

**[4366] - 101**  
**FY MCA(Engg. Faculty)**  
**PROBLEM SOLVING AND PROGRAMMING IN C**  
***(Semester - I) (2008 Pattern) (510901)***

***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) *Solve Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section -I and Q7 or Q8, Q9 or Q10, Q11 or Q12 from Section -II*
- 5) *Assume Suitable data if necessary.*
- 6) *Steps of Hand running must be shown wherever output of program is asked*

## SECTION I

- Q1) a) Explain the Concept of Program verification with Suitable example. [6]  
b) Develop an algorithm to compute the sum of the first n terms ( $n \geq 1$ ) of series [6]  
 $s = 1 - 3 + 5 - 7 + 9 \dots$

**OR**

- Q2) a) What constraints should be considered for efficiency of algorithms? [6]  
b) Write an algorithm to display all the Fibonacci numbers below 50. [6]

- Q3) a) What do you mean by Operator Precedence and Associativity? Explain it with suitable example. [6]
- b) (i) Write a syntax for -- for, while and do..while loop. [3]  
Distinguish between While and do..while loop.  
(ii) What will be output if you will execute following c code?

```
#include<stdio.h>
```

```
int main() {
```

```
int i;
```

```
for(i=0;i<5;i++){
```

```
int i=10;
```

```
printf("%d",i);
```

$$\{i++;\}$$

```
return 0;}
```

**OR**

- Q4) a) Define iteration and recursion. Mention the difference between them with an example. [6]
- b) Write a program to read in 10 numbers and compute the average, maximum and minimum values. [6]

Q5) a) What will be output of the following C code with justification: [6]

i) `#include<stdio.h>`

```
void main () {  
    char arr[11]="The African Queen";  
    printf("%s",arr);}
```

ii) `#include<stdio.h>`

```
void main () {  
    int xxx[10] = {5};  
    printf("%d%d",xxx[1],xxx[9]);}
```

b) Write a C program to Find last occurrence of character c in string without using string library function. [5]

**OR**

Q6) a) Explain any three string library functions used in C with basic syntax and suitable example. [6]

b) Write a C program to multiply two matrices. [5]

## SECTION II

Q7) a) Explain the concept of local and global variables with suitable examples. [6]

b) What is the output of following program segment? [6]

```
main {  
    int a, b, *p1, *p2, x, y, z;  
    a = 12; b = 4;  
    p1 = &a;  
    p2 = &b;  
    x = *p1 * *p2 - 6;  
    y = 4 * - *p2/*p1 + 10;  
    printf("Address of a = %u\n",p1);  
    printf("Address of b = %u\n",p2);  
    printf("a = %d, b=%d\n",a,b);  
    printf("x = %d, y=%d\n",x,y);  
    *p2 = *p2+3;  
    *p1 = *p2-5;  
    z = *p1 * *p2-6;  
    printf("a = %d, b = %d\n",a,b);  
    printf("z = %d\n", z);  
}
```

**OR**

Q8) a) Explain Function pointer & Null Pointer with example.

- b) Write a C program for addition of two matrices  $A_{m \times n}$  and  $B_{m \times n}$  [4]  
Use Dynamic memory allocation. [4]

- Q9) a) Distinguish between the following: [6]  
i) Array and structure.  
ii) Structure and Union  
b) Write a C program to find maximum value from given two integers using macro with parameters. [6]

**OR**

- Q10) a) What is union ? Create a union with three data elements initialize it and display it. [6]  
b) Define a macro to compute volume of cube. Write a program using this macro to compute the volume of cube. [6]

- Q11) a) Write a difference between Text file and Binary file. [4]  
b) Write a C program to count number of spaces, number of lines and number of characters in a given text file. [7]

**OR**

- Q12) a) Write a short note on the followings: [4]  
i) Error handling.  
ii) Redirection.  
b) Write a program to accept two file name using command line and copy the content of one file into another file. [7]

**[4366]- 102**  
**F.Y.M.C.A. (Engg. Faculty)**  
**DISCRETE MATHEMATICS**  
**(Semester - I) (2008 Pattern) (510902)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks :70**

**Instructions to the candidates:**

- 1) Answers any three questions from each section**
- 2) Answers to the two sections should be written in the two separate answer sheets.**
- 3) Figures to the right side indicate full marks.**
- 4) Assume Suitable data if necessary.**

**SECTION I**

- Q1) a) It was found that in FY out of 80 students 50 know „C’ language 55 know „JAVA” and 25 know “COBOL” while 8 did not know any language, [6]  
Find: i) How many know all three languages.  
ii) How many know exactly 2 languages.
- b) Prove that  $5+10+15+\dots+5n=5n(n+1)/2$  [6]

**OR**

- Q2) a) Prove the following by using the Venn diagram [6]  
i)  $A \cap B \oplus C = (A \cap B) \oplus (A \cap C)$   
ii)  $(A - B) - C = A - (B \cup C)$
- b) Obtain the C.N.F. & D.N.F of the following: [6]  
i)  $p \iff q (\sim p \vee \sim q)$   
ii)  $(p \vee \sim q) \implies q$

- Q3) a) Write the following statements in symbolic form, using quantifiers. [6]  
i) All students have taken a course in communication skills.  
ii) There is girl student in the class who is a sport person.  
iii) Some students are intelligent, but not hardworking.
- b) Find the logical equivalence form of the following: [5]  
 $(p \iff (q \vee r)) \implies \sim p$

**OR**

- Q4) a) For the universe of all integers, let P(x), Q(x),R(x), S(x) and T(x) be the [5]  
following statements:  
P(x) :  $x > 0$   
Q(x) : x is even  
R(x) : x is a perfect square  
S(x) : x is divisible by 4  
T(x) : x is divisible by 5

Write the following statements in symbolic form:

- i) At least one integer is even.
- ii) There exists a positive integer that is even.

- iii) No even integer is divisible by 5.  
 iv) There exists an even integer divisible by 5.  
 v) If  $x$  is even and  $x$  is perfect square, then  $x$  is divisible by 4.
- b) Functions  $f, g, h$  are defined on a set [6]  
 $X = \{1, 2, 3\}$  as  
 $f = \{(1, 2), (2, 3), (3, 1)\}$   
 $g = \{(1, 2), (2, 1), (3, 3)\}$   
 $h = \{(1, 1), (2, 2), (3, 1)\}$   
 i) find  $f \circ g, g \circ f$  are they equal?  
 ii) Find  $f \circ g \circ h$  and  $f \circ h \circ g$ .

- Q5) a) Among 130 students, 60 study Mathematics, 51 study Physics and 30 study both Mathematics and Physics. Out of 54 students studying Chemistry, 26 study Mathematics, 21 study Physics and 12 study both Mathematics and Physics. All the students studying neither Mathematics nor Physics are studying biology. [6]  
 Find.  
 i) How many are studying Biology?  
 ii) How many not studying Chemistry are studying Mathematics but not Physics?  
 iii) How many students are studying neither Mathematics nor Physics nor Chemistry?
- b) Two dice are rolled together. Event A denote that the sum of the numbers on the top faces is even and event B denotes that there is a 4 on at least one of the top faces. Find  $P(A \cup B)$  and  $P(A \cap B)$ . [6]

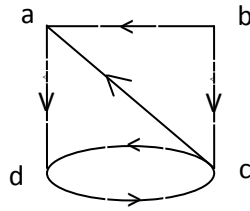
**OR**

- Q6) a) Suppose repetition are not possible [6]  
 1) How many three digit numbers can be formed from six digits 2, 3, 4, 5, 7, & 9?  
 2) How many of these numbers are less than 400?  
 3) How many are even?  
 4) How many are multiple of 5?
- b) Explain the following terms: [6]  
 1) Rule of Product and Rule of Sum  
 2) Sample space, sample point, event with example.

## SECTION II

- Q7) a) Use Warshall's algorithm to find transitive closure of the relation [6]  
 $R = (1, 2)(1, 3)(1, 4)(2, 3)(2, 4)(3, 4)$  on  $A = \{1, 2, 3, 4\}$

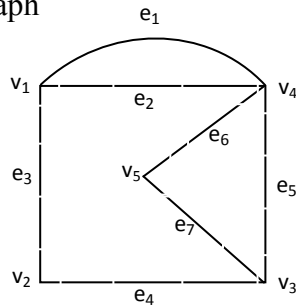
- b) Use Warshall's algorithm to find transitive closure of the relation R whose diagram is shown as below. [5]



**OR**

- Q8) a) Let the functions F and G will be defined by [5]  
 $F(x)=2x+1$  and  $G(x)=x^2-2$   
 Find i)  $\text{gof}(a+3)$  ii)  $\text{fog}(a+3)$  iii)  $\text{fog}(5)$
- b) Determine whether each of these functions from  $\{a, b, c, d\}$  is it self is one – to – one. [6]  
 $f(a)=b, f(b)=a, f(c)=c, f(d)=d$   
 $f(a)=b, f(b)=b, f(c)=d, f(d)=c$   
 $f(a)=d, f(b)=b, f(c)=c, f(d)=d$

- Q9) a) Define the following terms: [6]  
 i) Regular graph & full bipartite graph.  
 ii) Isomorphic graphs  
 iii) Complete graph  
 iv) Hamiltonian circuit  
 v) Simple graph and Multigraph  
 vi) Eulerian Circuit
- b) Consider the following graph and find out incidence matrix and Adjacency matrix of a graph [6]



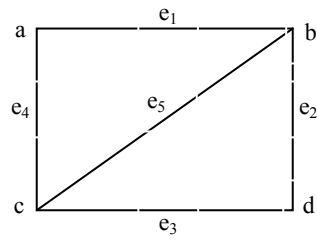
**OR**

- Q10) a) Draw the following graphs: [6]  
 i) Complete graph with 4, 7, 10 vertices.  
 ii) Simple graph with 6 and 7 vertices
- b) Determine whether the following graphs  $G = (V, E)$  and  $G^* = (V^*, E^*)$  are isomorphic or not. [6]  
 $G = (\{a, b, c, d\}, \{(a, b), (a, d), (b, d), (c, d), (c, b), (d, c)\})$   
 $G^* = (\{1, 2, 3, 4\}, \{(1, 2), (2, 3), (3, 1), (3, 4), (4, 1), (4, 2)\})$

- Q11) a) For the following set of weights, construct an optimal binary prefix code. For each weight in the set give corresponding code word: [6]

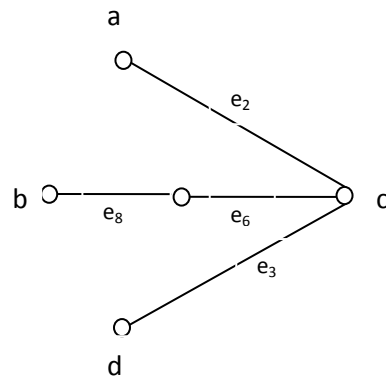
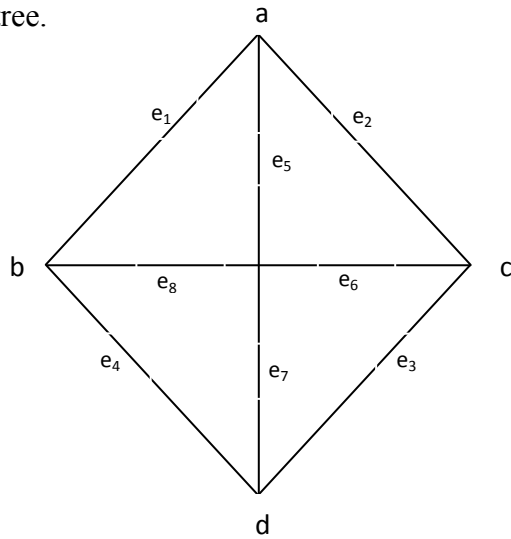
- i) 8, 9, 10, 11, 13, 15, 22      ii) 5, 7, 8, 15, 35, 40  
b) Find the all spanning trees for the graph given below:

[6]



**OR**

- Q12) a) Explain the Dijkstra's algorithm with example. [6]  
b) Determine fundamental system of cutsets of the following graphs & its spanning tree. [6]



**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]-103**  
**FYMCA (Engg. Faculty)**  
**FOUNDATIONS OF INFORMATION TECHNOLOGY**  
**(Semester - I) (2008 Pattern) (510903)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks :70]**

**Instructions to the candidates:**

- 1) *Answers any three questions from each section.*
- 2) *Answers to the two sections should be written in separate books.*
- 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) Why were first and second generation computer more difficult and costlier to produce commercially than the computer subsequent generation? [4]
- b) Using binary notation write the ASCII-7 codes for the following words. [4]  
i) DRY ii) DAMP iii) WET iv) TERM
- c) State and Prove the two basic De Morgan's theorems? [4]

**OR**

- Q2) a) Express the Boolean function  $F = X * Y + \overline{X} * Z$  in the product of Maxterms form. [4]
- b) Explain the following term with examples. [8]  
i) BCD CODE ii) EBCDIC
- Q3) a) In the Context of Magnetic tape storage, what is an inter-record gap? Why is it needed? [6]
- b) Explain the printing mechanism of Chain/Band Printer. [6]

**OR**

- Q4) a) Explain how an electronic pen is used as an input device. [4]
- b) Explain how cylinder based organization lead to faster access of data in disk pack. [4]
- c) List out the typical uses of optical disk. [4]
- Q5) a) What is Utility Program? List out some of the task commonly performed by utility programs? [5]
- b) A Programmer eliminates all languages processor errors from his/her program, and then run it to get printed result. The programmer, therefore, conclude that the program is complete. Comment? [6]



**OR**

- Q6) a) What is object oriented Programming? [5]  
b) Write a notes on (any two) [6]  
i. Acquiring software  
ii. Software development steps  
iii. Firmware

**SECTION II**

- Q7) a) What is time-sharing? What is time Slice? [4]  
b) Explain the graphics feature of modern spreadsheet package. [4]  
c) What is the main objective of the memory management module of an operating system. [4]

**OR**

- Q8) a) Define Multiprogramming. Explain how multiprogrammings ensure effective utilization of main memory and CPU? [6]  
b) Write short notes on [6]  
i) User Authentication  
ii) Access Control  
iii) Cryptography
- Q9) a) What is “text Importing” and “text exporting” Explain how these feature help in creation of document? [4]  
b) What is file management system. [4]  
c) What is testing of program? Why should program be tested. [4]

**OR**

- Q10) a) In data processing, storage of data is often conceptualized as a data storage hierarchy. Describe the various levels of this hierarchy. [4]  
b) What is debugger? How does it help a programmer. [4]  
c) What is “pixel”? Explain how an image is composed and displayed on a computer. [4]

- Q11) a) What is packet switching? Why is this method used for digital data communication? [5]  
b) What is www browser? What types of navigation facility are typically supported by modern browser to help user save time while internet surfing? [6]

**OR**

- Q12) a) What is mean by internetworking? Explain the difference among the following terms. [6]  
i. Bridge  
ii. Router  
iii. Gateway  
b) What is an electronic mail? Why is it preferred by many to paper mail telephone and fax services? [5]

**[4366]- 104**  
**FYMCA (Engg. Faculty)**  
**PROBABILITY AND STATISTICS**  
**(Semester - I) (2008 Pattern) (510904)**  
**MAY 2013 EXAMINATIONS**

**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) Q1 OR Q2, Q3 OR Q4, Q5 OR Q6, Q7 OR Q8, Q9 OR Q10, Q11 OR Q12**
- 5) Use of probability table, electronic pocket calculator is allowed.**
- 6) Assume Suitable data if necessary.**

**SECTION I**

- Q1) a) Two marbles are drawn in succession from a box containing 25 blue, 20 yellow, 15 orange and 35 red marbles, with replacement being made after each drawing. Find the probability that i) both are red ii) first is yellow and second is blue iii) first is red and second is orange. [6]

- b) A company produces items using three different machines A, B and C. [6]  
Production of these machines is 25%, 30% and 45% respectively of the total production. It is found from experience that 4%, 5% and 6% of machines A, B and C respectively are defective. On general inspection of entire production one item is selected at random and found to be defective. Find the probability that it is produced by machine B.

**OR**

- Q2) a) A certain firm has plants A, B and C producing 35%, 15% and 50% respectively of the total output. The probabilities of non-defective product from these plants are 0.75, 0.95 and 0.85 respectively. An item is selected from the total output of these plants and found to be defective. What is the probability that it is produced by plant C? [6]

- b) State and prove Baye's theorem. [6]

- Q3) a) Define with example: [6]  
i) Probability density function  
ii) Event  
iii) Marginal Probability

- b) If the probability that an individual suffers a bad reaction due to injection is 0.001. Determine the probability that exactly 3 out of 2000 individuals suffer a bad reaction. (Use Poisson distribution) [6]

**OR**

- Q4) a) A continuous random variable has probability density function [6]  

$$f(y) = \begin{cases} K(y+1), & 2 < y < 4 \\ 0 & \text{otherwise} \end{cases}$$

Find i) k ii)  $p(y < 3.2)$  iii)  $p(2.9 < y < 3.2)$

- b) Explain the terms: [6]  
 i) Independent events  
 ii) Axioms of Probability  
 iii) Conditional probability.

- Q5) a) Obtain mean and variance of Uniform distribution. [6]  
 b) Let (X, Y) be a discrete bivariate random variable with the following p.m.f. [5]

Y	1	2	3
X			
1	1/12	1/6	0
2	0	1/9	1/15
3	1/18	1/4	2/15

Find marginal and conditional probability mass distribution for X and Y.

**OR**

- Q6) a) Determine the constant b such that a joint p.d.f. of bivariate random variables X and Y is given by : [6]  

$$f(x,y) = \begin{cases} 3xy & \text{for } 0 < x < 1, 0 < y < b \\ 0 & \text{otherwise} \end{cases}$$
- b) Explain the following probability distributions with suitable examples [5]  
 i) Poisson Distribution  
 ii) Normal Distribution

## SECTION II

- Q7) a) What is point estimator and point estimate? What properties of estimator make it a good estimator? [6]  
 b) Find the mean and variance of sampling distribution of mean for the population 4, 8, 7, 6, 2, 9 by drawing a sample of size 2 with replacement and without replacement. [6]

**OR**

- Q8) a) Explain the following terms: [6]  
 i) Confidence Interval  
 ii) Estimation  
 iii) Central limit Theorem  
 b) Explain significance testing? How does it differ from hypothesis testing? [6]

- Q9) a) The length of life of certain battery is approximately normally distributed with mean 300 days and standard deviation 50 days. If a random sample of 25 batteries has a life of 275 days. Test the null hypothesis that  $\mu = 300$  days against the alternate hypothesis  $\mu \neq 300$  days at 5 % level of significance. [6]  
 b) Explain the following terms: [6]  
 i) Null hypothesis and research hypothesis.  
 ii) Type I and type II errors.  
 iii) Critical region for the test

**OR**

- Q10) a) Write a short note on student's t-distribution. [6]  
 b) The following data give the number of aircraft accidents that occurred during the various days of a week. [6]  

Day	: Mon	Tue	Wed	Thu	Fri	Sat
Number of accidents:	15	19	13	12	16	15

Test whether the accidents are uniformly distributed over the week. (Use  $\chi^2$  Test)

- Q11) a) Explain Statistical Quality Control (SQC) with its advantages and limitations. [5]  
 b) Given below are the values of sample mean  $\bar{X}$  and sample range  $R$  for 10 samples each of size 5. Draw the appropriate mean and range charts & comment on the state of control of the process. [6]  

Sample no :	1	2	3	4	5	6	7	8	9	10
Mean :	11.0	10.9	11.5	11.1	11.7	11.0	11.0	12.0	12.4	11.4
Range :	2.4	1.4	1.7	0.7	0.8	0.7	1.1	2.0	2.1	1.4

**OR**

- Q12) a) Explain the  $\chi^2$  test as a test of goodness of fit. Write the steps. [5]  
 b) Write note on range chart. [6]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 105**  
**FYMCA (Engg. Faculty)**  
**MANAGEMENT SCIENCE**  
**(Semester - I) (2008 Pattern) (510905)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) *All questions are compulsory.*
- 2) *Write answer in separate answer book.*
- 3) *Assume suitable data if necessary.*
- 4) *Figure on right indicate full marks.*
- 5) *Draw the diagram if necessary.*

**SECTION I**

- Q1) a) Discuss contribution of Henry Fayol to the development of Management. [8]  
b) Explain Management as an art, Science and profession. [4]

**OR**

- Q2) a) What are the advantages of MBO? [6]  
b) Explain the difference between planning and controlling functions of Management. [6]

- Q3) a) What are internal and external economics of scale? [6]  
b) What are major applications of E-Governance? [6]

**OR**

- Q4) a) What is wealth in economics? How it is classified? [6]  
b) What is elasticity of supply? Draw the graphs of perfectly elastic supply and perfectly inelastic supply. [6]

- Q5) a) What are different types of Organizational Structures? [6]  
b) How forms of business organizations are classified? Explain partnership in brief. [5]

**OR**

- Q6) a) Explain MOA & AOA in brief. [6]  
b) Explain advantages of informal organization. [5]

## SECTION II

- Q7) a) Explain Traditional and modern theories of motivation. [6]  
b) Explain what preparations are required for personal Interview? [6]

**OR**

- Q8) a) What do you understand by time Management? [6]  
b) What is communication? Explain different types of communication. [6]

- Q9) a) Explain the objective & scope of factory Act – 1948. [6]  
b) Explain the safety measures to be taken to prevent industrial Accidents. [6]

**OR**

- Q10) a) How air pollution is controlled in industry? Explain. [6]  
b) What are the different types of labor laws? [6]

- Q11) a) Explain concept of QC – Quality Circle in brief. [6]  
b) What are the objectives of TQM? [5]

**OR**

- Q12) a) What is Copyright Act? Explain. [6]  
b) What are the advantages of ISO 9000 implementation? [5]

**[4366]- 201**  
**FYMCA (Engg. Faculty)**  
**OBJECT ORIENTED PROGRAMMING**  
**(Semester - II) (2008 Pattern) (510909)**  
**MAY 2013 EXAMINATIONS**

**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) *Assume Suitable data if necessary.*
- 4) *Section I :- Q1 or Q2, Q3 or Q4, Q5 or Q6*
- 5) *Section II :- Q7 or Q8, Q9 or Q10, Q11 or Q12*

**SECTION I**

- Q1)      a)    What is object-oriented programming paradigm? Explain with real World example. [5]
- b)    Explain information hiding, message passing with example. [4]
- c)    Write the output for the following program [2]
- ```
#include<iostream.h>
int P=20;
int main()
{
    int P = 30;
    cout<<P<<endl;P;
    {
        P=10;
        cout<<P<<endl;P;
    }
    return 0;
}
```

**OR**

- Q2)      a)    Explain the feature of object oriented programming. [4]
- b)    What is object oriented programming? Compare with procedure-oriented programming. [5]
- c)    Write the output for the following program [2]
- ```
#include <iostream.h>
# include<string.h>
void main( )
{
    Char str [30]="Object oriented";
    int m = strlen (str);
}
```

```

    int n = sizeof (str);
    cout << m;
    cout << n;
}

```

- Q3) a) What is the inline function? How does the inline function differ from preprocessor macro? [4]
- b) Explain argument passing to function using pointers and using reference variable. [4]
- c) Explain NEW and DELETE operator in C++. Compare new and malloc function. [4]

**OR**

- Q4) a) What is class? How memory is allocated for class object? [4]
- b) Explain reference variable? Write a program using reference variable as argument to swap the values of pair of integer. [4]
- c) What is function overloading? Compare function overloading and function overriding with example. [4]

- Q5) a) What is constructor? What are the characteristics of constructor? Give one example of constructor. [6]
- b) Write a program to define two classes alpha and beta containing an integer each as data members. Define a function sum( ) that will be a friend to both alpha and beta which will take one object from each class as argument and return the sum of the data members of the argument objects. [6]

**OR**

- Q6) a) What is static data member and static member function? Write a program to display the number of object created using static data member. [6]
- b) Explain a destructor with an example. [6]

## SECTION II

- Q7) a) Write a C++ program to create a class STRING and overload + operator. Display the results by overloading the operator <<. [8]
- i) STRING S1 = "PUNE"
- ii) STRING S2 = "MUMBAI"
- iii) STRING S3=S1+S2
- b) List the operator overloading rules. [4]

**OR**



- Q8) a) What is a type conversion? Explain type conversion from one class type to another class type with example. [6]
- b) Write a program to overload the comma operator for a class such that for the instruction `a= (b,c)` the larger object of b and c is assigned to a. [6]

- Q9) a) What is the difference between late binding and early binding? [6]
- b) What is inheritance? Explain multilevel inheritance with example. [6]

**OR**

- Q10) a) What are the types of inheritance? Explain multiple inheritance with example. [6]
- b) Explain mechanism of passing parameters to the base class constructor in Multilevel inheritance with example. [6]

- Q11) a) What is the difference between opening a file with a constructor function and opening a file with `open ()` function? When is one method preferred over the other? [6]
- b) Explain managing console formatted I/O with example. [5]

**OR**

- Q12) a) Write short notes on [6]
- i) Formatted I/O
- ii) Unformatted I/O
- b) Write a C++ program to read a text file and counts number of vowels (i.e. a,e, i,o,u) [5]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 03]**

**[4366]- 202**  
**FYMCA (Engg. Faculty)**  
**DATA STRUCTURE AND FILES**  
**(Semester - II) (2008 Pattern) (510910)**  
**MAY/JUNE 2013 EXAMINATION**

**Time: 3 Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section –I and Q7 or Q8, Q9 or Q10, Q11 or Q12 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 side indicate full marks.

**SECTION I**

- Q1) a) What is sparse matrix? Explain fast transpose of sparse matrix. [4]
- b) Consider integer array `int a[10][20]` declared in C program. If the base address is 590, find the address of the element `a[8][15]` with the row major and column major representation. [5]
- c) Define the following with example: [3]
- I. Ordered List
  - II. ADT
  - III. Data object

**OR**

- Q2) a) Write a pseudo C code for the multiplication of two polynomials. [5]
- b) Compare Linked representation with sequential representation. [4]
- c) Write an ADT for addition of RATIONAL number. [3]
- Q3) a) Write a pseudo C code for the insertion of an element at beginning & end in doubly linked list. [6]
- b) Discuss insertion and deletion of an element in the singly linked list. (Give supporting C code and pictorial Representation). [3]
- c) Explain the representation of a linked list in memory. Also describe Garbage Collection. [3]

**OR**

- Q4) a) Represent multiplication of following two polynomials in the form of a circular [6]

linked list. Clearly show the node structure used for each polynomial.

i)  $P(x) = x^3 - 5x^2 - 10$  &  $Q(x) = 4x^2 + 7x$

ii)  $P(x) = 2.2x^4 - 8.1x^2 + 5.6$  &  $Q(x) = 3x^3 + 10x + 30$

- b) Write a pseudo C code for the deletion & insertion of an element in Circular linked list. [6]

- Q5) a) Convert the following infix expression into postfix expression by showing the content of stack for every iteration: [5]

$$A * (B + D) / E - F * (G + H / K)$$

- b) Write an ADT for STACK. Write a program for STACK using array in C. [6]

**OR**

- Q6) a) What is QUEUE? Write an algorithm of operation on QUEUE. [6]

- b) Write a note on recursion; Also write an algorithm for Tower of Hanoi recursion with illustration. [5]

## SECTION II

- Q7) a) Write a non recursive procedure for the following traversal of binary tree: [6]

I) Preorder

II) Inorder

- b) Construct a binary search tree from the following: [6]

50, 33, 44, 22, 77, 17, 10, 12, 22, 35, 30, 60, 40,

**OR**

- Q8) a) Define the following: [4]

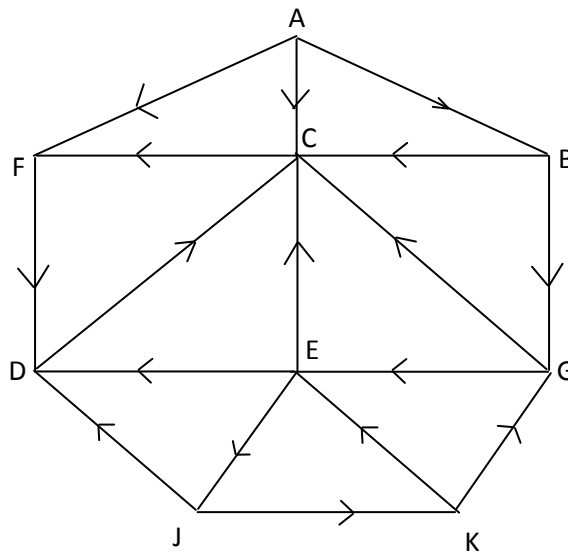
I) Graph

II) Multigraph

III) Loop

IV) Connected graph

- b) Using following graph construct the Adjacency Matrix, Adjacency List, Breadth First Search (BFS) and Depth First Search (DFS) : [8]



Consider starting point as “A”

- Q9) a) Explain index Sequential Search with example. [4]  
 b) Write a pseudo ‘C’ routine to sort the following numbers using quick sort. Show [8]  
 all the passes to sort the values in ascending order :  
 56, 12, 84, 56, 28, 0, -13, 47, 94, 31, 12, -2

**OR**

- Q10) a) Compare Linear Search and Binary Search method. [3]  
 b) Write a C code for Bubble Sort and calculate its complexity. [5]  
 c) Define the following : [4]  
 I) Sort order  
 II) Sort Stability  
 III) Sort Efficiency and Sort passes

- 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) What do you mean by collision resolution? Explain collision resolution [11]  
 Techniques with example.

**[4366]- 203**  
**FYMCA (Engg. Faculty)**  
**OPERATIONS RESEARCH**  
**(Semester -II) (2008 Pattern) (510911)**  
**MAY 2013 EXAMINATIONS**

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 ( Q7 or Q8) and ( Q9 or Q10) and (Q11 or Q12)
- 3) Answers to two sections should be written in separate answer books.
- 4) Neat diagrams must be drawn wherever necessary.
- 5) Assume suitable data, if necessary.

**SECTION I**

- Q1) a) The ABC company produces two products: I and II. The raw material requirements, space needed for storage, production rates, and selling prices for those products are given in table. [8]

Table: Production data for ABC company

	Product	
	I	II
Storage space (ft <sup>2</sup> /unit)	4	5
Raw material (lb/unit)	5	3
Production rate (units/hr)	60	30
Selling price (Rs./unit)	13	11

The total amount of raw material available per day for both products is 1575 lb. The total storage space for all products is 1500 ft<sup>2</sup>, and a maximum of 7 hours per day can be used for production.

All products manufactured are shipped out of the storage area at the end of the day. Therefore, the two products must share the total raw material, storage space, and production time. The company wants to determine how many units of each product to produce per day to maximize its total income.

- b) Write a short note on ‘Sensitivity Analysis’. [4]

**OR**

- Q2) a) Solve the given LPP by simplex method. [8]

$$\text{Maximize } z = 10x_1 + 20x_2$$

$$\text{s.t. } 5x_1 + 3x_2 \leq 30$$

$$3x_1 + 6x_2 \leq 36$$

$$2x_1 + 5x_2 \leq 20$$

$$\text{and } x_1, x_2 \geq 0$$

- b) Construct a dual problem from the given primal. [4]

$$\text{Minimize } z = x_1 + x_2 + x_3$$

$$\text{s.t. } x_1 - 3x_2 + 4x_3 = 5$$

$$x_1 - 2x_2 \leq 3$$

$$2x_2 - x_3 \geq 4 \text{ and } x_1, x_2 \geq 0, x_3 \text{ is unrestricted.}$$

- Q3) a) Using Vogel's Approximation Method, solve the following transportation problem. [6]

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	Available
O <sub>1</sub>	21	16	25	13	11
O <sub>2</sub>	17	18	14	23	13
O <sub>3</sub>	32	27	18	41	19
Requirement	6	10	12	15	

- b) Use MODI Method to check the optimality of the following transportation problem. [6]

	A	B	C	D	Capacity
F <sub>1</sub>	19 5	30	50	10 2	7
F <sub>2</sub>	70	30	40 7	60 2	9
F <sub>3</sub>	40	8 8	70	20 10	18
Requirement	5	8	7	14	

**OR**

- Q4) a) Write a short note on 'Transshipment model'. [4]
- b) A marketing manager has 5 salesman and 5 districts. Considering the capabilities of the salesman and nature of districts, the marketing manager estimates of sales per month ( in hundreds of rupees) for each salesman in each district would be as follows: [8]

Job	Machine				
	A	B	C	D	E
1	32	38	40	28	40
2	40	24	28	21	36
3	41	27	33	30	37
4	22	38	41	36	36
5	29	33	40	35	39

Find the assignment of salesman to districts that would result in the maximum sales.

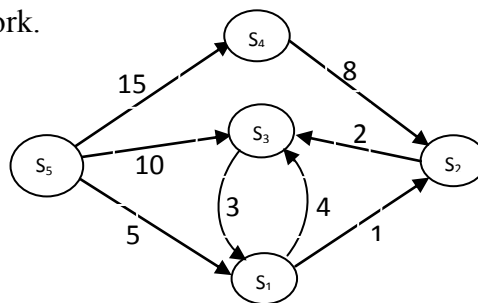
- Q5) a) From the information given below draw network diagram and critical path. Find the probability that the project will be completed within 55 days. [7]

Activity	to	tm	tp
1-2	4	6	8
2-3	5	7	15
2-4	4	8	12
3-6	15	20	25
3-5	10	18	26
4-6	8	9	16
5-7	4	8	12
6-7	1	2	3
7-8	6	7	8

- b) Explain the steps of kruskal's minimum spanning tree algorithm. [4]

**OR**

- Q6) a) Write the steps of Floyd's Algorithm. [4]  
 b) Compare CPM and PERT. [3]  
 c) Use Dijkstra's algorithm to find the shortest route between node and every node in the following network. [4]



## SECTION II

- Q7) a) Use Branch and Bound method to solve following LPP. [7]  
 Minimize  $z = 4x_1 + 3x_2$   
 s.t.  $5x_1 + 3x_2 \geq 30$ ,  
 $x_1 \leq 4, x_2 \leq 6$   
 and  $x_1, x_2 \geq 0$ ,  
 $x_1, x_2$  are integers.  
 b) What is Goal programming? Explain two methods to solve goal programming problem. [5]

**OR**

- Q8) a) Write the different forecasting technique. Explain any one of them. [6]
- b) A company is considering the allocation of Rs. 1, 50,000 advertising budget to two magazines (A and B). Rated exposures per hundred rupees of advertising expenditure are 1000 and 750 respectively for the two magazines; and it has been forecast that on the average Rs.10 in sales results from each advertisement exposures. Management has decided that no more than 75% of the advertising budget can be expended in magazine A. The company has indicated that it would likely to achieve exactly 1.5 million exposures from its advertising program. Management's objective is to allocate its money to advertising in such a way that sales (Rs.) are maximized. Formulate the given Goal programming problem. [6]

- Q9) Analyze the decision problem using – [12]
- a) Laplace b) Minimax c) Savage d) Hurwicz criteria. The cost matrix for the situation is :

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>
A <sub>1</sub>	5	10	18	25
A <sub>2</sub>	8	7	12	23
A <sub>3</sub>	21	18	12	21
A <sub>4</sub>	30	22	19	15

Given :  $P(s_j) = 1/4$  and  $\alpha = 0.5$

**OR**

- Q10) a) Explain Decision Making under certainty using AHP. [6]
- b) What is decision making under risk? Explain expected value criterion. [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]

**OR**

- Q12) a) Explain in brief generation of Random numbers. Generate three random numbers based on multiplicative congruential method using  $b = 17$ ,  $c = 111$ ,  $m = 103$ , seed = 7. [7]
- b) Define simulations. Explain Merits and Demerits of Simulation Technique. [4]



**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 2]**

**[4366]- 204**  
**FYMCA (Engg. Faculty)**  
**MICROPROCESSOR APPLICATIONS**  
**(2008 Pattern) (510912)**  
**MAY/JUNE 2013 EXAMINATIONS**

**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) Assume Suitable data if necessary.**

**SECTION I**

- Q1) a) Explain the functioning of the following pins of 8085 microprocessor. Indicate their activation status. [8]  
i) restart interrupt ii) Address latch enable  
iii) Input output/Memory iv) READY
- b) Explain Arithmetic and logical group of 8085 microprocessor. [4]
- OR**
- Q2) a) Explain the concept of tri-state logic. Explain unidirectional and bidirectional buffer with neat diagram and truth table. [8]  
b) Explain various flag registers in 8085. [4]
- Q3) a) What are the various addressing modes of 8085? [6]  
b) Explain any 6 machine cycles of 8085 microprocessor. [6]
- OR**
- Q4) a) What is a Stack? Explain push and pop operation of stack using suitable example. [6]  
b) Write an ALP to load register B with 17H and register C with 50H and add the two. Place the final result in D register. [6]
- Q5) a) Explain the I/O Interfacing Techniques of 8085 MPU. [6]  
b) Explain the 4x4 key matrix interfacing. [5]
- OR**
- Q6) a) What are the advantages and disadvantages of I/O mapped I/O over Memory mapped I/O. [4]  
b) List and explain all I/O related instructions of 8085. [4]  
c) Compare interrupts driven I/O and polled I/O. [3]

## SECTION II

- Q7) a) Draw and explain the pin diagram of 8253 in detail pin descriptions. [8]  
b) Write short note on the following [4]  
i) hardware interrupt ii) software interrupt  
iii) interrupt priority structure iv) maskable and non-maskable interrupts

### OR

- Q8) a) Explain Control Word register of 8253 Interval Timer. [4]  
b) Explain in brief about mode 0 and mode 1 operations of 8253 with timing diagram. [8]

- Q9) a) Draw and explain the programmer's model of 8086. [8]  
b) Explain the usefulness of the following instruction in 8086. [4]  
i) LOCK ii) TEST iii) XLAT iv) LES

### OR

- Q10) a) Explain various registers in 8086. [6]  
b) What is memory segmentation? Explain in detail. [6]

- Q11) a) Explain various addressing modes of 8086. [7]  
b) Explain what is meant by BIOS calls. List and use of any 4 BIOS call. [4]

### OR

- Q12) a) Explain Instruction format of 8086 assembly language programming. [6]  
b) Explain the INT 21H function whose calling parameter are given bellow. [5]  
i) 02H ii) 01H iii) 09H iv) 4CH v) 0FH

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 205**  
**FYMCA (Engg. Faculty)**  
**MANAGEMENT INFORMATION SYSTEM**  
**(Semester - II) (2008 Pattern) (510913)**  
**MAY 2013 EXAMINATIONS**

**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) Describe in detail the Information System (IS) hierarchy. [6]  
b) What are Components and resources of Information System? [6]

**OR**

- Q2) a) Explain how MIS as a support to the management and a tool for management Process. [6]  
b) What is the Strategic planning process? Explain in detail. [6]

- Q3) a) Explain the importance of Management Information System (MIS) in the service industry. [6]  
b) What is personal management? Explain how MIS can be used in personal Management. [6]

**OR**

- Q4) a) Explain cross functional enterprise system. What is its benefit? [6]  
b) Difference between batch processing & real time processing. [6]

- Q5) a) Explain the steps in Enterprise Resource Planning (ERP) implementation. What are the benefits of ERP solutions? [6]  
b) What is BPO? Which factors decide the success of BPO Industry? [5]

**OR**

- Q6) a) What is Call center? What are different types of it? [5]  
b) Explain the Business Process Reengineering steps in Detail. [6]

**SECTION II**

- Q7) a) Explain the following approaches. [6]  
1. Data drive CRM  
2. Process driven CRM  
b) What is difference between B2B & B2C? [6]

**OR**

- Q8) a) What is SCM? Explain the benefits of SCM. [6]  
b) Write short note on Electronic Fund Transfer. [6]

- Q9) a) Explain What if analysis & sensitivity analysis with example. [5]  
b) Write a note on: [6]  
1. GIS  
2. AI

**OR**

- Q10) a) What is Data warehouse? Explain the architecture of Data warehousing. [6]  
b) What are the benefits Expert System? [5]

- Q11) Discuss the following issues in brief. [12]  
1. Biometric Security  
2. Computer crime  
3. Global business application  
4. E-monitoring

**OR**

- Q12) a) List the issues involved in global management of Information Technology. [6]  
b) Explain in brief fault tolerance system and firewalls. [6]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 301**  
**SY MCA (Engg. Faculty)**  
**Operating System**  
**(Semester - I) (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) Neat diagrams must be drawn wherever necessary.**
- 3) Black figures to the right side indicate full marks.**

**SECTION I**

- Q1) a) What are the fundamentals of language processing activities? [5]  
b) Differentiate between lexical analysis and syntax analysis. [4]  
c) What is a single pass assembler? [3]

**OR**

- Q2) a) Explain fundamentals of language processing with necessary diagrams. [5]  
b) Describe the design of a Two Pass Assembler. [4]  
c) Compare Application Software and System Software. [3]

- Q3) a) Explain the phases of a compiler. [6]  
b) Explain an absolute loader with its advantages and disadvantages. [5]

**OR**

- Q4) a) Explain the Macro definition and call with a suitable example. [6]  
b) Discuss the loader schemes. [5]

- Q5) a) Explain any 4 functions of an operating system in detail. [7]  
b) What is process? What is process control block (PCB)? Explain in detail [5]

**OR**

- Q6) a) Consider the following set of processes, with the length of the CPU burst given in milliseconds. [6]

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at

time 0.

i) Draw Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: SJF, non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum = 1).

ii) Calculate the turnaround time of each process for each of the scheduling algorithms in part a?

- b) What are the different types of schedulers? Explain with suitable diagram. [6]

## SECTION II

- Q7) a) Consider page referencing string given as 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5. Number of page frames are three. Show the page trace & calculate no of page faults for the following page reference schemes [8]  
i) LRU  
ii) Optimal Page Replacement.

- b) Differentiate between Internal and External Fragmentation [4]

**OR**

- Q8) a) Explain the concept of segmentation? What is paged segmentation? [8]  
What are different types of segment?  
b) What is Swapping? Explain how the space is allocated using swapping? [4]

- Q9) a) Explain Acyclic-Graph Directory structure? [4]  
b) Differentiate between Linked Allocation & Index allocation of disk space. [8]

**OR**

- Q10) a) Consider a disk system with 100 cylinders. The request to access the cylinders occurs in the sequence: 44, 20, 95, 4, 50, 52, 47, 61, 87, 25. Assuming that head is at cylinder 50, what is the total distance the disk arm moves to satisfy all the pending requests for the following disk scheduling algorithms: [7]  
i) FCFS  
ii) SSTF  
iii) SCAN  
b) Describe the structure of disk. [5]

- Q11) a) List process management system calls & explain any two? [6]  
b) Explain linking process in execution of user programs in Linux. [5]

**OR**

- Q12) a) What are the components of Linux operating system? Explain. [5]  
b) What are the 2 major functionalities of Linux Kernel? [6]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 302**  
**SYMCA (Engg. Faculty)**  
**DATABASE : CONCEPTS AND SYSTEMS**  
**(Semester - III) (2008 Pattern) (610902)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks :70]**

**Instructions to the candidates:**

- 1) Answers to the two sections should be written in separate books.**
- 2) Neat diagrams must be drawn wherever necessary.**
- 3) Assume Suitable data if necessary.**

**SECTION I**

- Q1) a) Describe Relational Data model, Hierarchical Data model and Network Data model. [6]  
b) Write advantages and disadvantages of DBMS approach. [5]
- OR**
- Q2) a) Describe Query Processor and Storage Manager Components of DBMS. [6]  
b) What is DDL and DML? Give one example of each. [5]
- Q3) a) Construct an ER diagram for a car insurance company whose customers own one or more cars each. Each has associated with it zero to any number of recorded accidents. [4]  
b) Explain with an example how ER diagram is converted into table. [8]
- OR**
- Q4) a) Give the significance of following design constraints. [8]  
i) User – Defined  
ii) Condition – Defined  
iii) Disjoint  
iv) Overlapping  
b) Define Weak Entity set, strong entity set. , attribute, stored and derived attributes, and composite attributes? [4]
- Q5) a) What is a view? Explain insert, update and delete operations with respect to views. [6]  
b) What is integrity and referential constraints. Explain. [6]
- OR**
- Q6) a) Write a note on index types? What are the advantages and disadvantages of indexes. [7]  
b) Explain different types of joins in SQL with suitable example. [5]

## SECTION II

- Q7) a) Consider the employees database for the following schema [8]  
Employee(employee\_name,street,city)  
Works(employee\_name,company\_name,salary)  
Company(company\_name,city)  
Manages( employee\_name,manager\_name)  
Give an expression in Sql for each of the following queries.  
a) Find the names and cities of residence of all employees who work for First Bank Corporation.  
b) Find the names, street addresses, and cities of residence of all employees who work for First Bank corporation and earn more than \$10000.  
c) Find all employees in the database who do not work for First Bank Corporation.  
d) Find the Company that has the most employees.
- b) Explain Embedded and Dynamic SQL. [4]

**OR**

- Q8) a) Explain any four aggregate functions in SQL with suitable examples. [4]  
b) Write a short note on Triggers and stored procedure. [8]
- Q9) a) What is meant by functional dependencies. Explain 2NF, 3NF with example. [7]  
b) Explain Database design methodology. [5]

**OR**

- Q10) a) Give the relation schemas  $R=(A,B,C,D,E)$  and functional dependencies as [7]  
 $A \rightarrow C$ ,  $C \rightarrow D$ ,  $CE \rightarrow A$ ,  $B \rightarrow C$ ,  $DE \rightarrow C$ .  
Relations R are decomposed into lossy or lossless? Justify.  
b) Write short note on multi valued dependency. [5]
- Q11) a) Define Serializability. Explain the types of serializability with example. [6]  
b) Explain Deadlock Handling with example. [5]

**OR**

- Q12) a) Explain Recoverability with example. [6]  
b) Explain shadow paging method as a crash recovery method. [5]



**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 03]**

**[4366]- 303**  
**SYMCA (Engg. Faculty)**  
**FINANCIAL ACCOUNTING & MANAGEMENT**  
**(Semester - III) (2008 Pattern)(Elective-I) (610903)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70]**

**Instructions to the candidates:**

- 1) *All questions are compulsory.*
- 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 side indicate full marks.*
- 5) *Assume Suitable data if necessary.*

**SECTION I**

- Q1) a) Explain the concept of Subsidiary Book. Explain Cash book. [6]  
b) Explain the concept of classification of Accounts with suitable examples. [6]

**OR**

- Q2) a) Explain the use of Bank Book. Explain the concept of Reconciliation of bank book. [6]  
b) Record the following transactions in a Journal. [6]

Transactions:

- 1/3/13 Purchase goods from Deepak worth Rs. 12,000 on credit.  
2/3/13 Purchase goods from Deepak worth Rs. 11,000 for cash.  
2/3/13 Sold Goods to Kedar on Credit Rs. 12000/-  
3/3/13 Sold Goods to Rajendra Rs. 2000/- for cash.  
4/3/13 Purchased Electronic Weighing Machine & Table with Chair for Rs. 9500/- from Mr. Shah.  
5/3/13 Purchased Flooring Mats for Rs. 1000/-.  
11/3/13 Received Cash Rs. 6000/- from Kedar & Cheque for Rs. 6000/-  
12/3/13 Paid Rs. 5000 in Cash & 5000 by cheque to Deepak.  
18/3/13 Paid Salary to receptionist Mona Rs. 3000/-  
22/3/13 Paid Office Rent Rs. 5000/-  
25/3/13 Paid House Rent Rs. 3000/-  
28/3/13 Distributed Sample Goods of Rs. 500/- as free samples for advertisement.

- Q3) a) Explain the Concept of holding Cash & Cash Budget. [6]  
b) Explain the any 2 Ratios used for finding return on Investment [5]

**OR**

- Q4) a) From the following details of Living Life Medicare Ltd. Calculate Current & Liquid Ratio [6]  
Assets - Stock - Rs. 25,88,000/-, Debtors - Rs. 20,64,000/-, Cash - Rs.5,54,000/.  
Fixed Assets – Rs. 9,80,000/-, Current Liabilities – Rs. 22,52,000/-,  
Gross Profit- Rs. 12,52,000/-, Net Profit – Rs. 5,34,000/-  
b) Explain the elements of cost and further explain any 2 of them. [5]

- Q5) a) Explain the estimation of Working Capital requirements and elaborate on financing of it. [6]  
 b) Explain with figure the concept of Operation Cycle in the context of seasonal Fruit business. [6]

**OR**

- Q6) a) Explain the concept of working capital requirement for a vegetable reseller & explain components of it. [6]  
 b) Calculate the working capital requirements using following details. [6]  
 The management of Sarda Toothpaste Ltd has called for a statement showing working Capital needed to produce 3 Lakh units of output for the year 2013-14. The cost structure of the company's product for this level of production is as given below:-

Details of Cost type	Cost per Unit (Rs.)
Raw Material	20
Direct Labour	5
Overheads	15
Total Cost	40
Profit	10
Selling Price	50

Post trends indicate that the raw materials are held in stock, on an average, for two months. Work in progress (50% complete) will approximate to half a month's production and finished goods will remain in stock on an average for a month. Suppliers extend a month's credit and Debtors are normally allowed 2 months of credit. Minimum cash balance of Rs. 50,000/- is expected to be maintained. The production pattern is assumed to be even throughout the year. Prepare working capital statement.

## SECTION II

- Q7) Explain how a project is evaluated for finding out its Capital Budget needs. [12]

**OR**

- Q8) Explain any 3 of the following with example. [12]  
 a) Importance of Capital Budgeting.  
 b) Kinds of Capital Budgeting Decisions.  
 c) Average Rate of Return method.  
 d) Payback period calculation for unequal period.

- Q9) The KBC Entertainment Ltd has current earnings of Rs. 1.5 Crores. The numbers of shares are 12 Lakh. The market price of share as on 31.3.2013 is Rs. 2000 and growth rate of dividends is estimated at 10%. Compute the cost of equity capital. [11]

**OR**

- Q10) a) Explain the different Types Costs in the context Cost of Capital. [6]  
 b) Explain Cost of Capital and its importance. [5]

- Q11) Explain the following with reference to Tally Software (any 3) [12]
- a) Debit note
  - b) Credit Note
  - c) Purchase order
  - d) Sales Order

**OR**

- Q12) a) Explain the process of creating accounts of 3 subsidiary companies of a Company in Tally Software. [6]
- b) Explain the process of generating Cash Book, bank book and stock ledger in Tally Software. [6]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 304**  
**SYMCA (Engg. Faculty)**  
**COMPUTER COMMUNICATIONS & NETWORKS**  
**(Semester -III) (2008 Pattern) (610904)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) *All questions are compulsory.*
- 2) *Write answer in separate answer book.*
- 3) *Assume Suitable data if necessary.*
- 4) *Figures to the right side indicate full marks.*
- 5) *Draw the diagram if necessary.*

**SECTION I**

- Q1)      a)    What is Switching? Explain detail different Switching techniques. [6]  
            b)    Explain Open System Interconnection (OSI) model in Detail. [6]
- OR**
- Q2)      a)    Explain any two Unguided Transmission Media in Detail. [6]  
            b)    What are different types of TDM techniques in detail? [6]
- Q3)      a)    Explain Repeat-Selective ARQ. [5]  
            b)    Explain LAN accessing techniques in detail. [6]
- OR**
- Q4)      a)    Explain bridges and switches in brief. [5]  
            b)    What is DHCP? Explain in detail DHCP lease. [6]
- Q5)      a)    Explain Bluetooth Architecture with neat diagram. [6]  
            b)    What is CSMA? Discuss in detail about CSMA/CD & CSMA/CA. [6]
- OR**
- Q6)      a)    Explain fast and gigabyte Ethernet. [6]  
            b)    Explain LAN, WAN and MAN in detail. [6]

## SECTION II

- Q7) a) Explain IP addressing in detail. [6]  
b) What are Transport Layer services? Explain Transport Layer service Primitives in detail. [6]

**OR**

- Q8) a) What is HTTP? Explain error code and status code in HTTP. [6]  
b) What is Socket? Explain various socket primitives used in client server interaction. [6]

- Q9) a) Explain Flow Control in TCP. [6]  
b) What is Unicast Routing? Explain any two Unicast Routing Protocol. [5]

**OR**

- Q10) a) Compare TCP with UDP. [6]  
b) What is DNS? Explain different types of DNS domain. [5]

- Q11) a) What is Firewall? Explain different types of Firewall, rule and policies in detail. [6]  
b) Explain POP3 and IMAP4 protocol. [6]

**OR**

- Q12) a) Explain IPV4 Protocol with header format. [6]  
b) Write short note: [6]  
i) MIME  
ii) SNMP

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 305**  
**SYMCA (Engg. Faculty)**  
**PRINCIPLES OF MULTIMEDIA**  
**(Semester - III) (2008 Pattern) (611905)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section –I and Q7 or Q8, Q9 or Q10, Q11 or Q12 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 side indicate full marks.

**SECTION I**

- Q1) a) State and explain various applications of Multimedia over Internet. [6]  
b) What is Multimedia Authoring? Explain any one Multimedia Authoring tool in detail. [6]

**OR**

- Q2) a) Explain with suitable examples multimedia building blocks and its role in development of web based multimedia applications. [6]  
b) What is GTK+ and QT? Give features of both. [6]
- Q3) a) What is image enhancement? How image enhancement is done using spatial filtering? [6]  
b) What is compression? What are different types of compressions? Explain any one lossless compression. [6]

**OR**

- Q4) a) What is vector quantization? How is it applied to image compression? [6]  
b) Explain GIF file format in detail. [6]

- Q5) a) How audio is captured? How do you define quality of audio data? [6]  
b) State different audio file formats. Explain AVI file format in brief. [5]

**OR**

- Q6) a) What are MIDI messages? Differentiate between Channel Message and System Message. [6]  
b) Explain psychoacoustics in detail. [5]

## SECTION II

Q7) a) Compress the string ' PQQQPQRPQPPQP' using LZW compression technique. [6]  
Calculate the compression ration.

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

**OR**

Q8) a) Compare different video transmission standards. [6]

b) Explain major characteristics of DVD – Video. [5]

Q9) a) Explain virtual object in detail. [6]

b) Explain different forms of virtual reality. [6]

**OR**

Q10) a) What is VRML? What are its design criteria? What are its characteristics? [6]

b) What is head tracking system? What parameter decides quality of this? [6]

Q11) a) Explain principles of animation with an example. [7]

b) Explain Key frames and tweening in animation. [5]

**OR**

Q12) a) What is morphing? Explain how animations are used in entertainment Industry. [6]

b) Describe different tools to create animation. [6]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 401**  
**SYMCA (Engg. Faculty)**  
**SOFTWARE ENGINEERING**  
**(Semester - III) (2008 Pattern) (610909)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) Figures to the right side indicate full marks.**
- 2) Answers to the two sections should be written in separate answer books.**
- 3) From Section –I Solve (Q1 or Q2) and (Q3 or Q4) and (Q5 or Q6).**
- 4) From Section –II Solve (Q7 or Q8) and (Q9 or Q10) and (Q11 or Q12).**
- 5) Make suitable assumptions wherever appropriate and relevant.**

**SECTION I**

- Q1)      a)    Explain the incremental model in detail with a suitable diagram. [6]  
            b)    Differentiate between Team process model and Personal process model. [6]

**OR**

- Q2)      a)    Explain the different phases of unified process. [6]  
            b)    Explain software process framework with a well labeled diagram. [6]

- Q3)      a)    Explain any three deployment and planning practices. [6]  
            b)    Differentiate between process and product Engineering. [5]

**OR**

- Q4)      a)    Explain the Testing principles in detail. [6]  
            b)    Explain the concept of system modeling in detail. [5]

- Q5)      a)    Draw an activity diagram for online Airline reservation system. [6]  
            b)    Write short notes on [6]  
                    i) Cardinality and modality.  
                    ii) Object oriented analysis.

**OR**

- Q6)      a)    What is requirement Engineering? Explain in brief various functions of [6]  
                    Requirements Engineering.  
            b)    Explain flow oriented modeling. [6]



## SECTION II

Q7) a) Differentiate between component level Design & Deployment level design elements. [6]

b) Explain the steps of User Interface Design. [6]

**OR**

Q8) a) What is architecture? Explain Data flow architecture and layered architecture. [6]

b) Explain in brief golden rules of User Interface. [6]

Q9) a) Differentiate between white box testing and black box testing with a suitable example for each. [7]

b) Explain the concept of integration testing in detail. [4]

**OR**

Q10) a) Explain the process of debugging in testing. [5]

b) Explain the steps for deriving the test cases. [6]

Q11) a) What is software quality? Explain McCall's quality factors. [6]

b) Define the terms: i) Cohesion metrics. [6]

ii) Coupling metrics.

**OR**

Q12) a) Explain the concept of object oriented Design metrics. [6]

b) Define the terms i) Measure, metrics and indicator. [6]

ii) ISO 9126 quality factor.

**[4366]- 402**  
**SYMCA (Engg. Faculty)**  
**WEB TECHNOLOGY**  
**(Semester-IV) (2008 Pattern) (610910)**  
**MAY 2013 EXAMINATIONS**

**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 ( Q7 or Q8) and ( Q9 or Q10) and (Q11 or Q12)
- 3) Answers to 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) Make suitable assumptions wherever and relevant.

**SECTION I**

Q1) a) Comment on and explain: [6]

- i) To improve the performance of HTTP Byte serving is used in it.
- ii) “HTTP requests using GET should not have the significance of taking an action other than retrieval.”

b) What is tier? Compare 2-tier architecture with 3-tier architecture. [6]

**OR**

Q2) a) What is WWW? Explain 3-tier architecture for any modern web application. [6]

b) What is CSS? What are the various ways to apply a CSS to an HTML document? [6]

Write a code to link an HTML Document to an External Style Sheet.

Q3) a) Create a static HTML page that displays the following output using frame: [5]

<b>MY WEBSITE</b>	
<u><b>HOME</b></u>  <u><b>My Profile</b></u>	<div style="text-align: center;"><u><b>MY PROFILE</b></u></div> <div style="margin-top: 10px;">Name : - <input style="width: 100%;" type="text"/></div> <div style="margin-top: 10px;">Contact No : - <input style="width: 100%;" type="text"/></div> <div style="margin-top: 20px; text-align: center;"><input style="width: 50px; height: 20px;" type="button" value="Button"/></div>

b) How to create interactive web pages in using different DHTML components? [6]

**OR**

Q4) a) What is Scripting? Explain the two kinds of procedures in VBScript with example. [6]

b) Explain with example primitive data types of VBScript. [5]

Q5) a) What are the different ways to write VBScript in HTML document? Explain with suitable example. [6]

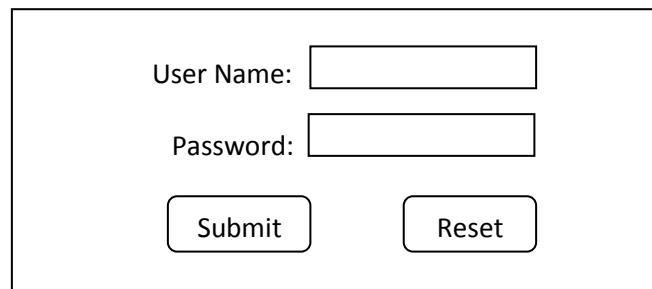
b) What is DOM? How it is used in DHTML to making dynamic web pages? [6]

**OR**

Q6) a) What are main differences between [6]  
i) ASP and JSP

ii) VBScript and JavaScript

b) Write a code in HTML that display the HTML form as shown in Fig below: [6]  
(When user enters the data in the text boxes & click the submit button, he/she should be redirected to another page with any of the submission method)



User Name:

Password:

## SECTION II

Q7) a) What are different types of functions in JavaScript? Write a function to calculate Average of variables a, b and c. Input must be taken from user and also embed this script in a web page. [6]

b) What is Event? Write short note on event handling in JavaScript with example. [6]

**OR**

Q8) a) Write a short note on JSP Architecture? Explain how web page is execute in JSP. [6]

b) What is Ajax? Explain Client-server communication Ajax technique in Web application with suitable example. [6]

- Q9) a) Explain the features of implicit objects in JSP. Describe any 4 types of implicit objects. [5]
- b) Write JavaScript code to find out maximum of three numbers ( All three numbers should be accepted from user and display the maximum among them in new text box on click of “Find Max” button) [6]

**OR**

- Q10) a) What are main differences between [6]
- i) ASP and ASP.NET
- ii) ADO and ADO.NET
- b) What is ASP? What are different objects in ASP? [5]
- Q11) a) What is validation? Write syntax of all validation controls in ASP.NET and validate the following Registration form using validation controls of ASP.NET. [8]

Registration Form Sample	
User ID:	<input type="text"/>
Name:	<input type="text"/>
Age:	<input type="text"/>
Mobile No:	<input type="text"/>
<input type="button" value="Register"/>	<input type="button" value="Reset"/>

- b) What is difference between HTML server control and Web server control in ASP.NET? [4]

**OR**

- Q12) a) Write Short Note on (Solve any three) [12]
- a) XML HttpRequest Object in Ajax.
- b) Global.asa file
- c) ADO.NET
- d) Web.Config file.

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 2]**

**[4366]- 403**  
**SYMCA (Engg. Faculty)**  
**OBJECT ORIENTED ANALYSIS AND DESIGN**  
**(Semester - IV) (2008 Pattern) (610911)**  
**MAY/JUNE 2013 EXAMINATIONS**

**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 in brief new features of UML 2.0 [5]  
b) Write short note on Model Driven Architecture. [6]

**OR**

- Q2) a) Explain the design view in 4 + 1 view architecture. [5]  
b) Explain in brief the phases of Rational Unified Process. [6]

- Q3) a) What is “Extensibility mechanism in UML”? Explain with example. [6]  
b) What is OCL? Explain with example. [6]

**OR**

- Q4) a) Which are the various behavioral diagrams in UML 2.0? Explain role of each diagram in brief. [6]  
b) Explain the benefits of using UML. [6]

- Q5) a) Explain aggregation and composition with example. [5]  
b) The university is in the process of uploading and updating the PhD guide list. [7]  
The guide uploads his academic details; the guide selects his stream (i.e. engineering, management etc.). He also has to select the research centre where he is associated or wants to associates. If the guide has vacancy, he can select the students from available waiting list at research centre. The guide can select maximum up to 8 PhD candidates and 4 M.Phil candidates. Draw use case diagram for this process.

**OR**

- Q6) a) Draw Class diagram for a “Library Management System”. Make necessary assumptions. [6]  
b) Explain the Composite structure diagram with example. [6]

## SECTION II

- Q7) a) Draw sequence diagram for withdrawing money functionality from ATM. Make suitable assumptions and scope. [7]  
b) Explain with example interaction overview diagram. [4]
- OR**
- Q8) a) Explain different combined fragments used in sequence diagram with example. [5]  
b) Explain communication diagram with suitable example. [6]
- Q9) a) Draw timing diagram for fully automated washing machine, assuming that washing machine has entire cycle of 40 minutes, of which it takes 5 minute time for soaking. Next 15 minutes for washing then 15 minutes for rinsing and last 5 minutes for spinning. [6]  
b) Explain partitions in activity diagram with suitable example. [6]
- OR**
- Q10) a) Explain states in state machine diagram with example. [5]  
b) Draw activity diagram for DTE's MCA admission procedure. Write assumptions and appropriate scope. [7]
- Q11) a) Draw deployment diagram for web application – online ordering of book. Write your assumptions clearly. [6]  
b) Describe UML web applications. [6]
- OR**
- Q12) a) What is the use of package diagram? Explain with example. [6]  
b) Draw component diagram for “Online Airline Reservation System”. [6]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 404**  
**SYMCA (Engg. Faculty)**  
**JAVA PROGRAMMING**  
**(Semester - IV) (2008 Pattern) (610912)**  
**MAY 2013 EXAMINATION**

**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) *Solve Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section –I and Q7 or Q8, Q9 or Q10, Q11 or Q12 from Section –II.*
- 5) *Assume Suitable data if necessary.*

**SECTION I**

- Q1) a) Justify “Java is platform independent language” [5]  
b) What is thread? How synchronization is achieved in Java using thread? [6]

**OR**

- Q2) a) What is inheritance? With example explain use of „super’ keyword in it. [6]  
b) What is iterator? Explain methods in iterator interface. [5]

- Q3) a) What are different listener interfaces in Java? Explain any two [6]  
b) What is difference between SWING and AWT? Explain use of JFrame and JTable SWING control. [6]

**OR**

- Q4) a) What are different layout managers? Explain Grid Layout in detail. [6]  
b) Design an application with two text fields and two buttons on it. Accept a number in a first text field. If Square button is pressed, display the square of entered number in second text field. If cube button is pressed, display cube of a number. [6]

- Q5) a) Write an applet program to implement simple calculator. [8]  
b) What is the difference between Applet and Application? Explain different ways to view applet. [4]

**OR**

- Q6) a) How to pass parameter to applet? Explain with example. [8]  
b) Explain life cycle of an applet. [4]

## SECTION II

- Q7) a) What is need of serialization? How it is achieved in Java? [6]  
b) Explain Stream Tokenizer class in detail? [5]
- OR**
- Q8) a) Write a program to find total number of occurrences of particular string in file "myfile.txt". Accept the string from console. [6]  
b) What interfaces are implemented by RandomAccessFile class? Explain methods of RandomAccessFile class. [5]
- Q9) a) Explain different JDBC drivers. [6]  
b) Write a java program to insert employee details like id, name, contact number, address into the database. [6]
- OR**
- Q10) a) What is the use of Statement class and how retrieve data from ResultSet? [6]  
b) What is metadata? How metadata is obtained using ResultSetMetaData class? [6]
- Q11) a) Write a program to implement echo server using Socket programming. [8]  
b) Explain different network exceptions. [4]
- OR**
- Q12) a) Explain URL and URLConnection class with example [8]  
b) What is internet addressing? Explain InetAddress class. [4]



**[4366]- 405**  
**SYMCA (Engg. Faculty)**  
**HUMAN COMPUTER INTERFACE (Elective-I)**  
**(Semester - IV) (2008 Pattern) (610913)**  
**MAY/JUNE 2013 EXAMINATIONS**

**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) Compare life critical system against commercial computer systems with reference to goals of user interface design. [6]  
b) What is reasoning? Explain different types of reasoning with examples. [6]

**OR**

- Q2) a) Explain following terms related to the human short – term memory. [6]  
1) Digit Span 2) Chunking  
b) What do you mean by „use of Metaphor’ in HCI? Explain any five metaphors used to teach new concept in interactive interface design. [6]

- Q3) Evaluate Microsoft Excel interface using the „Eight golden rules of interface design’. [12]

**OR**

- Q4) a) Explain the linguistic model – BNF and task action grammar in brief. [6]  
b) 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]

- Q5) a) State and explain Three pillars of interface design process. [6]  
b) Comments on arguments usually given for and against participatory design. [5]

**OR**

- Q6) a) Explain how scenarios help in the design process of interactive system. [6]  
b) Explain with valid examples how alignment and use of white spaces in text matter in designing layouts of screens in a user interface. [5]

**SECTION II**

- Q7) a) Explain different menu styles with examples. [6]  
b) The primary goal for menu, form fill in and dialog box designer is to create a [6]

sensible, comprehensible, memorable and convenient organization relevant to user's task. Explain with examples.

**OR**

- Q8) a) What are important issues while designing multiple window interfaces for an application? [6]  
b) Describe different command organization strategies. [6]

- Q9) a) Explain how following CSCW systems are useful for co-operative working. [6]  
1) Meeting Rooms  
2) Shared Drawing Surface  
b) Discuss important design issues involved in designing a web page. [6]

**OR**

- Q10) a) Compare online help and documentation Vs Printed documentation. [6]  
b) Enumerate any three error messages encountered by you in GUI based interactive System. What guidelines can you suggest for presenting these error messages in an effective style? [6]

- Q11) a) Write note on (any **two**) [6]  
1) Information visualization  
2) Evaluation of interface during active use  
3) Indirect pointing devices  
b) Some of the favorite techniques of web pages these days include automatic scrolling text boxes, moving marquees and constantly running animations. Discuss these features in terms of web page design guidelines. [5]

**OR**

- Q12) a) Give four benefits and three problems of touch screens and voice recognition input. [5]  
b) Write a short note on: Social acceptability of user interface. [6]

**ORGANIZATIONAL BEHAVIOR**  
**(ELECTIVE II)(2008 course)**

**Instructions to the candidates:**

- 1) *All questions are compulsory.*
- 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 side indicate full marks.*
- 5) *Assume Suitable data if necessary.*

**SECTION I**

Q1) Explain in brief individual group and organizational variables in the OB model, presented by Robbins. [11]

**OR**

Q2) a) Explain in brief Autocratic model of Organizational Behavior. [5]  
b) In detail explain Goal setting and Reward system. [6]

Q3) a) Do you think competition and conflict are different? Explain. [6]  
b) How are opportunities, constraints, and demands related to stress? Give an example of each. [6]

**OR**

Q4) a) Analyze the application of Maslow's and Herzberg's theories to an Indian nation where more than a quarter of the population is unemployed. [8]  
b) What is the role of self-efficacy in goal setting? [4]

Q5) a) Explain various ways of improving team effectiveness in an Organization. [6]  
b) What is Conflict? Under what conditions might conflict be beneficial to a group? [6]

**OR**

Q6) a) Define the term Group Dynamics. When do groups make better decisions than individuals? [6]  
b) Contrast self-managed and cross-functional teams. [6]

**SECTION II**

Q7) a) Write short note on Organizational design. [6]  
b) Define Leadership and explain importance of leadership to the organization. [6]

**OR**

Q8) Explain in detail Fiedler's contingency model and Path Goal theory. [12]

Q9) a) Explain the conflict process model. Also how conflicts can be minimized. [7]  
b) "Resistance to change is an irrational response." Do you agree or disagree? [5]

**OR**

Q10) a) Compare traditional Vs Modern view of conflict. [7]  
b) What type of structure works best with an innovation strategy, Cost-minimization strategy and imitation strategy? [5]

Q11) a) Explain various aspects of Quality? What is Total Quality Management? What are the benefits of TQM? [11]

**OR**

Q12) a) Explain the Objectives and steps involved in Re-engineering. [5]

b) Write a short note on: [6]

1. Bench marking

2. Learning Organization

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 2]**

**[4366]- 501**

**TY MCA(Engg. Faculty)**

**Principles and Practices for IT Project Management**

**(Semester - I) (2008 Pattern) (710901)**

**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) *Solve Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section –I and Q7 or Q8, Q9 or Q10, Q11 or Q12 from Section -II*
- 5) *Assume Suitable data if necessary.*

**SECTION I**

- Q1) a) Describe the characteristics of Management. [12]

**OR**

- Q2) a) Discuss the importance of management. [6]  
b) Elaborate the functions of management. [6]

- Q3) How IT helps in product design, product development and quality control? [12]  
Explain it with suitable examples for each?

**OR**

- Q4) Write an note on Application of IT in following with case study (Any Two) [12]  
1) Agriculture  
2) Stores  
3) Logistics

- Q5) What are the risks associated with Project Identification, Classification, Mitigation and Management in detail? [11]

**OR**

- Q6) a) Define project goals by identifying the project needs. [7]  
b) How to create work breakdown structure? [4]

## SECTION II

- Q7) a) How to organize a Project Team Explain Following [11]  
a) Accessing internal scales  
b) Creating a team  
c) Managing team issues

**OR**

- Q8) What are the ways and need for revising project plan? [11]

- Q9) a) How to structure the team? [4]  
b) What are formal technical reviews for teams? [4]  
c) What is the team bonding? [4]

**OR**

- Q10) Explain [12]  
a) Energy Audit  
b) Energy management  
c) Employee welfare

- Q11) a) What is the concept of change management with example? [6]  
b) What are the different Intellectual Property Rights ? [6]

**OR**

- Q12) Explain in detail at least Six Modern Approaches to Management? [12]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 502**  
**TYMCA (Engg. Faculty)**  
**COMPUTER GRAPHICS**  
**(Semester - V) (2008 Pattern) (710902)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[ Max. Marks : 70]**

**Instructions to the candidates:**

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 from Section –I and Q7 or Q8, Q9 or Q10, Q11 or Q12 from Section -II
- 2) Answers to the two sections must 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) Explain mid-point circle drawing algorithm. [6]
- b) Explain any two interactive devices. [6]

**OR**

- Q2) a) Derive the expression for decision parameter used in Bresenham's circle drawing algorithm. Explain the working of the algorithm. [6]
- b) Explain various methods of character generation. [6]

- Q3) a) Give the 3D transformation matrix for [6]
- i) Rotation
- ii) Scaling
- iii) Translation
- b) Explain the steps in scan conversion algorithm. [6]

**OR**

- Q4) a) Explain the difference in working of seed fill & edge fill algorithms. [6]
- b) What is the need of homogeneous coordinates? Give the homogeneous Coordinates for translation, rotation and scaling. [6]

- Q5) a) Discuss the structure of segment table and explain any two segment operation. [6]
- b) Describe Interior and exterior clipping [5]

**OR**

- Q6) a) Explain Sutherland-Hodgman algorithm in detail. [6]
- b) Describe viewing transformation and 2D clipping [5]

## SECTION II

- Q7) a) Write a short note on parallel projection and perspective projection. [6]  
b) Explain i) Scaling ii) Rotation iii) Translation w.r.t. 3D transformation. [6]

**OR**

- Q8) a) What is need of clipping? Explain the midpoint subdivision algorithm in 3D clipping. [6]  
b) Explain 3D viewing transformation. [6]

- Q9) a) Explain the RGB and HSI color model with the help of diagrams. [6]  
b) Explain the Warnock algorithm for hidden surfaces. [6]

**OR**

- Q10) a) Develop a model in which the light source illuminates the picture using Diffused illumination and point source illumination. [6]  
b) Explain the Painters algorithm for hidden surface algorithm. [6]

- Q11) a) Explain fractal lines, fractal dimension, fractal length in detail. [5]  
b) Explain the properties of Bezier curve. [6]

**OR**

- Q12) a) What is interpolation? Explain any interpolation method. [5]  
b) Explain the following: [6]  
1) Methods for controlling Animation  
2) Graphics Kernel System



**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 503**  
**TYMCA (Engg. Faculty)**  
**ADVANCED DATABASES**  
**(Semester - V) (2008 Pattern) (710903)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70]**

**Instructions to the candidates:**

- 1) Answers to the two sections should be written in separate books.**
- 2) Neat diagrams must be drawn wherever necessary.**
- 3) Assume Suitable data if necessary.**

**SECTION I**

- Q1) a) With suitable diagrams explain the steps in query processing. [5]  
b) Explain the external sort merge algorithm with suitable example. [6]

**OR**

- Q2) a) What are the measures of query cost? [5]  
b) Explain the different ways of executing pipelines. [6]

- Q3) a) Explain Transaction Server Process Structure. [6]  
b) What are the implementation issues of distributed systems. [6]

**OR**

- Q4) a) Explain Speed up & Scale up. [6]  
b) Explain centralized and client server database architecture [6]

- Q5) a) Explain object identity and reference type? [6]  
b) Why OODBMS is required Differentiate between DBMS, RDBMS and OODBMS. [6]

**OR**

- Q6) a) Explain Array and Multiset in SQL with example. [6]  
b) Explain persistent C++ system. [6]

**SECTION II**

- Q7) a) While analyzing the data, it was found that many tuples have no recorded values for several attributes. How this problem of missing values can be solved? [6]  
b) Explain snowflake schema for multidimensional database. [6]

**OR**

- Q8) a) Explain in brief OLAP. What are the possible operations on cube? [6]  
b) Explain star schema for multidimensional database. [6]

- Q9) a) Form clusters using clustering K-Means algorithm. Use appropriate distance formula. [8]

RID	Age	Years of Service
1	30	5
2	50	25
3	50	15
4	25	5
5	30	10
6	55	25

- b) Explain outlier analysis [4]

**OR**

- Q10) a) Find frequently occurred item using apriori algorithm. [8]

TID	ITEM
100	1,3,4
200	2,3,5,
300	1,2,3,5
400	2,5

- b) Explain descriptive & predictive data mining. [4]

- Q11) a) Describe the ranking using TF-IDF. [8]

- b) Define the following terms. [3]

1) Hub 2) Authority 3) Web crawler

**OR**

- Q12) a) Describe the popularity ranking. [8]

- b) Define the following terms- [3]

1) Ontology 2) Search engine spamming 3) False positive

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 02]**

**[4366]- 504**  
**TYMCA (Engg. Faculty)**  
**ENTERPRISE RESOURCE PLANNING**  
**(Semester - V) (2008 Pattern) (710904)**  
**MAY 2013 EXAMINATIONS**

**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 an Enterprise? Define ERP and explain benefits of ERP. [6]  
b) Explain about various resources that ERP needs to manage for an organization. [6]

**OR**

- Q2) a) Briefly explain tangible and non-tangible benefits that ERP for organization. [6]  
b) ERP is an integrated System. Explain the benefit of Integrated System. [6]

- Q3) a) Why users are reluctant towards the implementation of ERP system? How should one deal with such user resistance? [6]  
b) Explain how the Organizational Departmental Culture affects ERP implementation. [6]

**OR**

- Q4) a) What is Change management? How it is one of the major challenges for ERP System? [6]  
b) Explain the role of management in successful implementation of ERP [6]

- Q5) a) Explain critical success factors (CSF) for ERP. What are the reasons for ERP failure? [6]  
b) What are the ERP softwares available in the market? Compare any two of them. [5]

**OR**

- Q6) a) What are the major infrastructure requirements for implementation of ERP system for a bank providing financial services? [6]  
b) Explain the steps in ERP implementation. What is to be done during post implementation phase? [5]

## SECTION II

- Q7) a) Explain the importance of forming selection criteria for the ERP selection process. Explain the selection criteria for ERP software. [6]  
b) Compare the implementation ERP system with Off the Shelf and In-house developed ERP packages. [6]

**OR**

- Q8) a) Explain the Design and Customization Issues for ERP implementation. [6]  
b) Explain the concept of outsourcing the context of ERP. [6]

- Q9) a) What is the difference between CRM and SCM systems? [6]  
b) Explain how ERP plays an important role in global business. [6]

**OR**

- Q10) a) What is Business Process Re-engineering (BPR) & its impact on ERP implementation? [6]  
b) What are the differences between domestic and global ERP implementation? Explain. [6]

- Q11) a) What are the typical ERP system modules? Explain any three of them. [6]  
b) Explain the functions, sub systems and features of the HR module. [5]

**OR**

- Q12) a) Explain the relationship among Production, Scheduling, Manufacturing, Sales & Marketing modules of ERP. [6]  
b) Explain the Finance and Production, Scheduling modules of ERP. [5]

**Total No of Questions: [12]**

**SEAT NO. :**

**[Total No. of Pages : 04]**

**[4366]- 505**  
**TYMCA (Engg. Faculty)**  
**SOFTWARE TESTING(Elective-II)**  
**(Semester - V) (2008 Pattern) (710905)**  
**MAY 2013 EXAMINATIONS**

**Time: 3 Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) Answer 3 questions from Section – I and Section - II.**
- 2) Answers to the two sections should be written in separate answer books.**
- 3) Neat diagrams must be drawn wherever necessary.**
- 4) Assume Suitable data if necessary.**

**SECTION I**

- Q1) a) What is software measurement? Explain its classification in detail. [8]  
b) Explain representation theory of measurement. [4]
- OR**
- Q2) a) What is data? Explain how to collect, store and extract data. [8]  
b) Explain four principles of investigation. [4]
- Q3) a) Explain in detail Halstead software science. [8]  
b) Differentiate time and space complexity. [3]
- OR**
- Q4) a) Explain object oriented metrics in detail [8]  
b) Explain Goal Question Metric paradigm. [3]
- Q5) a) What are the steps involved in preparation of test plan? Explain the steps briefly. [8]  
b) Explain organization structure for testing teams. [4]
- OR**
- Q6) a) Explain different type of defects. What is defect repository? Also explain how defect repository provides support to developer/tester. [6]  
b) What is Test case and Test suit? Explain it in detail. [6]

## SECTION II

- Q7) a) Explain the need of test plan in software testing. [5]  
b) What is meant by testing defects? Explain it in detail. [7]

**OR**

- Q8) a) Distinguish between White Box testing and Black box Testing. What is use of structural testing? [6]  
b) Explain different types of static analysis tools. [6]

- Q9) a) Write short note on: [6]  
i) Validation Testing  
ii) Unit Testing  
b) What is domain testing? Explain its use. [5]

**OR**

- Q10) a) Explain the need of adhoc testing. [5]  
b) Write short note on: [6]  
i) Integration Testing  
ii) Specification based testing

- Q11) a) What are the challenges and best practices encountered in problem resolution? [6]  
b) Explain Testing the shipment unit. [6]

**OR**

- Q12) a) Explain the different tools and repositories present in problem reporting phase. [8]  
b) Explain the best practices which should be followed to improve fix distribution activity. [4]

## Neural Networks and Fuzzy logic (Elective-II)

### SECTION I

- Q1) a) Explain with neat diagram biological neural network. Compare its performance with artificial Neural Network. [6]
- b) What is clustering and what are different methods of clustering? Discuss winner takes all learning network. [6]

**OR**

- Q2) a) Using MC-Cullochpitts model implement the following logic functions. [6]
- i) Ex-OR gate.
- ii) Ex-NOR gate.
- iii) AND gate.
- iv) NAND gate.
- b) Compare supervised learning with unsupervised learning. Give suitable example to explain. [6]

- Q3) How weights are adjusted with sigmoid activation function? Explain with example. [12]

**OR**

- Q4) a) Write a short note on [6]
- i) Linearly Non-separable classification problem.
- ii) Hebb's rule
- b) Explain how the delta rule is used to adjust the weights of Adaline network. [6]

- Q5) a) What is backpropagation? With a schematic two-layer feed forward neural network, derive its learning algorithm. [5]
- b) Draw a 3-Layer Feed Forward Neural Net Architecture. How we decide the number of neuron in the input and output layer for a particular application? [6]

**OR**

- Q6) a) Explain the architecture and training algorithm used in Hopfield network. [6]
- b) What are the applications of back-propagation algorithm? [5]

## SECTION II

Q7) Explain the properties of Commutativity, Associativity, Distributivity, Idempotence, Identity with respect to crisp sets. [12]

**OR**

Q8) Write short notes on [12]  
i) Adaptive fuzzy system  
ii) Knowledge base  
iii) Decision making logic in fuzzy logic control systems.

Q9) a) Define defuzzication. Explain different methods of defuzzication. [6]  
b) What are the rules based format used to represent the fuzzy information? [6]

**OR**

Q10) a) Given  $X=\{x_1, x_2, x_3, x_4\}$  of four varieties of paddy plants,  $D=\{d_1, d_2, d_3, d_4\}$  of the various diseases affecting the plants and  $Y=\{y_1, y_2, y_3, y_4\}$  be the common symptoms of diseases. Find SUP-MIN composition. [6]  
b) Discuss in brief how fuzzy rule based model is used for function approximation. [6]

Q11) a) Explain theory of approximate reasoning. [5]  
b) What are fuzzy implications? Discuss criteria for fuzzy implications. [6]

**OR**

Q12) a) Write about conditional fuzzy proposition and unconditional fuzzy proposition. [5]  
b) What are fuzzy modifiers? Explain with an example. [6]