Server

   c) Internet Information Service   d) Internet Information Session

10) For development of ASP.Net application; IIS is required.

   a) True   b) False

2. Answer the following **(any 5)**.   **10**

   1) Explain File System location in ASP.Net.

   2) What is Auto Post Back ? Explain in detail.

   3) Explain Web Page life cycle.

   4) Explain Multiview and view control.

   5) What is use of File Upload control ? Explain with example.

   6) Explain Day Rander event of Calendar control.

3. A) Answer the following **(any 2)**.   **6**

   1) How to upload text file ? Explain with example.

   2) Explain Regular Expression validation control and design expression for pincode and email address.

   3) Explain Table Control and write code to add 3 rows and 5 columns at runtime.

  B) Which technique is used to transfer result to another page ? Explain with example.   **4**

4. Answer the following **(any 2)**. **10**

   1) What is master pages ? Explain how to create nested master pages and how to use themes.

   2) What are page directives ? Explain any five page directives used in ASP.Net.

   3) Design web page which demonstrate ImageMap Control. (Create HotSpots using compile time and runtime method).

5. Answer the following **(any 2)**. **10**

   1) State advantages and disadvantages of Client side and server side state management. Explain server side state management techniques.

   2) What is use of Resource files ? Explain global resource and local resource with example.

   3) Explain CheckBoxList and RadioButtonList. Explain how to add items in these list using array and database.

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Seat No.

B.Sc. (ECS) – III (Semester – V) Examination, 2015
Paper – VI : VISUAL PROGRAMMING AND APPLICATION
SOFTWARE – I (Old)

Day and Date : Wednesday, 4-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative :   **10**

    1) How do you prevent a class from being inherited ?
        a) Make it as abstract   b) Make it as static
        c) Make it as sealed   d) Make it as partial

    2) _____ of following is value type.
        a) Array   b) Delegate   c) Enum   d) Class

    3) The _____ block is executing a given set of statements, whether the exception is thrown or not.
        a) Try   b) Finally   c) Throw   d) None of these

    4) Collection of classes is known as _____
        a) Events   b) Namespace   c) Delegates   d) Objects

    5) How to find total number of elements present in Array List called Ary ?
        a) Ary.count   b) Ary.Capacity   c) Ary.Size   d) Ary.Length

    6) _____ of the following method used to read block or array of bytes from files.
        a) Read()   b) ReadByte()   c) ReadLine()   d) ReadKey()

    7) _____ keyword is used to declare Indexer.
        a) Indexer   b) Index   c) Base   d) This

    8) _____ method of Thread class is used to suspend a thread for specific period of time.
        a) Suspend()   b) Sleep()   c) Stop()   d) Terminates()

P.T.O.

9) The difference between Convert.ToString() and ToString() is _____

    a) Both accepts null values

    b) Both do not accept null values

    c) Convert.ToString() accept null whereas ToString() do not accept null

    d) Convert.ToString() do not accept null whereas ToString() accept null

10) Boxing is computationally more expensive process than unboxing

    a) True   b) False

2. Answer the following (**any 5**) :   **10**

   1) Define Garbage Collection.

   2) What is Namespaces ?

   3) Give the meaning of Reference data type.

   4) What is use of params keyword ?

   5) Give the advantage of foreach loop with example.

   6) What is meaning and uses of this keyword ?

3. A) Answer the following (**any 2**) :   **6**

   1) Explain constructor and its types with example.

   2) Explain DriveInfo and DirectoryInfo Classes.

   3) Explain Abstract Classes with example.

  B) Explain different services provided by CLR.   **4**

4. Answer the following (**any 2**) :   **10**

   1) What is operator overloading ? Explain with example.

   2) What are values in FileMode enumeration ? Explain any two with example.

   3) Explain HashTable with example.

5. Answer the following (**any 2**) :   **10**

   1) Why custom exceptions are used ? Write a program to demonstrate custom exception.

   2) Explain behaviour of constructor in inheritance. Give example.

   3) Explain Thread Priorities with example.

_____

B.Sc. (ECS) – III (Semester – VI) Examination, 2015
COMPUTER SCIENCE (Paper – I)
Data Communications and Networking – II

Day and Date : Thursday, 5-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose correct alternatives :   **10**

   1) _____ allows user to monitor and control printing.
      a) GUI   b) API
      c) WMI   d) None of the above

   2) _____ substitutes one symbol with another.
      a) Substitution cipher   b) Transposition cipher
      c) Round cipher   d) None of the above

   3) Which of the following IP address class is multicast ?
      a) A   b) B   c) C   d) D

   4) _____ server allows windows to access Linux system.
      a) Samba   b) Apache   c) CUPS   d) TUX

   5) Telnet protocol allows remote login services.
      a) True   b) False

   6) A _____ can understand multiple networking protocols.
      a) repeater   b) bridge   c) router   d) gateway

   7) Decryption algorithm transforms the plain text to cipher text.
      a) True   b) False

   8) _____ role is used to provide access to files stored on the server.
      a) Domain controller   b) Print server
      c) File server   d) DHCP server

P.T.O.

9) Real time protocol provides
   a) Unreliable delivery   b) Reliable delivery
   c) No error checking   d) Physical bit transmission

10) A proxy firewall filters at the network layer.
   a) True   b) False

2. Answer **any five** of the following :   **10**
  1) How to rename and delete user accounts in windows 2003 server ?
  2) What is INN server ?
  3) What is meant by encryption and decryption ?
  4) What is meant by audio compression ?
  5) What is meant by VPN ?
  6) What is meant by binary and dotted decimal notation of IP address ?

3. A) Answers **any two** of the following :   **6**
   1) Explain www in short.
   2) Explain limitations of Firewall.
   3) Which are the various recommended partition of Linux server ?

  B) Explain applications of Bluetooth.   **4**

4. Answer **any two** of the following :   **10**
  1) Explain Gateways in detail.
  2) Explain entity authentication in detail.
  3) Explain database server of windows 2003 server in detail.

5. Answer **any two** of the following :   **10**
  1) Explain RARP in detail.
  2) Explain Samba server in detail.
  3) What is Firewall ? Explain application Gateway in detail.

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Seat
No.

B.Sc. (ECS) – III (Semester – VI) Examination, 2015
COMPUTER SCIENCE (Paper – II)
Database Management System – II

Day and Date : Friday, 6-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose correct alternative :   **10**

   1) Checkpoints are part of _____ measures.
      a) Security   b) Recovery
      c) Concurrency   d) Authorization

   2) Transaction must be _____
      a) atomic   b) large   c) small   d) none of above

   3) A block begins with a _____ section.
      a) end   b) start   c) declare   d) none of above

   4) For single line comment in PL/SQL _____ used.
      a) – –   b) //   c) /*   d) */

   5) Time stamp can be implemented by using _____
      a) system clock   b) logical counter
      c) both a) and b)   d) none of above

   6) In lock based schedule deadlock cannot occur.
      a) true   b) false

   7) Only one _____ lock can be placed on a resource at a time.
      a) shared   b) exclusive
      c) both   d) none of above

   8) Variable is passed to procedure in _____ modes.
      a) pass by value   b) read, write
      c) in, out and in out   d) none of above

9) A phase during which all locks are requested is known as _____
   a) growing phase
   b) shrinking phase
   c) aborted phase
   d) none of above

10) When transaction never progresses then we say that it is _____
   a) aborted
   b) starved
   c) shared
   d) locked

2. Answer **any five** of the following :   **10**
   1) Deadlock
   2) Exception in PL/SQL
   3) Shadow paging.
   4) Lost update problem.
   5) Write a syntax of while loop with e.g.
   6) Write a note on check points.

3. A) Answer **any two** of the following :   **6**
   1) Write all control structures used in PL/SQL.
   2) Explain types of parameters passed to procedure.
   3) Write a note on starvation.

   B) Discuss the properties of transaction.   **4**

4. Answer **any two** of the following :   **10**
   1) Explain 2-phase locking protocol.
   2) What is package in PL/SQL ? Explain package specification and body.
   3) What are the rules followed when shared/exclusive locking used ?

5. Answer **any two** :   **10**
   1) Explain recovery techniques used in DBMS.
   2) Write parameterized cursor.
   3) Explain time stamp ordering protocol.

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Seat No.

B.Sc. (ECS) – III (Semester – VI) Examination, 2015
COMPUTER SCIENCE (Paper – III)
Advanced Java

Day and Date : Saturday, 7-11-2015   Max. Marks : 50

Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose correct alternatives :   **10**

   1) Which of the following symbol separates the program from the parameters in URL query string ?
      a) ?   b) =   c) &   d) None of these

   2) If your request is not time sensitive then use _____ method to speed up the program.
      a) POST   b) GET   c) DELETE   d) None of these

   3) Apache Tom cat is a _____
      a) Servlet   b) Web-server
      c) Java program   d) All of these

   4) The _____ interface defines the methods that all servlets must be implements.
      a) javax.servlet.servlet   b) HTTP servlet
      c) servlet-request   d) servlet-response

   5) _____ are the Java programs, which are launched from an HTML page and run in a web browser.
      a) Java Servlet   b) JSP   c) Java Applet   d) None of these

   6) The _____ package contains various interfaces and classes that JDBC API requires.
      a) java.url   b) java.sql   c) java.jdbc   d) all of these

   7) _____ is a zip or compression utility made for Java needs.
      a) Zip   b) Com   c) Jar   d) All of these

P.T.O.

8) Which of the following method used to find out number of rows affected in a table ?
   a) execute ( )
   b) execute Query ( )
   c) execute Batch ( )
   d) execute Update ( )

9) When client makes a request to a server, it passes the request to _____
   a) Servlet
   b) Client
   c) Xml file
   d) Deployment descriptor

10) _____ includes both the data and business logic components that operates on the data.
   a) view
   b) model
   c) controller
   d) none

2. Answer **any five** of the following : **10**

   a) Difference between Statement and Prepared Statement.

   b) Explain briefly Type-1 drivers.

   c) What is MVC architecture ?

   d) List out disadvantages of applets.

   e) List of advantages of servlet over CGI.

   f) Explain importance of Java Bean.

3. A) Answer **any two** of the following : **6**
   1) Explain event listeners role.
   2) What is collable statement ? Why it is used ?
   3) Explain uses of the servlet.

   B) Explain steps required in a JDBC program. **4**

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

   1) Write a program to display students information from student table using JDBC – ODBC bridge driver.

   2) Explain servlet life cycle in detail.

   3) Explain statement interface along with methods.

5. Answer **any two** of the following : **10**

   1) Create simple servlet by using generic servlet class.

   2) Explain various implicit JSP objects.

   3) Explain delegate event model.

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Seat
No.

B.Sc. (ECS) – III (Semester – VI) Examination, 2015
COMPUTER SCIENCE (Paper – IV)
Compiler Construction

Day and Date : Monday, 16-11-2015　　　　　　　　　　Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative :　　　　　　　　　　　　　　　　**10**

　　1) The _____ resolves external memory addresses, where the codes in
　　　 one file may refer to a location in another file.

　　　　a) loader　　　　　　　　　　　b) pre-processor

　　　　c) linker　　　　　　　　　　　 d) translator

　　2) A _____ is a description of the form that the lexemes of a token may
　　　 take.

　　　　a) token　　　　　　　　　　　 b) attribute value

　　　　c) lexeme　　　　　　　　　　　d) pattern

　　3) _____ errors include type mismatches between operators and operands.

　　　　a) Semantic　　　b) Syntactic　　　c) Lexical　　　　d) Logical

　　4) A _____ is a context-free grammar together with attributes and rules.

　　　　a) Syntax-Directed Definition (SDD)

　　　　b) S-attributed SDD

　　　　c) L-attributed SDD

　　　　d) All of above

　　5) Procedure calls and returns are usually managed by a runtime stack called
　　　 _____

　　　　a) Control stack　　　　　　　　b) Garbage collection

　　　　c) Activation tree　　　　　　　 d) Activation record

P.T.O.

6) _____ code contains explicit type conversions to ensure an exact match between operand types and types expected by an operator.

   a) An intermediate   b) Syntactic

   c) Semantic   d) All of above

7) A _____ compiler is one that can generate code for multiple institution sets.

   a) Cross   b) Self

   c) One-pass and multi-pass   d) Retargetable

8) The _____ maps the intermediate representation produced by the front end.

   a) Semantic analyzer   b) Intermediate code generator

   c) Code optimizer   d) Code generator

9) Each _____ represents a set of strings of terminals, in a manner we shall describe.

   a) start symbol   b) terminal

   c) non-terminal   d) production

10) _____ parsing is a top-down method of syntax analysis in which a set of recursive procedure is used to process the input.

   a) Recursive-descent   b) Predictive

   c) Operator-precedence   d) All of above

2. Answer **any five** of the following :   **10**

   1) What is the role of syntax analyzer ?

   2) What is the compilation process ?

   3) Give the advantage and disadvantage of register allocation.

   4) Define :

     a) Synthesized attribute

     b) Inherited attribute.

   5) What is the difference between actual parameter and formal parameter ?

   6) Why the analysis portion of a compiler is normally separated into lexical analysis and syntax analysis ?

3. A) Answer **any two** of the following : **6**

   1) Explain natural loop with example.

   2) Give the common three-address statements used in the intermediate languages.

   3) When the lexical errors are occurred ? How to recover it ?

  B) Explain backpatching. **4**

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

  1) Discuss phases of compiler.

  2) Explain inherited attribute on the parse stack with example.

  3) What is left recursion ? How to eliminate it ? Explain with example.

5. Answer **any two** of the following : **10**

  1) Discuss an activation record.

  2) Explain an issues in the design of code generator.

  3) Consider the grammar,

    stmt $\rightarrow$ if expr then stmt

          | if expr then stmt clse stmt

          | other

    where 'other' stands for any other statement.

    check whether the given grammar is ambiguous or not; if found ambiguous, remove the ambiguity and write the equivalent unambiguous grammar.

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Seat
No.

B.Sc. (ECS) – III (Semester – VI) Examination, 2015
COMPUTER SCIENCE (Paper – V)
Web Technology and E-Commerce – II

Day and Date : Tuesday, 17-11-2015　　　　　　　　　　Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative : **10**

1) _____ is computer to computer exchange of business transactions.
   a) E-commerce　　　　　　　　b) EDI
   c) Internet commerce　　　　　d) E-market

2) _____ is one of property of Gridview control.
   a) Data member　　b) Data source　　c) Data Query　　d) Data Text

3) _____ property is used to set for Gridview to arranging records in pagewise.
   a) Allow paging　　　　　　　b) Allow sorting
   c) Page size　　　　　　　　　d) Page

4) Data Table class is present in _____ name space.
   a) System.Data.Oracleclient　　b) System.Data.Sqlclient
   c) System.Data.SqlType　　　　d) System.Data

5) Before starting new company, people must consider _____ for competitive advantages.
   a) Finance
   b) IT
   c) Porter's model of competitive advantages
   d) Bank

6) In e-commerce, time required for business transaction in more.

 a) True　　　　　　b) False

7) _____ is a process to converting plain text into cipher text.

 a) Decryption　　　b) Encryption　　c) EDI　　　　　d) E-commerce

8) Execution and settlement phases are combined into _____ type of transaction.

 a) Cash　　　　　　b) Credit　　　　c) Repeat　　　　c) None of these

9) Default value for Edit Index property is _____ in Gridview.

 a) 0　　　　　　　　b) 1　　　　　　c) –1　　　　　　d) number of rows

10) E-market deals with all phases of trade cycle.

 a) True　　　　　　b) False

2. Answer the following (**any 5**) :　　　　　　　　　　　　　　　　　　**10**

 a) Authorization

 b) Supply chain

 c) Airline booking system

 d) Log in Name control

 e) Data Row object

 f) Virtual Auctions.

3. a) Answer the following (**any 2**) :　　　　　　　　　　　　　　　　　**6**

 1) Definition of e-commerce.

 2) Explain first moves advantage.

 3) Explain Data Adaptes with example.

 b) Explain strategy formulation and implementation planning in detail.　　**4**

4. Answer the following (**any 2**) : **10**

   a) Design web page which insert and select record.

   b) Explain Porter's value chain model.

   c) Explain different technique for delivering of goods.

5. Answer the following (**any 2**) : **10**

   a) Design web page which insert new user and new role by using user management and role management technique.

   b) Explain benifits of EDI in detail.

   c) Explain trade cycle in detail.

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Seat No.

B.Sc. (ECS) – III (Semester – VI) Examination, 2015
COMPUTER SCIENCE (Paper – VI)
Visual Programming and Application Software – II

Day and Date : Wednesday, 18-11-2015   Max. Marks : 50
Time : 2.30 p.m. to 4.30 p.m.

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

1. Choose the correct alternative :   **10**

    1) Tick event is found in _____ control.
       a) Button   b) Label
       c) Text Box   d) Timer

    2) The _____ method is responsible for starting the standard applicaiton message loop.
       a) Application.Run ( )   b) System.Run ( )
       c) Application.Start ( )   d) System.Start ( )

    3) _____ contain all the information that is needed by CLR to execute an application.
       a) Namespaces   b) Classes
       c) Assemblies   d) Interfaces

    4) An _____ language controlled the flow of program according to the user actions.
       a) Procedure oriented   b) Object oriented
       c) Event driven   d) All of these

    5) _____ consists of icons of all the controls that can be added on a form.
       a) Property window   b) Toolbox
       c) Windows explorer   d) None of these

    6) Which of the following is not event of the Window class ?
       a) Activated   b) Changed
       c) Closed   d) Deactivated

7) LINQ stands for Language Integrated Query.
   a) True   b) False

8) Which of the following control is derived from the ListControl Class ?
   a) ComboBox   b) ListBox
   c) CheckedListBox   d) All of these

9) A multicast delegate object maintains a _____
   a) List of methods   b) List of classes
   c) List of properties   d) List of indexers

10) The sorting functionality in LINQ is achieved using the _____ operator.
   a) Sort   b) Order
   c) Orderby   d) Sortby

2. Answer **any five** of the following :   **10**
   1) Give the difference between private assemblies and shared assemblies.
   2) Give the advantages of MDI form.
   3) What is the use of label and textbox ?
   4) What is the meaning of delegates are type-safety ?
   5) Give the different operations performed on a form.
   6) What is the basic function of LINQ ?

3. A) Answer **any two** of the following :   **6**
   1) Explain where clause used in LINQ.
   2) Explain ComboBox with suitable example.
   3) Give the features provided by assemblies.

   B) Write a note on LINQ to SQL.   **4**

4. Answer **any two** of the following :   **10**
   1) Create Windows application to accept the number and check given no. is prime or not.
   2) Explain the steps to create and deploy an application.
   3) Explain various components in crystal reports.

5. Answer **any one** of the following :   **10**
   1) Write a program to implement multicast event.
   2) What is an assembly ? Explain contents of assembly manifest.

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