[4861]-11

F.Y. M.C.A. (Engineering Faculty)
PROBLEM SOLVING AND PROGRAMMING IN C
(2008 Pattern) (Semester - I) (510901)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:
1) *Answers to the two sections should be written in separate answers books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Assume suitable data, if necessary.*

SECTION -I

Q1) a) Draw a flow chart to print 1 to 100 numbers which are divisible by 2 and 3.

[6]

b) Write an algorithm to compute factorial of a give number.   **[6]**

OR

Q2) a) What are the characteristics of good programming?   **[6]**

b) Draw a flow chart to compute the sum of first n terms (n>=1) of series.**[6]**
s=1 + 1/2 + 2 + 1/4 + 3 + 1/8 ----n

Q3) a) In what order following expression will be evaluated. Write the value of x.**[6]**
y=2,z=2,p=3,q=4
x=(y*z+(p*q^2)/100;

b) Explain any three loop structure in c with one example.   **[6]**

OR

Q4) a) Define the term recursion. Write a C program to print factorial of given number using recursion. **[6]**

b) Consider the following statement in C. **[6]**

switch(option)

{

    case 1 : printf("one");

    case 2 : printf("two");

    case 3 : printf("three");
        break;

    case 4 : printf("four");

    default: printf("five");

}

state and explain what would be the output if option=2;

Q5) a) Write a program to convert given string into uppercase using user defined function. **[6]**

b) Write short note on array. **[5]**

OR

Q6) a) Write a C program to multiply two matrices. **[6]**

b) Write a C program to find the number of occurrences of character 'z' in the given string. **[5]**

SECTION - II

Q7) a) Explain the concept of call by value and call by reference. **[6]**

b) Explain the storage classes in C. **[6]**

OR

Q8) a) Write a C program to sort an array of 10 integers. **[6]**

b) Explain with example pointer to structure. **[6]**

Q9) a) Explain with example array of structure. **[6]**

b) Write a C program to accept details of 10 products (pno,pname, punit, prate, pqty) and display all entered data with amount (prate * pqty) **[6]**

OR

*Q10)*a) Differentiate between array and pointer. **[6]**

b) Write a program to print command line arguments in reverse order. (for ex. pl.exe 1 2 3 4 o/p 4 3 2 1 pl.exe) **[6]**

*Q11)*a) Write a C program to copy the content of text file xyz.txt and into pqr.txt in uppercase. **[6]**

b) Write a C program to copy a string using user define function. **[5]**

OR

*Q12)*a) Explain the use of fseek( ) and ftell ( ) function. **[6]**

b) Write a program in C to print following pattern. **[5]**

*1
**2
***3
****4
*****5

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[4861]-12

F.Y. M.C.A. (Under Engineering Faculty)
DISCRETE MATHEMATICS
(2008 Course) (Semester - I) (510902)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:
1) *Answers to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Use of probability table, electronic pocket calculator is allowed.*
5) *Assume suitable data, if necessary.*

SECTION -I

Q1) a) Show by mathematical induction,

$$1^3 + 2^3 + 3^3 + ...+n^3 = (1+2+....+n)^2$$ **[6]**

     b) Among the first 1000 positive integers: **[6]**

         i) Determine the integers which are not divisible by 3, nor by 5, nor by 7?

         ii) How many are not divisible by 5 & 7 but divisible by 3?

OR

Q2) a) Determine whether the following statements are true or false. Justify your answer.   **[6]**

         i) $\{a,\phi\} \in \{a,\{a,\phi\}\}$

         ii) $\{a,b\} \subseteq \{a,b,\{a,b\}\}$

         iii) $\{a,b\} \in \{a,b,\{a,b\}\}$

     b) Prove DeMorgan's Law that is $\overline{A \cup B} = \bar{A} \cap \bar{B}$ and $\overline{A \cap B} = \bar{A} \cup \bar{B}$ **[6]**

Q3) a) Write the following statements in symbolic forms: **[6]**

    i)   If I am not in good mood, then I will go to movie.

    ii)   I will not go to a movie and I will study discrete structures.

    iii) If I will not study discrete structures, then I am not in a good mood.

  b) Construct truth tables to determine whether each of the following is a tautology, a contingency or a contradiction. **[6]**

    i) $p \rightarrow q(q \rightarrow p)$

    ii) $(p \wedge q) \wedge \neg (p \vee q)$

    iii) $(p \wedge q) \rightarrow p$

<div align="center">OR</div>

Q4) a) Find the CNF of the form $(\neg p \rightarrow r) \wedge (p \Leftrightarrow q)$ **[6]**

  b) Show that $(p \rightarrow (q \rightarrow r)) \Rightarrow ((p \rightarrow q) \rightarrow (p \rightarrow r))$ **[6]**

Q5) a) A box contains 6 white balls and 5 black balls. Find the number of ways, 4 balls can be drawn from the box if all of them must have the same color. **[6]**

  b) In how many ways can the letters in the word "LADALA" be arranged? **[5]**

<div align="center">OR</div>

Q6) a) How many different seven persons committee can be formed each containing 3 women from an available set of 20 women and 4 men from an available set of 30 men. **[6]**

  b) A die is rolled 6 times and the sequence of faces is noted. In how many sequences does the face "5" appear an even number of times? Also find the number of sequences in which "5" appears exactly twice or the face "3" appears exactly 4 times. **[5]**

SECTION - II

Q7) a) Find the transitive closure of R by Warshall's algorithm let A = {1,2,3,4}
and R = {(1,2), (2,4), (1,3), (3,2)}   **[6]**

b) On the set of integers, the relation R is defined by "aRb" if and only if
"(a-b) is even integer". Show that R is an equivalence relation.   **[6]**

OR

Q8) a) Function f, g, h are defined on a set X = {1,2,3} as f = {(1, 2), (2, 3), (3, 1)},
g = { (1, 2), (2, 1), (3, 3) }, h = { (1, 1), (2, 2), (3,1) } find f o g, g o f,
f o g o h, f o h o g.   **[6]**

b) Let f(x) = x+2, g(x) = x-2, h(x) = 3x for x belongs to R, where R = set of
all real numbers. Find gof, fog, gog, foh, hog, fohog.   **[6]**

Q9) a) Draw & Define the following terms: **[6]**

i)   Bipartite Graph

ii) Multigraph

iii) Regular Graph

b) Determine the number of regions defined by a connected graph with 6
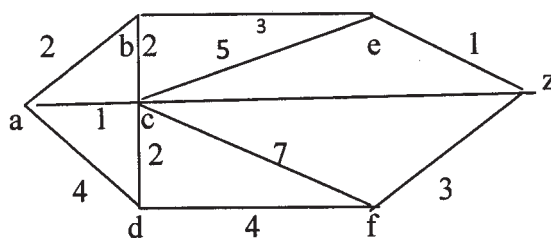nodes and 10 edges. Draw the graph.   **[6]**

OR

Q10) a) Determine whether the following graphs G = (V, E) and G* = (V*, E*)
are isomorphic or not.   **[6]**

G = ({a, b, c, d}, {(a, b), (a, d), (b, d), (c, d) (c, b), (d, c)})

G* = ({1, 2, 3, 4}, {(1,2), (2,3), (3,1), (3,4), (4,1), (4,2)})

b) Find shortest path between a-z for the given graph; using Dijkstra's
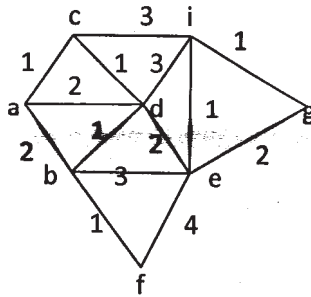algorithm: **[6]**

*Q11)*a) For each of the following sets of weights construct an optimal binary prefix code. For each weight in the set, give the corresponding code word: **[6]**
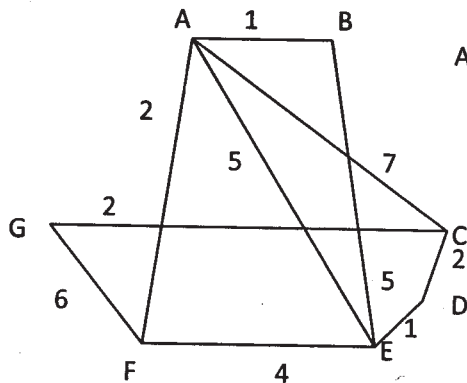
   i) 10, 11, 14, 16, 18, 21

   ii) 5, 7, 8, 15, 35, 40

b) Use Prim's algorithm to construct a minimal spanning tree for the weighted graph in following figure starting from vertex a. **[5]**
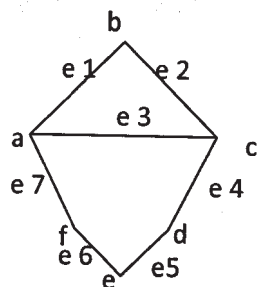

OR

*Q12)*a) Give the stepwise construction of minimum spanning tree for the following graph using Kruskal's algorithm. **[6]**

b) Determine all possible cut-sets of the following graph G. **[5]**

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[4861]-13

F.Y. M.C.A. (Engg.)

FOUNDATION OF INFORMATION TECHNOLOGY

(2008 Pattern) (Semester - I) (510903)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data if necessary.*

SECTION -I

Q1) a) Explain following coding system with an Example: **[6]**

     i) BCD

     ii) EBCDIC

     iii) ASCII

   b) Differentiate between the characteristics of primary and secondary storage of computers. **[6]**

OR

Q2) a) When is a computer said to be upward compatible with another computer? How is this feature useful for the others of these computers. **[8]**

   b) Construct a logic diagram for the Boolean expression given below using only NAND gates A. B + C.(A + B.D). **[4]**

Q3) a) List out the main advantages of magnetic disks as compared to magnetic tapes, as a secondary storage device. **[8]**

   b) Describe in brief printing mechanism of laser printer. **[4]**

OR

Q4) a) What is a CD-ROM jukebox? What are its main components? List out some typical uses of a CD-ROM jukebox. **[8]**

b) What is meant by a family of CPUs? When do two CPUs belong to the some family? **[4]**

Q5) a) What are the different ways of acquiring software? List out their relative Advantages & limitations. **[6]**

b) What is a mnemonic? How is it useful in case of computer languages?**[5]**

OR

Q6) a) What are the advantages & limitations of High level languages? **[6]**

b) What is firmware & what is its importance to computer system architecture? **[5]**

SECTION - II

Q7) a) What is the difference between a uni programming system and a Multigramming system? What are their relative advantages & disadvantages? **[8]**

b) What is a bit-mapped image? Why is it so called? **[4]**

OR

Q8) a) Write short note on the following with reference to a spreadsheet package: **[8]**

i) Cell content

ii) Range of Cells

b) What are the typical jobs performed by the security module of an operating system. **[4]**

Q9) a) What is a database model? Name the four commonly used database models and describe any two. **[8]**

b) Write a short note on multimedia applications. **[4]**

OR

*Q10)*a) What are the operations involved in change over process? **[4]**

b) What is a debugger? How does it help a programmer? **[4]**

c) What is 'pixel'? Explain how an image is composed & displayed on computer screen? **[4]**

*Q11)*a) What is meant by internetworking? Explain the difference among the following terms: **[6]**

    i) Bridge

    ii) Router

    iii) Gateway

b) What is packet switchning? Why is this method used for digital data Communication. **[5]**

<div align="center">OR</div>

*Q12)*a) What is a www browser? What types of navigation Facilities are typically supported by modern browsers to help users save time while Internet surfing? **[6]**

b) Differentiate between: **[5]**
    i) Leased line and
    ii) Dial up connection

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Total No. of Questions :12]

P1896

SEAT No. :

[Total No. of Pages :3

[4861]-14

F.Y. M.C.A. (Engg.)
PROBABILITY AND STATISTICS
(2008 Course) (Semester - I)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

1) Neat diagrams must be drawn wherever necessary.

2) Figures to the right side indicate full marks.

3) Assume suitable data if necessary.

4) Use of probability table, electronic pocket calculator is allowed.

SECTION -I

Q1) a) Suppose that repetitions are not permitted, then: **[6]**

   i) How many 4 digit numbers can be formed from the six digits 1,2,3,5,7,8?

   ii) How many such numbers are less than 4000?

   iii) How many of the numbers in (i) are even.

   b) State and prove Baye's theorem. **[5]**

OR

Q2) a) 3 balls are drawn successively from a box containing 6 red, 4 white and 5 blue balls. Find the probability that they are drawn in the order red, white and blue if each ball is **[6]**

   i) replaced

   ii) not replaced

   b) We have 4 boxes. Box one contain 2000 components of which 5% are defective. Box two contains 500 components of which 40% are defective. Box three and four contain 1000 component each with 10% defective. We select at random one of the boxes and we remove at random a single component. **[5]**

   i) What is the probability that the selected component is defective?

   ii) What is the probability that selected component is defective on the basis of evidence it come from box two?

P.T.O.

Q3) a) Define: Random variable, Poisson distribution and negative binomial distribution. **[6]**

b) If X and Y are independent random variable prove that

Var (X + Y) = Var (X) + Var (Y) **[6]**

OR

Q4) a) $F(x) = \frac{1}{2} x \quad 0 < x < 2$

$= 0 \qquad$ Otherwise

Find mean, variance and standard deviation. **[6]**

b) Determine K such that the function defined as follows is a probability mass function. **[6]**

$f(x) = k.2^{-x} \quad$ for x =1,2,3......

$= 0 \qquad$ Otherwise

Also find f(x <5)

Q5) a) Find Moment generating function, mean and variance of a Geometric Random Variable. **[6]**

b) If probability density function of a continuous random variable is given by $f(x) = e^{-x} \quad x > 0$

find mean, moment generating function and variance of this random variable. **[6]**

OR

Q6) a) The joint density function of 2 continuous random variable X and Y is

$f(x, y) = Cxy \qquad 0 < x < 4$ **[6]**

$1 < y < 5$

$= 0 \qquad$ otherwise

i) Find the value of C

ii) P[1 < x < 2, 2 < y < 3]

iii) P[x >= 3, y <= 2]

b) What is reliability? Find the Reliability of K components connected in **[6]**

i) Series

ii) Parallel

SECTION - II

Q7) a) What is maximum likelihood estimator? Explain the method to obtain maximum likelihood estimate. **[6]**

b) Define sample mean and sample median. Following are the observations on random variable X: 406, 395, 400, 450, 390, 410, 415, 401, 408. Find sample mean and median. **[5]**

OR

Q8) a) What is point estimator? What properties of estimator will make it a good estimator? **[6]**

b) Describe Central Limit Theorem. **[5]**

Q9) a) What is Hypothesis testing? What is significance of alpha and beta? **[6]**

b) A random sample of size n is selected from a normal distribution with mean μ and variance σ^2. Prove that the sample mean $\overline{X}$ is normally distributes with mean μ and variance σ^2 / n. **[6]**

OR

Q10) a) Explain the following terms: **[6]**

   i) Statistical Hypothesis and Null Hypothesis

   ii) Level of significance

b) Write a short note on Student-t Distribution. **[6]**

Q11) a) Describe the chi-square test as a test of goodness of fit. Write the steps. **[6]**

b) Explain the term P-chart of statistical quality control. **[6]**

OR

Q12) a) What is acceptance sampling? **[6]**

b) Explain Statistical Quality Control with its advantages and limitations. **[6]**

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[4861]-15

F.Y. M.C.A. (Engg.)
MANAGEMENT SCIENCE
(2008 Course) (Semester - I) (510905)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data if necessary.*

SECTION -I

Q1) a)   Define Management. Comment on a following statement: "Management as an Art, Science and Professions".   **[8]**

b)   What are the different levels of Managements?   **[4]**

OR

Q2) a)   Explain with block diagram steps in setting up MBO.   **[8]**

b)   Explain planning function in details.   **[4]**

Q3) a)   Write short note on following: **[8]**

i)   E-Business Management.

ii)   Enterprise Resource Planning.

b)   Explain role of Chambers of commerce and industries.   **[4]**

OR

Q4) Write a short note on following (Any 3):   **[12]**

    a)   Patents

    b)   Copyrights

    c)   Law of Demand

    d)   Law of Supply

Q5) a)   What is Joint Stock Company? Explain characteristics, advantages and disadvantages associated with Joint Stock companies. **[8]**

    b)   Draw the block diagram of matrix organization. **[3]**

<div align="center">OR</div>

Q6) a)   Enumerate different forms of business organization? Explain partnership with its advantages and disadvantages. **[8]**

    b)   What are the types of partner? **[3]**

<div align="center">

SECTION - II

</div>

Q7) a)   Explain manpower planning and process of manpower planning. **[8]**

    b)   Explain media of communiction. **[4]**

<div align="center">OR</div>

Q8) Write a short note on following (any 3): **[12]**

    a)   Recruitment

    b)   Job Evaluation

    c)   Performance Appraisal

    d)   Mc Gregors Theory X and Theory Y

    e)   Factors affecting manpower planning

Q9) a) What is need for industrial safety? What instructions and training is essential for safety? **[8]**

b) Explain factory act? **[4]**

OR

*Q10)*a) What is noise pollution? How it is controlled? **[8]**

b) Explain minimum wage act in brief. **[4]**

*Q11)*a) Explain concept and importance of Quality Circle. **[8]**

b) Explain TQM in brief. **[3]**

OR

*Q12)*a) What is ISO 9000 standard? Write steps involved to implement ISO 9000 standard in industry. **[8]**

b) What is the purpose of patent? Enumerate steps involved in getting a patent. **[3]**

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Total No. of Questions : 12]

SEAT No. :

P1898

[Total No. of Pages :2

[4861]-21

F.Y.M.C.A. (Engg.)

OBJECT-ORIENTED PROGRAMMING

(2008 Course) (Semester-II) (510909)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

1)   *Answers to the two Sections should be written in separate answer books.*

2)   *Neat diagrams must be drawn wherever necessary.*

3)   *Figures to the right side indicate full marks.*

4)   *Assume suitable data, if necessary.*

<u>SECTION-I</u>

Q1) a)   Explain message passing, dynamic binding and encapsulation concept with example.   **[6]**

b)   What is object-oriented programming? What are the features of object oriented programming.   **[5]**

OR

Q2) a)   Explain data hiding , class and polymorphism concept with example.**[6]**

b)   What is object oriented programming? Compare with procedure-oriented programming?   **[5]**

Q3) a)   Explain the difference between NEW operator in C++ and malloc function in C with example.   **[6]**

b)   What is function overloading? Compare function overloading and function with default arguments. Give one example of each.   **[6]**

OR

Q4) a)   What is function overloading? Write a C++ program to overload volume Function that Calculate volume of circle, rectangle, Square.   **[6]**

b)   Explain reference variable with example.   **[6]**

P.T.O.

Q5) a) Explain static data member and static member function with example.**[6]**

b) What is the inline function? How does the inline function differ from preprocessor macro. **[6]**

<div align="center">OR</div>

Q6) a) What is constructor? Explain copy constructor with example. **[6]**

b) What is friend function? What are the characteristics of friend function? Give one example of friend function. **[6]**

<div align="center">

SECTION-II
</div>

Q7) a) What is operator overloading? Write a C++ program to overload + operator to concatenate the string. **[6]**

b) Explain binary and unary operator overloading using friend function.**[6]**

<div align="center">OR</div>

Q8) a) What is a type conversion? Explain type conversion from basic type to class type and class type to basic type using example. **[6]**

b) What is the difference between unary and binary operator? Explain binary operator overloading with example. **[6]**

Q9) a) Explain mechanism of passing parameters to the base class constructor in inheritance with example. **[6]**

b) Explain virtual function with example. **[6]**

<div align="center">OR</div>

*Q10)*a) What is polymorphism? Explain run time polymorphism with example.**[6]**

b) What is inheritance? Explain single and multilevel inheritance with example. **[6]**

*Q11)*a) What is an exception? Write a program to handle user define exception.**[5]**

b) What is manipulator? Can we define our own manipulator? Justify. **[6]**

<div align="center">OR</div>

*Q12)*a) What is Manipulator? Explain user-defined manipulators with example.**[5]**

b) Explain managing console formatted I/O with example. **[6]**

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[4861]-22

F.Y. M.C.A. (Under Engineering Faculty)
DATA STRUCTURE AND FILES
(2008 Course) (Semester - II) (510910)

Time : 3 Hours] *[Max. Marks :70*

Instructions to the candidates:

1) *Answer Q. 1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 from section - I and Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12 from section - II.*
2) *Answers to the two sections should be written in separate answer books.*
3) *Assume suitable data, if necessary.*
4) *Draw sketches wherever necessary.*
5) *Figures to the right indicate full marks.*

SECTION - I

Q1) a) Write a pseudo C code for addition of two polynomial. **[8]**

   b) Write an ADT for STACK. **[4]**

OR

Q2) a) Consider integer array double a[15] [20] declared in C program. If the base address is 900, find the address of the element a[8][15] with the row major and column major representation. **[8]**

   b) Define the following with example: **[4]**

   i) Ordered List

   ii) ADT

   iii) Data object

Q3) a) What is Doubly Linked List? Write a memory representation of DLL? Also write a pseudo C code for the insertion of an element at beginning in doubly linked list. **[8]**

b) Represent multiplication of following two polynomial in the form of a linked list. Clearly show the node structure used for each polynomial **[4]**

   i) $P(x) = x^3 - 5x^2 - 10$

   ii) $Q(x) = 2.x^4 - 8.1x^2 + 5.6$

<div align="center">OR</div>

Q4) a) Write a pseudo C code for the deletion & insertion of an element in linked list. **[8]**

   b) Write an algorithm for deletion of an element in a circular LL. **[4]**

Q5) a) Convert the following infix expression into postfix expression by showing the content of stack for every iteration: **[5]**
   $(((A/B \wedge C) + (D * E)) - (A + C))$

   b) Write a program for STACK using array in C. **[6]**

<div align="center">OR</div>

Q6) a) What is Queue? Write a program in C for insertion & deletion of an element in a Queue. **[8]**

   b) What is recursion? Write a C program for factorial of a given number using recursion. **[3]**

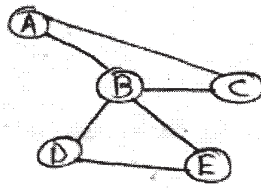<div align="center">

SECTION - II

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Q7) a) Construct a binary search tree for the following: **[6]**

   J, R, D, G, T, E, M, H, P, A, F, Q

   b) Write a non recursive procedure for the Postorder of a tree. **[6]**

<div align="center">OR</div>

Q8) a) Use the following graph for the construction of Adjacency Matrix, adjacency List, BFS and DFS. **[6]**

b) Write an algorithm to convert general tree to binary tree and explain the same using example. **[6]**

Q9) a) Write a C pseudo C code for Merge Sort. **[4]**

b) Write a pseudo 'C' routine to sort the following numbers using quick sort. Show all the passes to sort the values in descending order: **[8]**
45, 80, 20, 34, 90, 12, 40, 76, 108, 100, 12

OR

Q10) a) Write a recursive Pseudo C code to search an element in a list by using Binary Search method. **[6]**

b) Explain Index Sequential Search with example. **[6]**

Q11) a) What is hashing? What are the characteristics of a good hash function? **[6]**

b) Compare Sequential and Direct access file. **[5]**

OR

Q12) a) Given a set of values 10, 100, 32, 45, 58, 126, 3, 29, 200, 400, 0. Create a Hash table & resolve collision if any using linear probing. **[6]**

b) Explain collision resolution technique: chaining without replacement with example. **[5]**

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[4861]-23

F.Y. M.C.A. (Under Engineering Faculty)
OPERATIONS RESEARCH
(2008 Pattern) (Semester - II) (510911)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

    1)   Answers to the two sections should be written in separate answer books.

    2)   Neat diagrams must be drawn wherever necessary.

    3)   Figures to the right side indicate full marks.

    4)   Assume suitable data if necessary.

SECTION - I

Q1) a)   A farm is engaged in breeding pigs. The pigs are fed on various products grown on the farm. In view of the need to ensure certain nutrient constituents it is necessary to buy two products say A and B in addition. The contents of various products, per unit, in nutrient constitutes are given in the following table: **[6]**

Nutrients	Nutrient content in Product		Minimum amount of nutrient required
	A	B	
M1	36	6	108
M2	3	12	36
M3	20	10	100

If a product A costs Rs. 20 and B Rs. 40 per unit, how much each of these two products should be bought so that total costs is minimized? Formulate the LPP and solve by graphical method.

    b)   Maximize $Z = 2X_1 + 3X_2 + 4X_3$ **[6]**

        Subject to

$$3X_1 + X_2 + 6X_3 <= 600$$
$$2X_1 + 4X_2 + 2X_3 >= 480$$
$$2X_1 + 3X_2 + 3X_3 = 540$$
$$X_1, X_2, X_3 >= 0$$

OR

P.T.O.

Q2) a)   Solve the following linear programming problem graphically.   **[6]**

Maximize $Z = 4X_1 + 6X_2$

Subject to

$$X_1 + X_2 = 5$$
$$X_1 >= 2$$
$$X_2 <= 4$$
$$X_1, X_2 >= 0$$

b)   Maximize $Z = 5X_1 + 6X_2 + X_3$ **[6]**

Subject to

$$9X_1 + 3X_2 - 2X_3 <= 5$$
$$4X_1 + 2X_2 - X_3 <= 2$$
$$X_1 - 4X_2 + X_3 <= 3$$
$$X_1, X_2, X_3 >= 0$$

Q3) a)   4 jobs A,B,C and D are to be assigned to 4 workers 1,2,3 and 4 the respective profits in rupees of these assignments is given in the following matrix. Determine the optimal assignment to maximize the profit. Calculate the maximum profit resulting from the assignment.   **[6]**

Jobs

	A	B	C	D
1	21	15	19	16
2	19	16	20	20
3	10	20	18	17
4	18	17	19	20

b)   Solve the following Transportation Problem by   **[6]**

i)   Least Cost

ii)   Northwest Corner Method

iii)   VAM

Factory	Warehouse				Capacity
	W1	W2	W3	W4	
F1	21	16	25	13	11
F2	17	18	14	23	13
F3	32	27	18	41	19
Requirement	6	10	12	15	43

OR

Q4) a) Explain Transshipment model. **[4]**

b) For the given transportation problem find initial basic feasible solution and optimal solution. **[8]**

	D_1	D_2	D_3	D_4	Supply
O_1	1	2	1	4	30
O_2	3	3	2	1	50
O_3	4	2	5	9	20
Demand	20	40	30	10	

Q5) a) Define the following terms: **[4]**

i) Spanning Tree

ii) Total Float

iii) PERT

iv) Critical Activity

b)   Determine the critical path for the given network.   **[7]**
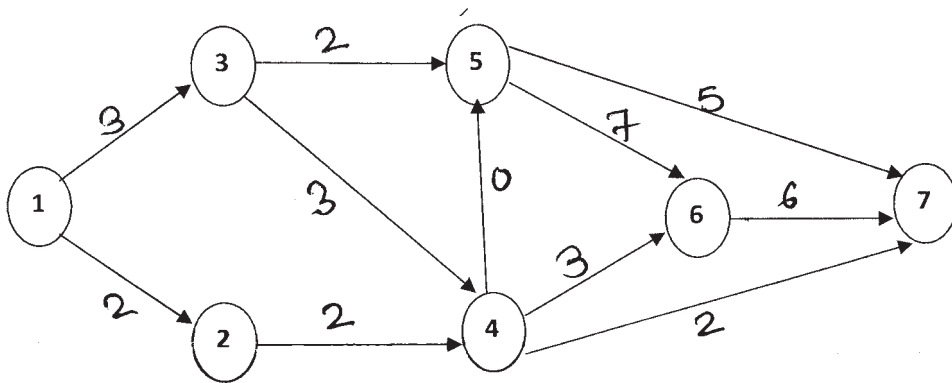
OR

Q6) a)   Use Floyd's algorithm to determine the shortest route from 1 to 4.   **[6]**

b)   Determine the maximal flow and the optimum flow in each arc for the network.   **[5]**
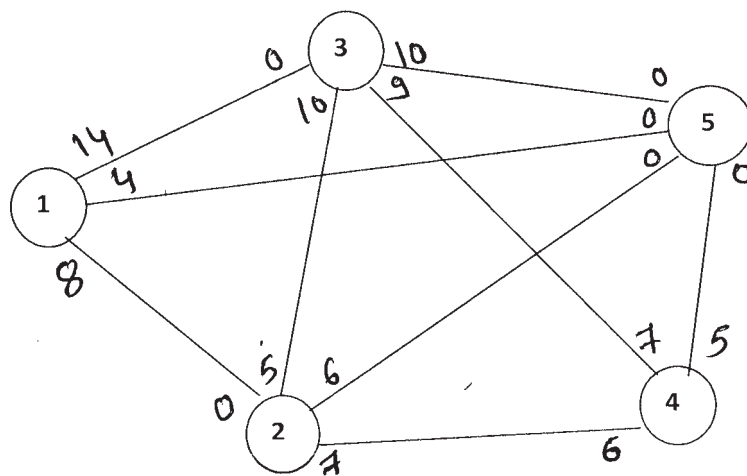
SECTION - II
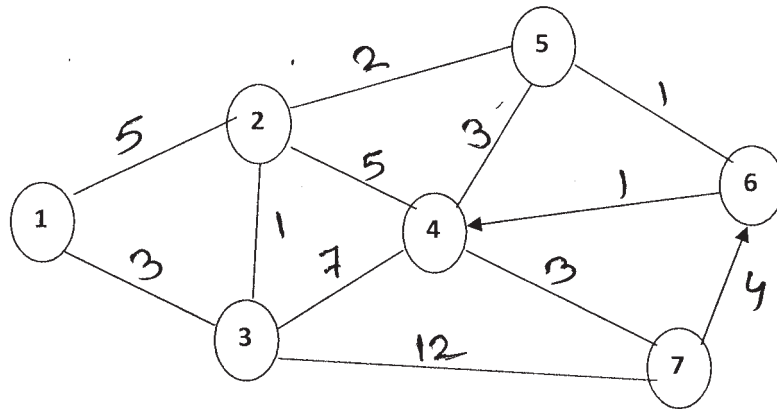
Q7) a) Explain Cutting plane algorithm. **[6]**

b) Solve by using Branch and Bound **[6]**

Minimize $Z = 7X_1 + 6X_2$

Subject to

$$2X_1 + 3X_2 <= 12$$
$$6X_1 + 5X_2 <= 30$$
$$X_1, X_2, >= 0$$

OR

Q8) a) Explain Moving Average Technique. **[5]**

b) Explain Goal Programming Problem. Explain two methods to formulate goal programming problem. **[7]**

Q9) a) How the Utility function quantify the decision makers attitudes towards risk. **[4]**

b) Analyze the decision problem using **[8]**

	S1	S2	S3	S4
A1	5	10	18	25
A2	8	7	12	23
A3	21	18	12	21
A4	30	22	19	15

i) Laplace

ii) Minimax

iii) Savage Regret

iv) Hurwicz

(Take $\alpha = 0.5$)

OR

Q10) a) What is Decision Making Under Risk. Explain expected value criterion.**[6]**

b) Explain decision making under certainty using AHP. **[6]**

Q11) a) What is simulation modeling? Explain Monte Carlo simulation. **5]**

b) Explain the three most common methods for collecting observations in simulation. **[6]**

<div align="center">OR</div>

Q12) a) Generate six random numbers based on Multiplicative Congruential method. Using b = 17, c = 111, m = 103, seed = 7. **[6]**

b) What is simulation experiments? Discuss the factors affecting simulation. **[5]**

<div align="center">ℰ ℰ ℰ</div>

[4861]-24

F.Y. M.C.A. (Engineering Faculty)
MICROPROCESSOR APPLICATIONS
(2008 Course) (Semester-II) (510912)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1)   *From Section-I, answer (Q. 1 or Q. 2), (Q. 3 or Q. 4), (Q. 5 or Q. 6).*
2)   *From Section-II, answer (Q. 7 or Q. 8), (Q. 9 or Q. 10), (Q. 11 or Q. 12).*
3)   *Answers to the two sections should be written in separate answer books.*
4)   *Neat diagrams must be drawn wherever necessary.*
5)   *Figures to the right side indicate full marks.*
6)   *Assume suitable data if necessary.*

SECTION-I

Q1) a)   Explain the need to demultiplex the bus AD7-AD0.   **[4]**

b)   Explain the following: **[8]**

   i)   Tristate State Devices.

   ii)   Buffer.

   iii)   Bidirectional Buffer.

   iv)   Decoder.

OR

Q2) a)   Explain the concept of tri-state logic. Explain unidirectional and bidirectional buffer with neat diagram and truth table.   **[8]**

b)   What is program counter? How it is useful in program execution?   **[4]**

Q3) a)   Draw and explain Timing Diagram of MOV M, R instruction.   **[6]**

b)   Explain the execution of the following instructions with examples.   **[6]**

   i)   MOV Rd, Rs.

   ii)   MVI M, Data.

OR

Q4) a) Explain basic machine cycles of 8085 microprocessor. **[8]**

b) What is a Stack? Explain push and pop operation of stack using suitable example. **[4]**

Q5) a) Discuss interfacing with a matrix keyboard. **[7]**

b) Explain the functions of the RD(bar) & WR(bar) signals of the 8085 Microprocessor. **[4]**

OR

Q6) a) Write short note on: **[5]**

i) BSR mode

ii) I/O mode

b) Explain the I/O Interfacing Techniques of 8085 MPU. **[6]**

SECTION-II

Q7) a) Give details of hardware interrupt and software interrupt of 8085. **[8]**

b) What is necessity of Programmable Interval Timer. **[4]**

OR

Q8) a) Explain functional block diagram of 8253 with neat diagram. **[8]**

b) What do you mean by interrupt? What is ISR? What is the function of ISR. **[4]**

Q9) a) Draw and explain the programmer's model of 8086. **[8]**

b) What is purpose of addressing modes? Explain any three. **[4]**

OR

*Q10)*a)   Explain various registers in 8086.   **[4]**

   b)   Explain segmentation with neat diagram. What are the advantages of it?
                                                                                      [6]

   c)   What is pipelining?   **[2]**

Q11) a)   What do you mean by Directives? Explain any five 8086 language
           Directives.   **[7]**

   b)   List and explain the DOS Calls for displaying the character(s).   **[4]**

                                    OR

*Q12)*a)   Write an 8086 assembly language program to reverse 5 numbers in an
           Array.   **[8]**

   b)   Explain what is meant by BIOS calls. List and use of any 4 BIOS call.
                                                                                      [3]

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[4861]-25

F.Y.M.C.A. (Engg.)

MANAGEMENT INFORMATION SYSTEMS

(2008 Course) (Semester - II) (510913)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

　1)　Answers to the two sections should be written in separate answer books.

　2)　Neat diagrams must be drawn wherever necessary.

　3)　 Figures to the right indicate full marks.

　4)　Assume suitable data if necessary.

SECTION-I

Q1) a)　Define MIS discuss its role & importance in an organisation.　**[7]**

　　 b)　What are components and resources of information system?　**[5]**

OR

Q2) a)　Explain the broader classes of strategies.　**[7]**

　　 b)　Explain corporate planning.　**[5]**

Q3) a)　What is material management? Explain how MIS can be used in material management department.　**[8]**

　　 b)　Explain the concept of Enterprise Application Integration.　**[4]**

OR

Q4) a)　Explain cross functional Enterprise system with suitable example.　**[8]**

　　 b)　Discuss the role of MIS in banking sector.　**[4]**

Q5) a)　Discuss business process outsourcing & their challenges.　**[6]**

　　 b)　Explain ERP. What are benefits and challenges of ERP?　**[5]**

OR

Q6) a)　What do you mean by BPR? Explain the value stream model.　**[6]**

　　 b)　What do you mean by EMS? Explain various components of EMS. **[5]**

SECTION - II

Q7) a) Explain role of SCM and give its benefits. **[8]**

b) Write short note on Electronic Fund transfer. **[4]**

OR

Q8) a) Explain trends in CRM and its benefits. **[8]**

b) Explain the concept of electronic payment processing. **[4]**

Q9) a) Explain with neat diagram of various components of expert systems. **[8]**

b) Explain decision support systems. **[4]**

OR

Q10) a) Explain what-if analysis with suitable example. **[8]**

b) Write short notes on Artificial Intelligent Systems. **[4]**

Q11) a) Explain disaster recovery & elaborate on fault-tolerant system. **[7]**

b) Explain the ethical responsibilities of business professionals. **[4]**

OR

Q12) a) Explain biometric security.List the different hacking techniques. **[7]**

b) List the challenges involved in global management of IT. **[4]**

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[4861]-31

S.Y.M.C.A. (Engineering)
OPERATING SYSTEMS
(Semester-III) (2008 Pattern) (610901)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1)   Answers to the two sections should be written in separate answer books.

2)   Answer any three questions from each section.

3)   Neat diagrams must be drawn wherever necessary.

4)   Figures to the right side indicate full marks.

5)   Use of calculator is allowed.

6)   Assume suitable data if necessary.

SECTION-I

Q1) a)   Discuss briefly about language processor development tools?   **[6]**

  b)   Explain Analysis phase and Synthesis phase of language processing.**[6]**

OR

Q2) a)   What is assembler? Explain working of two pass assembler with the help of diagram.   **[6]**

  b)   What is a Macro? Explain Macro processor with the help of suitable diagram.   **[6]**

Q3) a)   Explain the absolute and relocating loader schemes.   **[6]**

  b)   Define terms.   **[6]**

    i)   Bootstrap compiler

    ii) Cross compiler

OR

Q4) a)   Discuss the different phases of compiler.   **[6]**

  b)   Explain the following term.   **[6]**

    i)   "Compile-and-Go" loader

    ii) General loader scheme

Q5) a) Explain process life cycle with the help of diagram. **[5]**

b) Explain preemptive priority process scheduling algorithm with the help of example. **[6]**

<p style="text-align:center">OR</p>

Q6) a) What are different scheduling criteria's? **[5]**

b) What is a scheduler? Explain various types schedulers. **[6]**

SECTION-II

Q7) a) What is noncontiguous memory allocation? Explain the concept of paging in detail. **[6]**

b) Explain the steps for handling page fault with the help of diagram. **[6]**

<p style="text-align:center">OR</p>

Q8) a) What is segmentation? Explain with suitable example. **[6]**

b) Explain the LRU page replacement algorithm with the help of example.**[6]**

Q9) a) Discuss the file system implementation in detail. **[6]**

b) Explain C-LOOK disk scheduling algorithm with the help of example.**[6]**

<p style="text-align:center">OR</p>

Q10) a) What are the different disk space allocation methods? Explain. **[6]**

b) Explain SSTF disk scheduling algorithm with the help of example. **[6]**

Q11) a) Explain components of Linux system with the help of suitable diagram.**[5]**

b) Explain any three process management system calls used in Linux. **[6]**

<p style="text-align:center">OR</p>

Q12) a) Explain basic structure of Linux file system with diagram. **[5]**

b) Explain the following terms. **[6]**

    i) Linux Kernel

    ii) Virtual file system in Linux

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[4861]-32

S.Y.M.C.A. - Engg.
DATABASES : CONCEPTS AND SYSTEMS
(2008 Course) (610902) (Semester - III)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data, if necessary.*

SECTION - I

Q1) a) Explain the various functional components of a DBMS with the help of a suitable diagram. **[6]**

    b) Explain the difference between physical and logical data independence.**[5]**

OR

Q2) a) How following problems of file system are handled with a DBMS? **[6]**

Data isolation, Data redundancy and inconsistency, Data integrity.

    b) Explain data abstraction in database system with suitable example. **[5]**

Q3) a) Consider a university database for the scheduling of classrooms for final exams. This database could be modeled as the single entity set exam, with attributes Course-name, section-number, room-number, and time. Alternatively, one or more additional entity sets could be defined, along with relationship sets to replace some of the attributes of the exam entity set, as **[6]**

- course with attributes name, department, and C-number
- section with attributes s-number and enrollment, and dependent as a weak entity set on course.
- room with attributes r-number, capacity, and building

Show an E-R diagram illustrating the use of all three additional entity sets listed.

b) What is mapping cardinality? Explain types of mapping cardinality with example. **[6]**

OR

Q4) a) Construct an E-R diagram for a car-insurance company whose customers own One or more cars each. Each car has associated with it zero to any number of Recorded accidents. **[6]**

b) Explain the difference constraints on specialization/generalization with suitable example. **[6]**

Q5) a) What is extension and intension relational model? List codd's rule. **[6]**

b) What is view in sql and how is it defined? Discuss the problem that may arise when one attempt to update a view. How views are typically implemented, explain with example. **[6]**

OR

Q6) a) What are the types of data integrity constraints? Explain primary key and foreign key constraint with example. **[6]**

b) What is a view? Explain insert, update and delete operations with respect to views. **[6]**

SECTION - II

Q7) a) Create a trigger for update of column Sal in table emp, which ensures that sal cannot be reduced. **[6]**

b) What is cursor? Explain implicit cursor with example. **[6]**

OR

Q8) a) Write a PL/SQL program to display sum of the salaries for all employees in the specified department. **[6]**

b) What is trigger? Explain statement level trigger and row level trigger with example. **[6]**

Q9) a) Describe the concept of full functional dependency and describe how this concept relates to 2NF. Provide an example to illustrate your answer. **[6]**

b) What is functional dependency? Explain transitivity dependency with example. **[6]**

OR

*Q10)*a) Consider a relation R with attributes A, B, C, D, E. You are given the following dependency: **[6]**

A->B, BC->E, ED->A

i)   List all key for R

ii)   Is R in 3NF

b) What is normalization? Describe the characteristics of a table in unnormalized form and describe how such a table is converted to first normal form. **[6]**

*Q11)*a) What are the type recovery techniques? Explain shadow paging technique. **[6]**

b) What is deadlock? Explain use of wait for graph technique for deadlock detection. **[5]**

OR

*Q12)*a) What is transaction? Explain ACID properties of transaction with example. **[6]**

b) What is schedule? Explain serializable schedule with example. **[5]**

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S.Y.M.C.A. (Engineering Faculty)
FINANCIAL ACCOUNTING AND MANAGEMENT
(2008 Pattern) (Semester - III)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answer any three questions from each section.*
2) *Answers to the two sections should be written in separate answer books.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Figures to the right indicate full marks.*
5) *Assume suitable data if necessary.*

SECTION - I

Q1) a) Explain the accounting Principles and Conventions?   **[6]**

b) What are objectives of financial statements?   **[6]**

OR

Q2) a) Journalize the following transaction: **[8]**

1   Shriram started business with cash Rs. 75000.

2   Purchase goods for cash Rs. 10000.

3   Sold goods for cash Rs. 7000.

4   Purchase machinery from M/s Hiralal bro. for cash Rs. 9200.

8   Sold goods to Madhuri Rs. 4200 on credit.

15   Paid rent Rs. 5500.

17   Received cash from Madhuri Rs. 4200.

20   Bought goods from Sudhakar Rs. 3000 on credit.

b) Write notes on Trial Balance?   **[4]**

Q3) a) Differentiate between variable overhead cost and fixed overhead cost.**[6]**

b) Explain the various financial ratios?   **[6]**

OR

Q4) a) From the following information relating to XYZ Pvt. Ltd., calculate the break-even point and the turnover required to earn a profit of Rs. 12,000/-

Fixed overhead Rs. 8400/-

Variable Overhead Rs. 8 per unit.

Selling price Rs. 20/- per unit.

If the company is earning a profit of Rs. 12,000/- what is the margin of safety available to it? **[8]**

b) Write note on Cash budget? **[4]**

Q5) a) Elaborate the following factors affecting the requirements of working capital: **[8]**

i) Nature of business.

ii) Business fluctuations.

iii) Operating cycle.

iv) Economies of scale.

b) Discuss the working capital policy in brief. **[3]**

OR

Q6) a) What is Working Capital? Explain the importance of working capital and types of working capital? **[8]**

b) What are current assets? How do they differ from fixed assets? **[3]**

SECTION - II

Q7) a) Explain different limitations of capital budgeting? **[6]**

b) Explain the process of Capital budgeting for any project? **[6]**

OR

Q8) Write short notes: (Any three) **[12]**

a) Payback period.

b) Concept of Future value.

c) Concept of capital expenditure.

d) Internal rate of return.

Q9) a) What are the various approaches to the estimate of overall cost of capital? Explain in brief? **[6]**

b) A share holder purchased a share of Rs. 100/-. For 5 years he received dividend at the rate of 10% per year. At the end of 5 years, he sold his share for Rs. 550/- What is his rate of return? **[6]**

OR

*Q10)*a) What is cost of capital? Why should a financial manager know the cost of capital of his firm? **[6]**

b) A company has issued 20 year bonds of Rs. 1000/- face value at Rs. 900/- each. Rate of interest is 10% and the tax rate for the company is 52%. The company has taxable profit. What is the cost of bond capital. **[6]**

*Q11)*a) How the different services of Tally 9.0 is useful to a finance manager?**[6]**

b) What are the Advantages and Disadvantages of computerized accounting system? **[5]**

OR

*Q12)*Explain following with suitable example: **[11]**

a) Features and significance of it in accounting.

b) How tally useful for debit and credit purpose.

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[4861]-34

S.Y. M.C.A. (Engg.)
COMPUTER COMMUNICATIONS & NETWORKS
(2008 Course) (Semester - III) (610904)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data if necessary.*

SECTION -I

Q1) a)   Explain any two Unguided Medias in short.   **[5]**

      b)   Write down difference between FDM, TDM & WDM.   **[6]**

OR

Q2) a)   Explain transmission modes with examples.   **[6]**

      b)   Write short note on -Satellite Orbit.   **[5]**

Q3) a)   Explain OSI model with their protocols.   **[6]**

      b)   Explain different Network Topologies.   **[6]**

OR

Q4) a)   Explain different switching techniques.   **[8]**

      b)   Explain Sliding window protocol with neat diagram.   **[4]**

Q5) a)   Write a short note on Ethernet.   **[6]**

      b)   Explain persistent & non persistent CSMA.   **[6]**

OR

Q6) a) Explain Bluetooth architecture with neat diagram. **[6]**

b) Explain Broadband Wireless. **[6]**

SECTION - II

Q7) a) Write down difference between Connection-oriented & Connectionless Services. **[6]**

b) What is purpose of ARP & RARP protocols? Explain with neat diagram. **[6]**

OR

Q8) a) Write short note on- Multicast Routing: IGMP. **[6]**

b) Explain Congestion prevention policies. **[6]**

Q9) a) Explain connection establishment using three way handshaking in TCP.**[6]**

b) Explain how TCP provides flow control mechanism. **[5]**

OR

*Q10)*a) Explain difference between UDP & TCP. **[6]**

b) What is socket? Explain various socket primitives used in client server interaction. **[5]**

*Q11)*a) Explain Browser architecture. **[6]**

b) Explain the working of HTTP. **[6]**

OR

*Q12)*a) Explain Email Architecture with different Scenarios. **[6]**

b) Write a short note on - FTP. **[6]**

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[4861]-35

S.Y. M.C.A. (Engg.)
PRINCIPLES OF MULTIMEDIA
(2008 Course) (Semester - III) (610905)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:
1) *Answers to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data if necessary.*

SECTION -I

Q1) a) What are the characteristics of Multimedia Presentation? Explain with the example. **[7]**

b) What do you mean by Multimedia Document Architecture? Explain in brief "SGML". **[4]**

OR

Q2) a) Explain with suitable examples multimedia building blocks and its role in development of web based multimedia applications. **[7]**

b) Write short note on "Multimedia Authoring Tools". **[4]**

Q3) a) Explain BMP and JPEG file format in detail. **[7]**

b) Explain Shannon Fano algorithm with an example. **[5]**

OR

Q4) a) Explain: Sampling and Quantization. How it effects the Quality of Image/ Sound. **[7]**

b) What are different steps of image recognition? Give an example. **[5]**

P.T.O.

Q5) a) List different elements of Audio system. Explain various types of Microphones. **[7]**

b) State different audio file formats? How are the I,P and B frames used in MPEG compression? **[5]**

OR

Q6) a) Explain WAV & MP3 file formats. **[6]**

b) Explain MIDI message formats. **[6]**

SECTION - II

Q7) a) What do you mean by CODEC? Explain the features of H.263. **[6]**

b) What are the different types of video editing? **[5]**

OR

Q8) a) What is compression? Compress the string "ABABBABCABABBA' using LZW compression technique. Calculate the compression ratio?**[7]**

b) Explain different Television broadcasting standards. **[4]**

Q9) a) What is VRML? Explain its features. **[6]**

b) What are the factors which affect the quality and usability of a virtual reality applications. Explain Briefly. **[6]**

OR

*Q10)*a) Explain different forms of virtual reality with one scenario example. **[6]**

b) Why does it take four nodes to make simple object in VRML and which are those? **[6]**

*Q11)*a) Explain method of motion control in animation. **[6]**

b) Explain following techniques of animation. **[6]**

   i) morphing

   ii) rotoscoping

   iii) masking

<div align="center">OR</div>

*Q12)*a) What do you mean by animation on web? Explain Client Pull/Server Push animation by example. **[8]**

b) Write short note on 3D Sound. **[4]**

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[4861]-41

S.Y.M.C.A. (Engg.)
SOFTWARE ENGINEERING
(2008 Course) (Semester-IV) (610909)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:
   1) Answer any 3 questions from each section.
   2) Answers to the two sections should be written in separate answer books.
   3) Figures to the right indicate full marks.
   4) Neat diagrams must be drawn wherever necessary.
   5) Assume suitable data, if necessary.

SECTION-I

Q1) a) What is software engineering? Explain generic process framework activities in software development. **[6]**

b) What is RAD process model? Give the advantages of RAD model over the other process model. **[6]**

OR

Q2) a) What is process pattern? Explain need of process assessment in software engineering. How process assessment can be achieved through different standard approaches? **[8]**

b) Explain the need of personal and team process model in software engineering. **[4]**

Q3) a) What is computer based system? Explain different elements of computer based system. **[7]**

b) Explain how to map generic framework activities in the essence of software engineering practices. **[5]**

OR

Q4) a) Describe "system engineering hierarchy". Explain how system modeling plays vital role in system engineering. **[6]**

b) Explain various communication practices which are need to be followed in software engineering. **[6]**

Q5) a) What is requirement engineering? Explain the steps that require to initiating requirement engineering process. **[6]**

b) Draw swim lane diagram for college library system which includes. **[5]**

- Student registers themselves with their details at library.

- Librarian issues books to student,

- Student verification, and updation of student details also done by librarian.

- User and roles management.

OR

Q6) a) What is requirement analysis? State and explain how requirement analysis model works as a bridge between system description and design model. **[7]**

b) Draw the use case diagram for above mentioned college library system.**[4]**

SECTION-II

Q7) a) How to evaluate user interface design? Explain design evaluation steps in detail. **[6]**

b) What is the need of software architecture? Explain architectural design in detail. **[6]**

OR

Q8) a) What is pattern based software design? Explain different views through which pattern based software design is implanted. **[6]**

b) How to translate analysis model into design model in design engineering? **[6]**

Q9) a) Explain smoke testing in detail. Give their advantages in testing. **[7]**

b) Give the difference between Verification and Validation. **[4]**

OR

Q10) a) What is white box testing? Explain control structure testing. **[5]**

b) What is fault based testing? Give the limitations of fault based testing and also explain how to overcome it. **[6]**

Q11) a) Explain Goal-Question -Metric paradigm. **[5]**

b) Explain Albrecht's function point metric in analysis model. **[7]**

OR

Q12) a) What is software quality? Explain in detail different factors that are contributed in software quality. **[7]**

b) Write a short note on: " Metric for Object oriented design". **[5]**

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[4861]-42

S.Y. M.C.A. (Engineering)
WEB TECHNOLOGY
(2008 Course) (Semester - IV) (610910)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

    1)   Neat diagrams must be drawn wherever necessary.

    2)   Figures to the right side indicate full marks.

    3)   Assume suitable data, if necessary.

SECTION - I

Q1) a)   Explain 1, 2 and 3 tier architecture stating each tiers advantages and disadvantages. **[6]**

    b)   Discuss the various web technologies that make e commerce successful. **[6]**

OR

Q2) a)   Discuss web space registration. **[6]**

    b)   Explain the various components of web technologies. **[6]**

Q3) a)   Discuss style sheets and its types with examples. **[6]**

    b)   Discuss HTML Document Structure. **[6]**

OR

Q4) a)   Explain various attributes in tables element with an example. **[6]**

    b)   Explain frames and its attributes. **[6]**

Q5) a)   Discuss the features of VB Script. **[5]**

    b)   Write a VB script function that is called on the click of a button to display the list of first 10 prime numbers. **[6]**

OR

Q6) a) What are the benefits of DHTML? **[5]**

b) Write a VB script function that is called on the click of a button to display the list of first 10 numbers of a Fibonacci series. **[6]**

SECTION - II

Q7) a) Discuss the features of Java Script. **[5]**

b) Write a Java script function that is called on the click of a button to validate the correctness of input integer number. **[6]**

OR

Q8) a) Discuss objects of Java Script. **[5]**

b) Write a Java script function that is called on the click of a button to validate the correctness of input string field. **[6]**

Q9) a) Explain JSP Architecture with a neat and labeled diagram. **[6]**

b) Write a sample AJAX code to explain the XMLHttpRequest object. **[6]**

OR

*Q10)*a) Write a JSP code to save user details like user name and user address in the database. **[6]**

b) Explain the working of AJAX with a neat and labeled diagram. **[6]**

*Q11)*Write a note on the following: **[12]**

a) ASP Objects

b) .NET Framework

c) ASP .NET features

OR

*Q12)*Write a note on the following: **[12]**

a) Server controls

b) Connection object

c) ASP language features

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[4861]-43

S.Y. M.C.A. (Engineering)
OBJECT ORIENTED ANALYSIS AND DESIGN
(2008 Course) (Semester-IV) (Backlog)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:
  1)   Answers to the two sections should be written in separate answer books.
  2)   Neat diagrams must be drawn wherever necessary.
  3)   Figures to the right side indicate full marks.
  4)   Assume suitable data if necessary.

SECTION-I

Q1) a) What is model driven architecture? **[6]**

b) In brief explain goals and features of UML. **[6]**

OR

Q2) a) Explain Rational Unified Process with all its phases. **[6]**

b) Illustrate 4+1 View architecture diagram. **[6]**

Q3) a) Show how Extensibility mechanism can be used to extend UML through appropriate examples. **[6]**

b) Write a short note on: **[6]**

  i)   OCL.

  ii) UML metamodel.

OR

Q4) a) What do you mean that some UML diagrams show behavior of system? **[6]**

b) Explain the benefits of using UML. **[6]**

Q5) a) A customer visits the online shopping portal. A customer may buy item or just visit the page and logout. The customer can select a segment, then a category, and brand to get the different products in the desired

brand. The customer can select the product for purchasing. The process can be repeated for more items. Once the customer finishes selecting the product/s the cart can be viewed, if the customer wants to edit the final cart it can be done here. For final payment the customer has to login the portal, if the customer is visiting for the first time he must register with the site, else the customer must use the login page to proceed. Draw the Class case Diagram as per above the assumption. **[6]**

    b) Show the format of CRC card used in analysis phase. **[5]**

<div align="center">OR</div>

Q6) a) Compare with concepts/examples: **[6]**

       i) Aggregation and composition in class diagrams.

       ii) Passive objects and active objects.

    b) What is the need for a composite structure diagram? **[5]**

<div align="center">

SECTION-II

</div>

Q7) a) Describe use of frame and lifeline in UML Sequence diagram. **[6]**

    b) Write a short note on interaction diagram. **[6]**

<div align="center">OR</div>

Q8) a) Draw communication diagram for buying a product from vending machine. Make suitable assumptions. **[6]**

    b) Explain different combined fragments used in sequence diagram with example. **[6]**

Q9) a) Explain fork and join with an example. **[6]**

    b) Explain concepts and notation through simple examples for following lerns in UML: **[6]**

       i) Activity   ii) Action

       iii) Concurrent states   iv) Object flow

<div align="center">OR</div>

*Q10)*a) Draw timing diagram by considering different scenario for washing machine. **[6]**

b) What is activity diagram? Explain with example. **[6]**

Q11) a) When do you model component diagrams? **[5]**

b) Describe commercial application of UML. **[6]**

OR

*Q12)*a) Write note on 'Applications of UML in embedded systems'. **[5]**

b) What is the need of package diagram? Explain with example. **[6]**

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S.Y.M.C.A. (Engineering)
JAVA PROGRAMMING
(Semester-IV) (2008 Course) (610912)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*
2) *Answer any three questions from each section.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Figures to the right side indicate full marks.*
5) *Use of calculator is allowed.*
6) *Assume suitable data if necessary.*

SECTION-I

Q1) a) What is interface? Explain with example.   **[6]**

   b) What are vectors? How they are different from arrays.   **[6]**

OR

Q2) a) Why java is platform independent.   **[6]**

   b) Explain the exception handling block of java.   **[6]**

Q3) a) Explain the Box Layout in detail with example.   **[6]**

   b) Explain with code to show the creation of menu in java.   **[6]**

OR

Q4) a) Write a short note on JScrollPane   **[6]**

   b) Explain Frames, Window and Panels in java.   **[6]**

Q5) a) Write an applet to display a bouncing ball.   **[6]**

   b) Write a short note on applet life cycle.   **[5]**

OR

Q6) a) What is difference between a java application (Standalone) and java applet? Explain the life cycle of an applet. **[6]**

b) List and explain the various attributes of <APPLET> tag. **[5]**

SECTION-II

Q7) a) List and explain the constructors and functions of BufferedReader class.**[6]**

b) Differentiate between text and binary file formats. **[6]**

OR

Q8) a) Explain the various types of error that are encountered while file stream handling? How they are handled? **[6]**

b) List and explain subclasses of Input Stream and Outputstream classes.**[6]**

Q9) a) Explain with example resultSetMetaData class. **[6]**

b) Explain the various JDBS drivers. **[6]**

OR

Q10) a) Write a program which read student details (rollno, name, percent etc) and store this data in Student table of oracle database. **[6]**

b) Differentiate between JDBC and ODBC. **[6]**

Q11) a) Explain the Network Exceptions. **[6]**

b) How TCP and UDP are implemented in java? **[5]**

OR

Q12) a) Write a program to create a chat server in java? **[6]**

b) What is internet addressing? Explain Inetaddress class. **[5]**

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[4861]-45

S.Y.M.C.A. (Engg.)
1-HUMAN COMPUTER INTERFACE
(2008 Course) (610913) (Semester - IV) (Elective-I)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

    1)   From Section-I, answer (Q1 or Q2) and (Q3 or Q4) and (Q5 or Q6).

    2)   From Section-II, answer (Q7 or Q8) and (Q9 or Q10) and (Q11 or Q12).

    3)   Answers to the two sections should be written in separate answer books.

    4)   Neat diagrams must be drawn wherever necessary.

    5)   Figures to the right side indicate full marks.

    6)   Assume suitable data if necessary.

SECTION-I

Q1) a) What are different Human factors that are to be considered while designing the user interface? Explain with the help of suitable examples. **[6]**

    b) What is reasoning? Explain different type of reasoning with example. **[5]**

<div align="center">OR</div>

Q2) a) Explain the goals of user interface design. **[6]**

    b) Explain the similarities and differences in human memory and computer memory? **[5]**

Q3) a) Explain EIGHT golden rules of interface design. Give suitable examples to justify your answer. **[6]**

    b) Explain how GOMS and the keystroke-Level Model support the interaction design process. **[6]**

<div align="center">OR</div>

Q4) a) With help of Norman's Model of interaction explain the process of execution evaluation cycle. What is meant by gulf of execution and gulf of evaluation with respect to this model? **[6]**

    b) Explain any three interaction styles with advantages and disadvantages. **[6]**

Q5) a) State and explain three pillars of interface design process. **[6]**

   b) What is participatory design? Explain with suitable example. **[6]**

<div align="center">OR</div>

Q6) a) Explain the best practices in screen design. **[6]**

   b) Explain the design process used for designing an application for senior citizens. **[6]**

<div align="center">

SECTION - II

</div>

Q7) a) Explain with valid examples how alignment and use of white spaces in text matter in designing layouts of screens in a user interface. **[6]**

   b) What is navigation design? Explain with suitable examples? **[5]**

<div align="center">OR</div>

Q8) a) What is acceptance test for Usability? What is an expert review? **[6]**

   b) Explain the different types of menus with example. **[5]**

*Q9)*a) Explain an importance of hypertext over linear paper document. List important considerations for creating good hypertext document. **[6]**

   b) Explain what is meant by command organization strategies. **[6]**

<div align="center">OR</div>

Q10) Explain how CSCW systems are useful for co-operative working in detail.**[12]**

Q11) Explain the seven tasks in information visualization. **[12]**

<div align="center">OR</div>

Q12) Propose and discuss some ways the web may be made more accessible to the visual impaired either through browser design or web page design. **[12]**

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[4861]-46

S.Y.M.C.A. (Engg Faculty)
ORGANIZATIONAL BEHAVIOUR
(Semester-IV) (2008 Course) (610913) (Elective-I)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:
1) *Answer to the two sections should be written in separate answer books.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data if necessary.*

SECTION-I

Q1) a) What is perception? Explain factors influencing perception. **[6]**

b) Explain Goal setting and Reward system. **[6]**

OR

Q2) a) Explain primary and secondary motives with suitable example. **[6]**

b) Write a note on competency. **[6]**

Q3) a) Does motivation come from within a person or is it a result of the situation. **[6]**

b) Define stress? What are the sources of stress? **[6]**

OR

Q4) a) Explain Masolw's theory of hierarchy of needs. **[6]**

b) Do you think competition and conflict are different? Explain. **[6]**

Q5) a) Explain how to handle levels of conflicts in an organization? **[6]**

b) Define the term Group Dynamics and discuss its importance. **[5]**

OR

P.T.O.

Q6) a) How are opportunities, constraints, and demands related to stress? Give an example of each. **[6]**

b) Explain factors influencing Human Resource planning in organization.**[5]**

SECTION-II

Q7) a) Explain the various organizational structures in detail. **[6]**

b) Define leadership and explain importance of leadership to the organization.**[6]**

OR

Q8) a) Write a short note on organization culture. **[6]**

b) Write a short note on Hersey & Blanchard's theory of leadership. **[6]**

Q9) a) Write short note on. **[6]**

i) Constructive conflicts.

ii) Destructive conflicts.

b) What is relation of re-engineering with empowerment? **[6]**

OR

*Q10)*a) Write short note on. **[6]**

i) Resistance to change.

ii) Response to change.

b) Compare traditional Vs Modern view of conflict. **[6]**

*Q11)*a) Explain Learning organization **[5]**

b) Write short note on: **[6]**

i) Benchmarking

ii) Downsizing

OR

*Q12)*Explain various aspects of Quality? What is Total Quality Management? What are the benefits of TQM? **[11]**

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[4861]-51

T.Y.M.C.A. (Engg.)

PRINCIPLES AND PRACTICES FOR IT PROJECT MANAGEMENT

(Semester-V) (2008 Course) (710901)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

   1)   *Answer 3 questions from section-I and 3 questions from section-II.*

   2)   *Answer to the two sections should be written in separate answer books.*

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

   4)   *Figures to the right indicate full marks.*

   5)   *Assume suitable data if necessary.*

SECTION-I

Q1) a)   What is the nature and purpose of management? **[6]**

    b)   Explain the difference between software development life cycle and project life cycle. **[6]**

OR

Q2) What are the different roles played by managers? Also explain the importance of management. **[12]**

Q3) a)   What are the functions of IT in functions like store and purchase? **[6]**

    b)   Write a short note on quality control and marketing? **[6]**

OR

Q4) a)   How information technology can be applied in product design and development? **[6]**

    b)   Give case study of insurance? **[6]**

Q5) a)   What are the risks associated with Project Identification and Classification?**[6]**

    b)   How to create work breakdown structure? **[5]**

OR

P.T.O.

Q6) a) What are the ways to gather the project information? **[6]**

b) What is Project Estimation? **[5]**

SECTION-II

Q7) a) Write a note on Project Network Diagram with suitable example. **[6]**

b) Write a short note on the implementation of project change. **[6]**

OR

Q8) a) How to organize a Project Team. **[6]**

b) Explain following. **[6]**

i) Accessing internal scales

ii) Creating a team

Q9) a) What are formal technical reviews for teams? **[6]**

b) Explain: **[6]**
i) Energy Audit

ii) Energy management

OR

Q10) a) What is the team bonding? **[6]**

b) Discuss group dynamics with the theory of group formation. **[6]**

Q11) a) What is the concept of change management with example? **[5]**

b) What are the different Intellectual Property Rights? **[6]**

OR

Q12) a) Explain in detail at least three Modern approaches to management? **[6]**

b) Traditional Vs Modern view of conflict? **[5]**

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[4861]-52

T.Y.M.C.A. (Engg.)
COMPUTER GRAPHICS
(2008 Course) (Semester - V) (710902)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*

2) *Neat diagrams must be drawn wherever necessary.*

3) *Figures to the right side indicate full marks.*

4) *Assume Suitable data if necessary.*

SECTION - I

Q1) a) Write a short note on Character generation using stroke principle. **[6]**

     b) Explain the Vector generation. **[5]**

OR

Q2) a) Explain the use of Bit Map Method. **[6]**

     b) Explain the Display File Structure. **[5]**

Q3) a) Explain inverse transformation and derive the matrix for inverse transformation for scaling. **[6]**

     b) Explain the Edge fill algorithm. **[6]**

OR

Q4) a) Explain 2-D Rotation transformations with homogeneous coordinates.**[6]**

     b) Explain the filling of patterns inside a polygon. **[6]**

Q5) a) Explain the Liang Barsky algorithm for line clipping. **[6]**

     b) Give the Segment table structure and explain various data structures used to implement the segment table. **[6]**

OR

Q6) a) Why is segment used? How it is implemented using different data structures? **[6]**

b) Explain 2D Midpoint subdivision algorithm for line clipping. **[6]**

SECTION - II

Q7) a) Write a short note on Viewing Transformation. **[6]**

b) Describe 3D viewing parameters. **[6]**

OR

Q8) a) What are the Parallel and perspective projection? Give the classification of both. **[6]**

b) Explain midpoint subdivision algorithm for 3D clipping. **[6]**

Q9) a) Explain Warnock's Algorithm. **[6]**

b) Describe Point Source Illumination. **[5]**

OR

Q10) a) What is specular Reflection? Explain with proper diagram. **[6]**

b) Explain Painter's Algorithm. **[5]**

Q11) a) Explain fractals? How are they classified? **[6]**

b) Explain properties of Bezier curve. **[6]**

OR

Q12) a) Explain fractals. What are Fractal Lines and Fractal Surfaces? **[6]**

b) Explain Real-Time Animation. What is morphing? **[6]**

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[4861]-53

T.Y.M.C.A. (Engg.)
ADVANCED DATABASES
(Semester-V) (2008 Course) (710903)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

    1)   *Answers to the two sections should be written in separate answer books.*

    2)   *Neat diagrams must be drawn wherever necessary.*

    3)   *Figures to the right side indicate full marks.*

    4)   *Assume suitable data if necessary.*

SECTION-I

Q1) a)   Let relations r1(A,B,C) and r2(C,D,E) have the following properties. r1 has 20000 tuples, r2 has 45000 tuples, 25 tuples of r1 fit on one block and 30 tuples of r2 fit on one block. Estimate the number of block accesses required using nested loop join. **[6]**

     b)   Discuss the linear search algorithm. **[6]**

<p align="center">OR</p>

Q2) Answer the following in short. Each answer carries 2 marks. **[12]**

     a)   What is the work done by parsing phase in processing a query?

     b)   Which factors are considered for measuring the cost of query processing?

     c)   What are indices in detabase?

     d)   What is the expression to calculate the cost of binary search?

     e)   What are the steps in duplicate record elimination?

     f)   What is the concept behind hash join?

Q3) a)   Discuss distributed database architecture. **[6]**

     b)   Explain data servers and its issues. **[6]**

<p align="center">OR</p>

Q4) a) Discuss Parallel Systems. **[6]**

b) What are the implementation issues in case of distributed databases? **[6]**

Q5) a) A college maintains a database for students and teachers. A database schema is as given below. **[6]**

name: f_name, m_init, l_name

address: street_no, city, state, zipcode

candidate: name, address, date_of_birth

employee: candidate, department, designation, date_of_joining, salary

manager: employee, number_of_employees

Construct an SQL:1999 schema definition for this database. Use inheritance where appropriate.

b) Explain nesting and unnesting with an example. **[5]**

OR

Q6) a) Explain type and table inheritance with an example. **[6]**

b) Write short note on persistent programming language. **[5]**

SECTION-II

Q7) a) Discuss the characteristics of data warehouse. **[6]**

b) Explain the schema for multidimensional databases. **[6]**

OR

Q8) a) With a neat and labeled diagram, explain the data-warehouse architecture. **[6]**

b) Explain the need for data preprocessing. **[6]**

Q9) a) Discuss the statistical distribution based outlier detection. **[4]**

b) What is clustering? Explain k means algorithm with a suitable example. **[7]**

OR

Q10) a) Discuss classification and state the benefits of decision tree. **[6]**

b) Discuss the various text mining approaches. **[5]**

Q11) Answer the following in short.Each answer carries 3 marks.   **[12]**

    a)   What are synonyms and homonyms?

    b)   What is similarity based retrieval?

    c)   What are web search engines?

    d)   What is page ranking?

<div align="center">OR</div>

Q12) Answer the following in short. Each answer carries 3 marks.   **[12]**

    a)   What is popularity ranking?

    b)   What are synonyms and ontologies?

    c)   What is document indexing?

    d)   What are the two approaches for relevance ranking using terms?

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[4861]-54

T.Y. M.C.A. (Under Engineering Faculty)
ENTERPRISE RESOURCE PLANNING
(2008 Course) (Semester - V) (710904)

Time : 3 Hours]   *[Max. Marks :70*

Instructions to the candidates:

   1)   *Neat diagrams must be drawn wherever necessary.*

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

   3)   *Use of probability table, electronic pocket calculator is allowed.*

   4)   *Assume suitable data if necessary.*

Q1) a)   Explain the importance of integration in ERP package. How it is achieved in ERP Package?   **[6]**

    b)   List and explain the tangible benefits of ERP.   **[6]**

OR

Q2) a)   ERP is first an attitude, then a system. What changes this statement expect from the employees of organization to make ERP implementation successful?   **[6]**

    b)   How ERP improves organization's competitiveness? Explain with suitable example.   **[6]**

Q3) a)   Who are the people involved in the implementation of ERP system? why is it a critical ERP implementation success factor?   **[6]**

    b)   Discuss the success factors of ERP implementation.   **[6]**

OR

Q4) a)   What are the most common reasons for ERP implementation failures?**[6]**

    b)   List and explain ERP implementation strategies.   **[6]**

Q5) What are the basic reasons behind resistance to change by the end users? How to reduce resistance created by end users?   **[11]**

OR

Q6) Explain the roles, duties and responsibilities of the people involved in implementing the ERP system. **[11]**

Q7) a) Explain the selection criteria for ERP Package. **[6]**

b) Explain the importance of customization and training during ERP implementation? **[6]**

OR

Q8) a) Why do organizations preferred to use readymade package instead of developing in house ERP package? **[6]**

b) Explain the role of vendor, consultant and end-users in ERP package implementation. **[6]**

Q9) a) Explain the design and customization issue for ERP package. **[6]**

b) Explain the importance of SCM, CRM, BPR as a front end tool of ERP package. **[6]**

OR

Q10) a) Define and explain the terms data warehousing, data mining with example. **[6]**

b) List major modules of ERP. Explain any one module in detail. **[6]**

Q11) Explain in detail the impact of legacy system, third party software, business process on ERP customization. **[11]**

OR

Q12) Explain with example how ERP brings standardization & agility in the organization. **[11]**

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SEAT No. :

[Total No. of Pages :3

[4861]-55

T.Y. M.C.A. (Engineering Faculty)
1-SOFTWARE TESTING
(2008 Course) (Elective -II) (Semester - V) (710905)

Time : 3 Hours] *[Max. Marks :70*
Instructions to the candidates:
1) *Answer 3 questions from section - I and 3 questions from section - II.*
2) *Answers to the two sections should be written in separate books.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Assume suitable data if necessary.*

SECTION -I

Q1) a)   What are direct and indirect measurements? **[4]**

b)   Explain four principles of investigation. **[4]**

c)   Explain various measurement scales. **[4]**

OR

Q2) a)   Explain process of data collection and how data is classified. **[6]**

b)   Explain representation theory of measurement in detail. **[6]**

Q3) a)   Explain concept of modularity and information flow attribute with example. **[6]**

b)   Explain aspects of software size in detail. **[5]**

OR

Q4) a)   What are class, object and method with respect to object oriented metrics? **[5]**

b)   Write short notes on (any 2): **[6]**

i)   COCOMO II

ii) De Marco's Approach

iii) Morphology

P.T.O.

Q5) a) Explain all components of test plan with proper explanation. **[8]**

b) What is meant by testing defects? Explain in brief. **[4]**

OR

Q6) a) Explain organization structure of testing team in detail. **[6]**

b) Write short notes on: **[6]**

    i) Origin of Defects

    ii) Test Suite

    iii) Test Case

SECTION - II

Q7) a) Elaborate "White box test case design approach - Coverage". **[6]**

b) Explain McCabe's Cyclomatic Complexity with example in detail. **[6]**

OR

Q8) Write short note on (any 3): **[12]**

    a) Requirement based Testing

    b) Regression Testing

    c) Equivalence partitioning with example

    d) Compatibility Testing

Q9) Write short note on (any 3): **[12]**

    a) Unit Testing

    b) Integration Testing

    c) Adhoc testing

    d) GUI Testing

OR

*Q10)*a)   Explain various components of GUI checklist.   **[6]**

b)   Explain Software test Automation and its need.   **[6]**

*Q11)*a)   Explain the process of customer reporting a problem in detail.   **[5]**

b)   Explain the challenges and best practices which should be followed during problem reporting phase.   **[6]**

OR

*Q12)*a)   What are different modes of delivery of patch bundles?   **[5]**

b)   Explain activities in Problem Resolution and severity of the problem in detail.   **[6]**

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[4861] - 56

T.Y. M.C.A. (Engg. Faculty) (Semester - V)
Neural Network & Fuzzy Logic (Elective - II)
(2008 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answers to the two sections should be written in separate answer books.*
2) *Answer any three questions from each section.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Figures to the right side indicate full marks.*
5) *Assume Suitable data if necessary.*

SECTION - I

Q1) a) Define learning rule? Demonstrate-using an example to conclude the comparison between the supervised and unsupervised learning algorithm? **[6]**

b) Comment on different types of learning in neural network. **[6]**

OR

Q2) a) Describe McCulloch-Pitts neuron model in detail. **[6]**

b) Explain the major difference between a conventional (serial) computer and a neural network. **[6]**

Q3) a) Give the comparison between the radial basis-function network and the multilayer perceptron? Train the home made robot using recurrent back propagation algorithm. **[6]**

b) Explain how the delta rule is used to adjust the weights of Adaline network.**[6]**

OR

Q4) a) What is an Activation function? Explain Sigmoidal function in detail.**[6]**

b) Define Bias, Weight, Learning rate and Momentum factor. **[6]**

Q5) a) What do you mean by error back propagation? How weights are updated during training process? Discuss the significance of learning constant and momentum term in back propagation traning. **[7]**

b) What are different Expert System applications? **[4]**

OR

Q6) a) Discuss the training procedure of Kohenan policy? How to build prior Information in neural networks? **[7]**

b) Explain Back-Propagation algorithm in detail. **[4]**

SECTION - II

Q7) Differentiate fuzzy set from classical set and name the properties of classical set. **[12]**

OR

Q8) Explain the operation of fuzzy set with suitable example. **[12]**

Q9) a) Write short notes on **[6]**

    i) Advantages of fuzzy logic control over the artificial neural networks.

    ii) Limitation of the recurrent back propagation algorithm.

b) Discuss conditional fuzzy proposition and unconditional fuzzy proposition. **[6]**

OR

Q10) a) Write short notes on **[6]**

    i) Adaptive Resonance Theory.

    ii) Hopfield Networks

b) What are the rules based format used to represent the fuzzy information? **[6]**

Q11) a) What are fuzzy implications ? Explain with example. **[6]**

b) Explain Categorical and Qualitative reasoning in detail. **[5]**

OR

Q12) a) Compare between probability theory and possibility theory. **[6]**

b) Explain theory of approximate reasoning. **[5]**

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