

Total No. of Questions : 7]

SEAT No. :

P1857

[Total No. of Pages :2

[4775]-101

MCA. (Management Faculty) (Semester - I)

IT - 11: COMPUTER ORGNIZATION

(2012 and 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 and 7 are compulsory.*
- 2) *Answer any four from Q.No. 2 to 6.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw Neat diagram wherever necessary.*

Q1) a) Discuss 64-bit pentium Dual core processor architecture with neat diagram. [10]

b) Explain Instruction and Execution Cycle. [5]

Q2) a) Construct 1×8 De-multiplexer and explain it with truth table. [5]

b) Construct D-flip flop and describe its functions. [5]

Q3) a) Convert the following: [5]

i) $(127.6)_8 = (?)_{16}$

ii) $(AFED.15)_{16} = (?)_{10}$

b) Solve $F(A,B,C,D) = \sum (1,3,5,9,13,15)$ using karnaugh's map. [5]

Q4) What is DMA? Draw the block diagram of DMA transfer operation. [10]

Q5) Explain various types of interrupts. [10]

P.T.O.

- Q6)** a) Compare RISC Vs. CISC architecture. [5]
b) What is pipelining? Discuss arithmetic pipelining with flow diagram.[5]

Q7) Write short notes on any three. [3 × 5 = 15]

- a) Universal Gates
- b) Assembler
- c) Types of registers in Microprocessors
- d) Micro Programmed Control Memory



Total No. of Questions : 7]

SEAT No. :

P1858

[Total No. of Pages : 2

[4775]-102

M.C.A. (Management Faculty) (Semester - I)

IT - 12 : C PROGRAMMING

(2012 & 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 compulsory.*
- 2) *Solve any five questions from question number 2 to 7.*
- 3) *Assume suitable data whenever necessary.*
- 4) *Figure at right hand indicates full marks.*

Q1) Answer the following questions. (any four)

[4 × 5 = 20]

- a) What are command line arguments? Explain
- b) What is the benefit of using an enum rather than #define constant?
- c) Discuss the precedence of operator in C.
- d) What are macros?
- e) List all Dynamic Memory allocation functions.

Q2) a) Find LCM of a number using recursion in C program.

[5]

b) Write a C program to find the sum of following series.

[5]

$$\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots \dots \frac{x^n}{n!}$$

Q3) a) Write a C program that find the sum of lower triangular elements of matrix. **[5]**

b) Write a function to concatenate the two strings without using library function. **[5]**

P.T.O.

- Q4)** a) Find the n^{th} bit of a number is one or zero using bit- wise operators.[5]
b) What is ternary operator? Explain with example. [5]
- Q5)** Write a graphics C program that accept 'n' points from user and draw a polygon and fill it with cross line pattern. [10]
- Q6)** Write a C program to calculate difference between two dates. (use structure variable to store date) [10]
- Q7)** Write a C program to read a text file and find out the frequency of each character. [10]



Total No. of Questions : 7]

SEAT No. :

P1859

[Total No. of Pages : 2

[4775]-103

M.C.A. (Management Faculty) (Semester - I)

IT - 13 : SOFTWARE ENGINEERING

(2012 & 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 & 7 is compulsory.*
- 2) *Attempt any three from the remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Write assumptions wherever necessary.*

Q1) Following activities describe a simplified process model of Loan Accounting System of a Bank. Reserve Bank of India sends parameters such as Loan Limits, Interest Rates for different type of loans. Customers approach bank for loans and furnish all details. Bank scrutinizes the applications and either approves or disapproves the proposals. For approved proposals the new loan account is created and loan amount is debited on that loan account. Customer pays loan installments every month and upon such payments the account is credited and the transaction is recorded. The interest is computed every month by scanning all transactions (credits) during that month. Whenever the customer demands, Statement of Account is given. Interest Statement is given to General Manager from the Interest Register. New Loan Sanctioned Statement is generated every year and is submitted to RBI.

Prepare SRS (Scope, objective, function requirements, system specification) for the above system. **[20]**

Q2) Draw Decision Tree and Decision Table for the following case : **[10]**

All the states in country have arranged to implement Value Added Tax (VAT) on the various commodities sold in their respective states. The VAT rules are as follows:

1. If the commodity is product within the state 4% VAT is applicable.
2. If commodity falls in Specified List. Non-listed Commodities will be charged 8% VAT.
3. If the commodity is from outside state, 8% VAT is applicable for all.

P.T.O.

4. If the commodity is imported, then 12% VAT is applicable for all.
5. If it is second sale, the 4% VAT is applicable for all Commodities.

Q3) A RTO has laid down following procedure for obtaining Permanent Driving License for various noncommercial vehicles. A candidate for valid Learning License can submit his form and License test fees of his own or through Motor Driving School. The data on form is entered and exact date and time of driving test will be allocated to the candidate. The available Inspector will conduct Test and ask question related to traffic sine to the candidate. On the basis of test and answer, the concerned Inspector puts his remarks on the form and makes signature along with his name and designation. If the remark is PASSING, the candidate has to pay License Fees at a cash counter and a cash receipt will be given to candidate. Candidate can collect License after 3 days. The clerk at cash counter adds the test data, Fees data details to the form record. The form test data then is compiled by EDP officer, generates license and hands it over to counter clerk. A License will be given to candidate after the cash receipt.

- A) Draw E-R Diagram [5]
- B) Draw context DFD [5]

Q4) Compare Spiral Model and RAD Model. [10]

Q5) Explain the features of a modern GUI form with a suitable example. [10]

Q6) Explain method of estimating software maintenance cost. Give various components of legacy systems. [10]

Q7) Write short notes on (any 4) : [20]

- a) Agile process.
- b) Code Design.
- c) Reverse engineering.
- d) Prototype Model.
- e) Case Tools.



Total No. of Questions : 6]

SEAT No. :

P1860

[Total No. of Pages : 2

[4775]-104

**M.C.A. (Management Faculty) (Semester - I)
BM - 11 - 104 : PRINCIPLES AND PRACTICES OF
MANAGEMENT AND ORGANIZATIONAL BEHAVIOR
(2012 & 2013 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Attempt any 3 from the remaining.*
- 3) *Figures to the right indicate full marks.*

Q1) a) Define OB. Explain the different challenges in OB with reference to globalization & its impact on people management. **[15]**

b) Describe the various decision making environment with example. **[10]**

Q2) What are the different ego states? Explain use of transactional analysis for conflict management. **[15]**

Q3) Define Leadership & State its importance along with its styles. **[15]**

Q4) Discuss the contribution of 'Henry Fayol' for the field of management. **[15]**

Q5) Define 'Organization'. Also write in detail on Organization structures. **[15]**

P.T.O.

Q6) Write short note (any 3) :

[15]

- a) Principles of Bounded Rationality
- b) Theory of X Vs Theory of Y.
- c) Team building.
- d) Planning.
- e) JOHARI window.



Total No. of Questions : 4]

SEAT No. :

P1861

[Total No. of Pages : 3

[4775]-105

M.C.A. (Management Faculty) (Semester - I)

MT-11:150 DISCRETE MATHEMATICS

(2012 & 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. 1 is compulsory.
- 2) Solve any two from Question number 2, 3 & 4.
- 3) Use of statistical table and non programmable calculator is allowed.
- 4) Figures to the right indicate full marks.

Q1) Attempt the following :

- a) Test the validity of the following argument : [5]

$$P_1 : \neg (A \wedge \neg B), P_2 : \neg B \vee D, P_3 : \neg D, C : \neg A$$

- b) Let $A = \{1, 2, 3, 4\}$ and $R = \{(1, 2), (2, 1), (2, 3), (3, 4)\}$. Find $R +$ (Transitive closure) by using Warshall's algorithm. [5]

- c) How many words, with or without meaning, can be formed out of the letters of the word 'CORRESPONDENCE'? How many if two R's should be together? [5]

- d) Find the number of integer valued solutions of the following equation. [5]

$$x_1 + x_2 + x_3 = 33 \quad x_1 > 4, x_2 \geq 6, x_3 > 4$$

- e) State and prove formula Derangement. [5]

- f) Show that (Z_7^*, \times_7) is an abelian group. Where Z_7^* a set of all prime residue classes modulo 7 and \times_7 is multiplication modulo 7. [5]

P.T.O.

Q2) Solve the following :

- a) Obtain PCNF for the following : [5]

$$(P \wedge Q) \vee (\neg P \wedge Q) \vee (P \wedge \neg Q)$$

- b) Let $X = \{1, 2, 3\}$ and f,g and h be relations defined on X given by : [7]

$$f = \{(1, 2), (2, 3), (1, 1)\}$$

$$g = \{(1, 2), (2, 1), (3, 3)\}$$

$$h = \{(1, 1), (2, 2), (3, 1)\}$$

Determine which of the above relations are function, injective function and surjective function.

- c) i) Find the coefficient of $x^4y^9z^4$ in the expansion of $(2x^2 + 3y^3 - z)^9$.
ii) Find the number of ways of seating m women and n men ($m < n$) at a round table so that no 2 women sit side by side.

[8]

Q3) Solve the following :

- a) Indicate the variables that are free and bound. Also show the scope of the quantifiers in the following : [5]

i) $(x)(P(x) \wedge R(x)) \rightarrow (x)P(x) \wedge Q(x)$

ii) $(x)P(x) \leftrightarrow Q(x) \wedge (\exists x)R(x) \wedge S(x)$

- b) Write code words generated by H where : [7]

$$H = \begin{pmatrix} 1 & 1 & 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 \end{pmatrix}$$

What is the minimum weight of the non-zero code word in the above code words? How many errors can the code generated by H detect?

- c) i) Using combinatorial argument prove the following binomial identity. [4]

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

- ii) A survey of 500 television viewers produces the following information: 285 watch cricket; 195 watch hockey; 115 watch tennis; 45 watch cricket and tennis; 70 watch cricket and hockey, 50 watch hockey and tennis; 50 do not watch any of the three games. [4]
How many people in the survey watch all the 3 games?

Q4) Solve the following : [5]

- a) Let $X = \{1, 2, 3, 4, 5\}$ and $R : X \rightarrow X$ be defined as :

$R = \{(1, 4), (2, 3), (2, 4), (3, 5), (4, 1), (5, 2), (4, 5), (5, 1)\}$ find :

- i) Converse of relation R.
ii) Relation matrix.
iii) Graph of relation.

- b) Test the validity of the following argument : [7]

If Tina marries Rahul, she will be in Pune. In Tina marries Ganesh, she will be in Mumbai. If she is either in Pune or Mumbai, she will definitely be settled in life. She is not settled in life. Thus she did not marry Rahul or Ganesh.

- c) i) There are six questions in the paper of Discrete Mathematics, how many ways are there to assign marks to each problem if the sum of the marks is 70 and each question is worth at least 10 marks? (No question carries fractional marks). [8]
- ii) Show that in a group $(G, *)$, if for any $\forall a, b \in G (a * b)^2 = a^2 * b^2$ then G is an abelian group.



Total No. of Questions : 7]

SEAT No. :

P1823

[4775] - 11

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - I)
IT - 11 : COMPUTER ORGANIZATION
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Solve any four from the remaining.*
- 3) *Draw neat diagram wherever necessary.*

Q1) a) Compare pentium processor with 80486 processor architecture with neat diagram. **[10]**

b) Explain any one synchronous counter in detail. **[5]**

Q2) Convert the following : **[5 × 2 = 10]**

a) $(101110)_2 = (?)_8$

b) $(952)_{10} = (?)_8$

c) $(11010011)_2 = (?)_{16}$

d) $(ABC)_{16} = (?)_2$

e) $(127.54)_8 = (?)_{10}$

Q3) What is duality theorem? Explain master slave flipflop working in detail. **[10]**

Q4) Explain memory Hierarchy with neat diagram in detail. **[10]**

Q5) Write a brief note on programming language paradigm. **[10]**

Q6) Explain instruction-Execution-Interrupt cycle in detail with neat diagram. **[10]**

P.T.O.

Q7) Write Short notes (Any three):

[3 × 5 = 15]

- a) Interrupts
- b) Performance of processor.
- c) Multiplexer
- d) Addressing modes.



Total No. of Questions : 7]

SEAT No. :

P1824

[4775] - 12

[Total No. of Pages : 3

M.C.A. (Management Faculty) (Semester - I)
102 : C - PROGRAMMING
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question one is compulsory.*
- 2) *Solve any five questions from 2 to 7.*
- 3) *Assume suitable data whenever necessary.*
- 4) *Figure write hand indicates full marks.*
- 5) *Answer all parts of a question at one place.*
- 6) *Answer each part concisely.*

Q1) Explain and find output of the following programs.

[20]

- a)

```
#include<stdio.h>
int main (){
    int x,num=4;
    x=call(num);
    printf("%d",x);
    return 0;
}
int call(int num){
    static int x=1,y;
    if(num>0){
        x=x*num;
        y=call(num-1)+call(num-2);
    }
    return x;
}
```
- b)

```
#include "stdio.h"
int main(){
    char arr[100];
    printf("%d",scanf("%s",arr));
    /* Suppose that input value given
    for above scanf is "GeeksQuiz"*/
    return 1;
}
```

P.T.O.

- c) `#include <stdio.h>`
`// Assume base address of "GeeksQuiz" to be 1000`
`int main(){`
`printf(5 + "GeeksQuiz");`
`return 0;`
`}`
- d) `#include<stdio.h>`
`#define TOTAL_ELEMENTS (sizeof(array) / sizeof(array[0]))`
`int array[] = {23,34,12,17,204,99,16};`
`int main(){`
`int d;`
`for(d=-1;d<=(TOTAL_ELEMENTS-2);d++)`
`printf("%d/n",array[d+1]);`
`return 0;`
`}`
- e) `# define prod(a,b)=a*b`
`main(){`
`int x=2;`
`int y=3;`
`printf("%d",prod(x+2,y-10));`
`}`

- Q2)** a) Write a recursive function to find the sum of digits of a number. [5]
b) Write a C program to find out the sum of series $1/1! + 2/2! + \dots + n/n!$. [5]

- Q3)** a) Write a C program to accept a matrix of order $N \times N$ and display its major and minor diagonal elements. [5]
b) Write a C program to print Pascal triangle: [5]

```

          A
        A B A
      A B C B A
    A B C D C B A
  A B C D E D C B A

```

Q4) Write a C program to create a file called emp.txt and store information about n persons, in terms of their name, age and salary. Read the file and display the persons whose salary is more than average salary of all persons. **[10]**

Q5) Write a C program to create Item structure having field Item_code, Item_name, Price and Quantity. Store n items information in Item structure and calculate the total price of each item and total price of all items. (total price of item = item price × quantity) **[10]**

Q6) a) Write a graphics program to display concentric ellipse. **[5]**

b) Write a C program to find the position of a sub-string in another string. **[5]**

Q7) Write Short notes (any two) : **[10]**

a) Command-line arguments in the C language.

b) Conditional inclusion

c) Union in C.



Total No. of Questions : 6]

SEAT No. :

P1825

[4775] - 13

[Total No. of Pages : 1

M.C.A. (Management Faculty) (Semester - I)
BM.11 - 103 : PRINCIPLES AND PRACTICES OF
MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Questions No. 1 is compulsory.*
- 2) *Attempt any 3 from the remaining.*
- 3) *Figures to the right indicate full marks.*

- Q1)** a) Explain the need and scope of management in every type of organization. **[15]**
b) Explain with examples the management skill is essential for efficient and effective management. **[10]**
- Q2)** What is organisational structure? Discuss the principles of organisational structure. **[15]**
- Q3)** What are the different 'Leadership styles'? What types of leadership style is effective in informal organisation. **[15]**
- Q4)** What are the causes of organisational conflicts? Explain with help of Johari window. **[15]**
- Q5)** What do you understand by "Managerial Decision making"? Describe the various decision making environments with examples. **[15]**
- Q6)** Write Short Notes (any three) : **[15]**
- a) Line Vs Staff
 - b) OB models
 - c) Group Dynamics
 - d) Team Building
 - e) Planning Function



P.T.O.

- Q3)** a) What is Inter process Communication? [2]
b) Explain Shared Memory and Message passing models for IPC. [8]
- Q4)** How many page faults occur for FIFO, LRU and optimal page replacement algorithms for the. Following reference string with 3 page frames? State which algorithm gives you the minimum no of page faults. [10]
1 2 3 2 1 5 2 1 6 2 5 6 3 1 3 6 1 2 4 3
- Q5)** Explain the concept of segmentation with the help of example. [10]
- Q6)** Explain the different levels of RAID. [10]
- Q7)** Write short notes (any four) : [20]
a) Layered structure for operating system.
b) Memory Fragmentation
c) C-SCAN Scheduling
d) Global Operating system
e) Network File system (NFS)



Total No. of Questions : 4]

SEAT No. :

P1827

[4775] - 15

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - I)
MT - 11 : DISCRETE MATHEMATICS
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Attempt any two questions from Q. No. 2,3 and 4.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of scientific Calculator is allowed.*

Q1) a) Show that $(P \rightarrow Q) \rightarrow Q \Rightarrow P \vee Q$. **[5]**

b) Prove that $((\exists x)(P(x) \wedge Q(x)) \rightarrow (\exists x)P(x) \wedge (\exists x)Q(x))$. **[5]**

c) Let $A = \{1, 2, 3\}$ and f, g and h be functions from A to A such that
 $f = \{(1, 2), (2, 3), (3, 1)\}$, $g = \{(1, 2), (2, 1), (3, 3)\}$ and $h = \{(1, 1), (2, 2), (3, 1)\}$.
Then find **[5]**

- i) $f \circ g$
- ii) $f \circ g \circ h$
- iii) $f \circ h \circ g$

d) Given $A = \{1, 2, 3, 4\}$ and relation $R: A \rightarrow A$ is $R = \{(1, 2), (2, 1), (2, 3), (3, 4), (4, 1)\}$.
Find the transitive closure of R . **[5]**

e) Show that sum of degrees of all the vertices in a graph is twice of the number of edges. **[5]**

f) Define Complete graph, Regular graph with suitable examples. **[5]**

Q2) a) A relation

$$R = \{ \langle 1, 1 \rangle, \langle 1, 2 \rangle, \langle 1, 4 \rangle, \langle 2, 1 \rangle, \langle 2, 2 \rangle, \langle 3, 2 \rangle, \langle 3, 3 \rangle, \langle 4, 4 \rangle \}$$

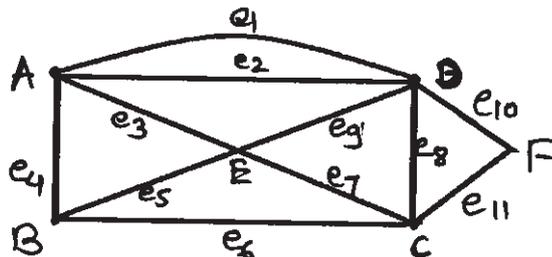
defined over the set $A = \{1, 2, 3, 4\}$. Is R an equivalence relation? **[5]**

b) Let $A = \{1, 2, 4, 6, 8\}$ and for $a, b \in A$, define $a \leq b$ if and only if b/a is an integer. Show that \leq defines a partial order on A . Also draw the Hasse diagram. **[7]**

P.T.O.

- c) i) Obtain the PDNF of $(\neg P \vee \neg Q) \rightarrow (P \leftrightarrow \neg Q)$ [4]
 ii) Prove that a binary tree T with n vertices has $(n+1)/2$ pendant vertices. [4]

Q3) a) Obtain the incidence and adjacency Matrix for the following Graph. [5]



- b) Define : Eulerian Circuit & Hamiltonian Circuit With Examples? [7]
 c) i) Show that $(x)(y)(P(x, y) \rightarrow W(x, y)), \neg W(a, b) \Rightarrow \neg P(a, b)$ [4]
 ii) Show that the following set of premises is inconsistent.
 $A \rightarrow (B \rightarrow C); D \rightarrow (B \wedge \neg C)$ and $A \wedge D$ [4]

- Q4) a) Let $G = \{1, 2, 3, 4, 5, 6\}$. Find whether (G, X_7) is a cyclic group. If yes how many generators are there? [5]
 b) Define Hamming distance between two words X and Y. State the properties of Hamming Distance. Define the minimum distance of a code. Give examples. [7]
 c) Write the code words generated by H, where [8]

$$H = \begin{bmatrix} 1 & 0 & 1 & 1 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & 1 & 1 & 0 & 0 & 1 \end{bmatrix}$$



Total No. of Questions : 8]

SEAT No. :

P1862

[Total No. of Pages : 4

[4775] - 201

M.C.A. (Management Faculty) (Semester - II)

IT - 21 : OBJECT ORIENTED PROGRAMMING WITH C++
(2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 is compulsory.*
- 2) *Answer any six questions from remaining questions.*
- 3) *Figures to the right indicate full marks.*

Q1) A) What will be the output of following program?

[10]

```
# include < iostream.h>
# define SQUARE(x) x*x
inline float square(float y)
{
    return y*y;
}
int main()
{
    float a = 0.5, b = 0.5, c, d;
    c = SQUARE(++a);
    d = square(++b);

    cout <<c <<endl <<d;

    return 0;
}
```

P.T.O.

```

B)  Const int size = 5;
    void print (int * ptr) {
        cout << ptr [0];
    }

    void print (int ptr [ ]){
        cout << ptr [0];
    }

    void main ()
    {
        int a [size] = {1,2, 3,4, 5};
        int *b = new int (size);
        print (a);
        print (b);
    }

C)  int & fun ()
    {
        static int a = 10;
        return a;
    }

    int main ()
    {
        int & y = fun ();
        y = y+30;
        cout << fun ();
        return 0;
    }

```

```

D) #include<iostream.h>
void execute (int x, int y = 200)
{
    int temp = x + y;
    x += temp;
    if(y!= 200)
        cout <<temp<<x<<y<<endl;
}
void main()
{
    int a = 50, b = 20;
    execute(b);
    cout<<a<<b<<endl;
    execute(a, b);
    cout<<a<<b<<endl;
}

```

```

E) #include<conio.h>
#include<iostream.h>
#include<iomanip.h>
void main()
{
    int x=100;
    float f=56.75;
    cout<<hex<<x<<dec<<x<<endl;
    cout<<setw(8)<<setfill('0')<<f
}

```

Q2) A) Explain static member function and static data member. [5]

B) Write a program to demonstrate copy constructor. [5]

Q3) A) What is the need of virtual base classes? Give an example to illustrate the need for virtual base class. [5]

B) What is name conflict problem? How can it be solved using namespaces? [5]

Q4) Explain different types of inheritance with suitable examples of each type. **[10]**

Q5) A) Write a program to overload '+' operator to concatenate two strings. **[5]**

B) Write a program to read text file and count number of characters in it. **[5]**

Q6) A) Write a program to demonstrate default arguments and constant arguments for a function. **[5]**

B) Draw a comparison between different casting operators. **[5]**

Q7) A company has following details of their employees in the file 'emp.dat'. **[10]**

a) Emp ID

b) Emp Name

c) Emp Address

d) Emp Dept (Admin/Sales/Production/IT)

e) Emp phone

f) Emp Age

Write a program to read the above file. Create new files such as Adm.dat, Sal.dat, Pro.dat, IT.dat respectively, to store the employee details according to their department.

Q8) Write short notes on (any two) : **[10]**

A) Virtual Destructors

B) Friend function and Friend Class

C) Exception Handling Mechanism



Total No. of Questions : 6]

SEAT No. :

P1863

[4775] - 202

[Total No. of Pages : 2

M.C.A. (Semester - II) (Management Faculty)
IT - 22 : DATABASE MANAGEMENT SYSTEM
(2012-13 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. No. 1 and 6 are compulsory.*
- 2) *Solve any three questions from remaining.*
- 3) *State assumption wherever necessary.*

Q1) Global computer institute conduct various short term Diploma courses. Each diploma course has various subjects. One faculty can teach more than one subject and one subject can be taught by more than the faculty. There are three Batches of morning. Afternoon and Evening. Student can opt for any one batch. The students can pay the fees of the course in 2 installments. Represent the above can study through an ER diagram and normalized (3NF) file layout. **[20]**

Q2) Define characteristics of DBMS. Explain Database Users. **[10]**

Q3) Explain two phase locking techniques in concurrency control. **[10]**

Q4) Explain Log-band recovery technique in detail **[10]**

Q5) Write SQL statement for the following (any 5) **[10]**

- a) Supplier (Sup-no, sup-name, city, states)
- b) Part (part - no, part-name, weight, colour, price)
- c) Shipment (sup-no, part-no, qty).

sup-no and part-no are primary keys.

- i) find the entire supplier who supplies "SCREW"
- ii) Display the total no. of suppliers from each city.

P.T.O.

- iii) Display the supplier name, part name with quantity more than 100.
- iv) Delete the supplier from city 'Pune' and status is 10
- v) Change the status for Mumbai as 20
- vi) Find the total weight and total price for all parts.

Q6) Write short notes on (any four)

[20]

- a) E.F. Codd's rules any five
- b) Non-SQL database
- c) Mandatory access
- d) File Organization
- e) Generalization



Total No. of Questions : 7]

SEAT No. :

P1864

[Total No. of Pages : 1

[4775] - 203

M.C.A. (Management Faculty) (Semester - II)

IT - 23 : OPERATING SYSTEM CONCEPTS

(2012-13 Pattern)

[Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 and 7 are compulsory.*
- 2) *Solve any 4 (four) from remaining.*
- 3) *Make suitable assumptions & Draw neat diagrams if required.*

Q1) a) Explain the concept of paging with example. **[10]**

b) What is difference between contiguous and Non Contiguous memory allocation? **[5]**

Q2) Explain Different types of Disk scheduling algorithms with suitable examples. **[10]**

Q3) Explain file structure and directory structure. **[10]**

Q4) What do you mean by process synchronization? Explain critical section problem. **[10]**

Q5) Explain preemptive and non-preemptive CPU scheduling algorithms. **[10]**

Q6) Explain SCAN and C-SCAN algorithms for disk scheduling. **[10]**

Q7) Write short note on (any 3) **[15]**

- a) Virtual Machine
- b) Process Control Block
- c) Centralized OS Vs Distributed OS
- d) Features of Android OS



Total No. of Questions : 7]

SEAT No. :

P1865

[Total No. of Pages : 1

[4775] - 204

M.C.A. (Management Faculty) (Semester - II)

**BM - 21 : 204 - Management Information System and Business Intelligence
(2012 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 7. is compulsory.*
- 2) *Solve any five questions from Q. 1 to Q. 6.*

Q1) Draw and explain B. I. Architecture. Enlist BI Application in various domains. **[10]**

Q2) What is system. Explain types of systems. Also explain how feedback control is important within the system. Give suitable example. **[10]**

Q3) Define M.I.S. Explain the structure of MIS based on Management functions. **[10]**

Q4) What is BI Analytics. Explain discriminant and logistic regression method with suitable example **[10]**

Q5) Define D.S.S. Explain characteristics & capabilities of DSS **[10]**

Q6) Explain the Herbert - Simon model with example. **[10]**

Q7) Write short notes on (any four) **[4 × 5 = 20]**

- a) EIS Vs DSS Vs MIS
- b) Expert system Vs conventional system
- c) Data Mart & Data warehouse
- d) Law of requisite variety.
- e) Sensitivity Analysis



Total No. of Questions : 7]

SEAT No. :

P1866

[4775] - 205

[Total No. of Pages : 1

M.C.A. (management faculty) (Semester - II)
IT - 24 : ENTERPRISE RESOURCE PLANNING
(2012 & 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Que. 1. is compulsory.*
- 2) *Attempt any 5 Questions from Q. 2 to Q. 7.*

Q1) Answer the following questions **[20]**

- a) What is use of ERP in the large scale IT organization.
- b) Arya school is international school having 300 branches all over India. They have implemented the Educational ERP software for their over all functions & operations.

You as an IT Expert needs to justify why ERP is useful in Educational system.

Q2) Define ERP Implementation Life cycle in detail with example. **[10]**

Q3) Explain standardization of data code & Benefits of Integration. **[10]**

Q4) What is Business Process Re-Engineering Give one Example of the same. **[10]**

Q5) How Data warehousing & Data mining is useful in today's business world **10]**

Q6) Define functions of Human Resource management & production planning management **[10]**

Q7) Write short notes on (any two) **[10]**

- a) OLAP
- b) CRM
- c) SCM
- d) Quality Management



Total No. of Questions : 8]

SEAT No. :

P1828

[Total No. of Pages : 2

[4775] - 21

M. C. A. (Management) (Semester - II)
IT - 21 : DATA STRUCTURES USING C
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 and 8 are compulsory.*
- 2) *Solve any four from Q2 to Q7.*
- 3) *Figures to right indicate full marks.*
- 4) *Assume suitable data wherever necessary.*
- 5) *Draw suitable diagram wherever necessary.*

Q1) a) Write a program to evaluate postfix expression. **[10]**

b) Write a program for INSERT and DELETE operations in circular queue. **[10]**

Q2) Write a program for addition of sparse matrices. **[10]**

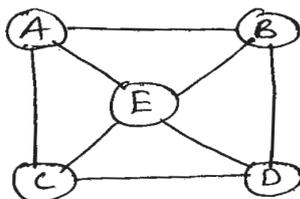
Q3) Draw AVL tree for the following : **[10]**
Nita, Pratik, Priti, Ravan, Somu, Joggy, Amar, Parmeet, Naresh, Varun.

Q4) Write a program for traversal, insertion and deletion in linear single linked list. **[10]**

Q5) Write a function for insertion of a node in a threaded binary tree. **[10]**

Q6) Write an algorithm and program to insert and delete an element from a queue. **[10]**

Q7) Generate BFS, DFS for node A adjacency matrix, adjacency list for following graph. **[10]**



P.T.O.

Q8) Write short note on (Any two) :

[2 × 5 =10]

- a) Abstract Data type.
- b) Applications of Graph.
- c) DEQUEUE.



Total No. of Questions : 7]

SEAT No. :

P1829

[Total No. of Pages : 2

[4775] - 22

M C A (Management Faculty) (Semester - II)
IT - 22 : DATABASE MANAGEMENT SYSTEM
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any five questions from remaining.*
- 3) *State assumptions wherever necessary.*

Q1) A telecom company has launched its mobile services in Pune the following procedure is proposed by the authorities : **[20]**

- a) At present there are 3 schemes for subscription.
- b) Pune region is divided into different sales offices.
- c) Customer can collect subscription forms from any sales office.
- d) As per subscription type, payment by Do/cheque can be submitted.
- e) Forms are verified, subject to realization of payment, customers is informed about mobile number later by a letter.
- f) Customers picks up equipment from sales office normalize the case up to 3 NF and draw an E-R diagram for the same.

Q2) Differentiate between 2 tier and 3 tier architecture. **[10]**

Q3) What do you understand by recovery? Explain different recovery techniques. **[10]**

Q4) Explain relational algebra. Describe about any 5 symbols in detail. **[10]**

Q5) What is data warehousing? Explain it with proper diagram. **[10]**

Q6) a) Explain object oriented data base management system. **[5]**

b) What is the purpose of Indexes? Explain with example. **[5]**

P.T.O.

Q7) Write short notes on (Any two) :

[2 × 5 =10]

- a) ACID properties.
- b) Entities and attributes.
- c) Relational model.
- d) Database users.



Total No. of Questions : 6]

SEAT No. :

P1830

[Total No. of Pages : 2

[4775] - 23

M. C. A. (Management Faculty) (Semester - II)

IT - 23 : SOFTWARE ENGINEERING

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 and Q. 6 are compulsory.*
- 2) *Attempt any three from the remaining.*

Q1) Nanded District Co-operative Society is interested in computerizing some of the activities. The Society has a branch at every taluka and Gram Panchayat. The activities are namely :

- a) Maintain register of members.
- b) Minutes of meetings.
- c) Generate notices to the members and defaulters.
- d) Annual subscription, membership dues etc.

i) Draw context level and first level DFD. [10]

ii) Prepare the SRS for the same [10]

Q2) Design a GUI form for Railway reservation system. [10]

Q3) Describe the phases of SDLC in detail. [10]

Q4) Explain the role of documentation in maintenance and types of documentation. [10]

Q5) Explain decision tree, decision table with proper examples. [10]

P.T.O.

Q6) Write Short Note : (any four)

[4 × 5 = 20]

- a) Reverse engineering.
- b) Code Design.
- c) Structured English.
- d) Data Dictionary.
- e) Structured charts.



Total No. of Questions : 5]

SEAT No. :

P1831

[Total No. of Pages : 1

[4775] - 24

M. C. A. (Management Faculty) (Semester - II)

BM - 21 : 204 : SOFT SKILLS

(2008 Pattern)

[Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Attempt any three questions from remaining questions.*

Q1) a) Discuss formal and informal communication. **[10]**

b) What is communication? Explain the process of communication. **[15]**

Q2) Highlight the importance of listening and the barriers of listening. **[15]**

Q3) Discuss in brief self-esteem. Explain low and high self-esteem. **[15]**

Q4) Prepare a circular to inform Donars and Volunteers to offer gifts to orphan. **[15]**

Q5) Write any three short notes : **[15]**

- a) Work culture a need of Business.
- b) Email etiquette.
- c) Telephone etiquette.
- d) Importance of Time Management.



Total No. of Questions : 6]

SEAT No. :

P1832

[Total No. of Pages : 3

[4775] - 25

M. C. A. (Management Faculty) (Semester - II)
MT - 21 : 205 : PROBABILITY & COMBINATORICS
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 and Question No. 4 are compulsory.*
- 2) *Solve any one from Question Nos. 2 and 3. And solve any one from Question Nos. 5 and 6.*
- 3) *Use of statistical table and non programmable calculator is allowed.*
- 4) *Figures to the right indicate full marks.*

- Q1)** a) State and prove formula Derangement. [5]
- b) If there are 5 gentlemen and 4 ladies to stand in circle. If no two ladies can stand next to each other, in how many ways can they stand? [5]
- c) A survey of 500 television viewers produces the following information : 285 watch cricket; 195 watch hockey; 115 watch tennis; 45 watch cricket and tennis; 70 watch cricket and hockey, 50 watch hockey and tennis; 50 do not watch any of the three games. [5]
- i) How many people in the survey watch all the 3 games?
 - ii) How many people watch only hockey?
- d) Find the coefficient of $x^4 y^9 z^4$ in the expansion of $(2x^2 + 3y^3 - z)^9$. [5]

Q2) a) Using combinatorial argument prove the following binomial identities. [8]

i)
$$\binom{n}{r} + \binom{n}{r-1} = \binom{n+1}{r}$$

ii)
$$\binom{n}{r} = \binom{n}{n-r}$$

- b) Find the number of integer valued solutions of the following equation.
 $x_1 + x_2 + x_3 = 41 \quad x_1 \geq 4, x_2 > 3, x_3 > 0$ [7]

P.T.O.

Q3) a) Determine the discrete numeric function corresponding to generating function. $\frac{z}{(1-2z)(1+z)}$ [8]

b) Solve the following recurrence relation. [7]

$$a_n - 7a_{n-1} + 10a_{n-2} = 3^n, \text{ given that } a_0 = 0, a_1 = 1$$

Q4) a) Define the following terms : [5]

- i) Probability (classical definition).
- ii) Independent events.
- iii) Moment Generating function.
- iv) Probability mass function.
- v) Conditional probability.

b) The following is the probability distribution of a discrete random variable X. [5]

x_i	-2	-1	0	1	2	3
P(x_i)	0.1	0.30	0.70	0.85	0.95	1.0

- i) Find probability distribution
- ii) Find P ($x < 0$)
- iii) Find P ($x = 3 \mid x > -1$)

c) Following table represent joint probability distribution function of (X, Y). [5]

	Y	1	2	3	4
X					
1		4/36	3/36	2/36	1/36
2		1/36	3/36	3/36	2/36
3		5/36	1/36	1/36	1/36
4		1/36	2/36	1/36	5/36

- Find :
- i) Marginal Distribution of X and Y,
 - ii) Conditional distribution of X given Y = 3.

d) State and prove Memoryless property for Exponential distribution. [5]

Q5) a) Find MGF and CGF of Gamma distribution and hence find its expectation and variance. [8]

b) Following is a p.d.f of a continuous random variable X : [7]

$$f(x) = \begin{cases} k(3 + 2x), & \text{for } 2 \leq x \leq 4 \\ 0, & \text{otherwise} \end{cases}$$

Find : i) k
ii) Var X

Q6) a) Suppose two dimensional continuous r.v (X, Y) has a joint P.D.F. [8]

$$f(x, y) = \begin{cases} \frac{1}{8}(6 - x - y), & \text{for } 0 \leq x < 2, 2 \leq y \leq 4 \\ 0, & \text{otherwise} \end{cases}$$

Find : i) $P(x < 1, y < 3)$
ii) $P(x + y < 3)$
iii) $P(x < 1 | y < 3)$

b) Of a large group of men, 10% are under 60 inches in height and 45% are between 60 and 65 inches. Assuming a normal distribution find mean height and standard deviation. [7]



Total No. of Questions : 7]

SEAT No. :

P1867

[4775] - 301

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - III)

IT - 31 : WEB TECHNOLOGIES

(2012 & 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 is compulsory.*
- 2) *Solve any five from Q. 2 to Q. 7.*
- 3) *Draw neat diagrams wherever necessary.*

Q1) Write DTD file for validating the information of students and apply the following **[20]**

- a) Create XML file using DTD file
- b) Convert XML file into HTML format with header and footer.
- c) Apply external CSS file to XML file.

(Alternative element data should be in different color)

(Assume your own structure for writing DTD file)

Q2) Design HTML form for creating bank account and apply external CSS which includes font, margin and border styles. **[10]**

Q3) Explain History and Navigator objects in JavaScript with examples. **[10]**

Q4) Explain chaining, Gatters and setters in JQuery with examples. **[10]**

Q5) Explain Authentication in Apache web server. **[10]**

Q6) Explain event handing in JavaScript with examples. **[10]**

P.T.O.

Q7) Write short notes on (any two)

[10]

- a) Ajax methods
- b) SSL certificate
- c) DOM in JavaScript



Total No. of Questions : 7]

SEAT No. :

P1868

[Total No. of Pages : 2

[4775]-302

M.C.A. (Management Faculty) (Semester - III)

IT -32 - 302 : DATA COMMUNICATION AND COMPUTER NETWORKS

(2012 & 2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Attempt any Three from remaining.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) a) Justify with True or False (not more than 60 words). **[10]**

- i) In OSI network Architecture the dialogue Control and Token Management are responsibilities of Session Layer.
 - ii) To connect LAN's with different protocols a translating bridge can be used.
 - iii) Firewalls operate in one of two filtering modes: Deny all or pass all.
 - iv) RIP is a dynamic distance vector method based on Hop counts.
 - v) Sequencing is provided in virtual circuit approach, since all packets follow the different route.
- b) The received Hamming code word is **101101010**. Using odd parity locates and corrects the bit in error. **[10]**

Q2) a) Find the maximum number of hosts available on a class-B address with a subnet mask of 255.255.255.192. **[5]**

- b) Find the subnet ID for the IP address 202.127.19.94 with a subnet mask of 255.255.255.248. **[5]**

P.T.O.

Q3) What is HTTP? What are the different types of HTTP Request? Explain any five of them. **[10]**

Q4) Why DHCP? Explain the addressing schemes in DHCP. List the characteristics of DHCP. **[10]**

Q5) Explain Open Shortest Path First routing protocol. Why it is efficient? **[10]**

Q6) Define threat and attacks. Explain active attack and passive attack. Why Digital Signature is used? **[10]**

Q7) Write short notes (any Four) : **[20]**

- a) Wi-Max
- b) Topologies
- c) IP-Routing
- d) Packet format of IPv4.
- e) SMTP
- f) P2P Protocol



Total No. of Questions : 7]

SEAT No. :

P1869

[Total No. of Pages : 2

[4775]-303

M.C.A. (Management Faculty) (Semester - III)

IT - 33 : Data Structure Using C++

(2012 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Questions 1 is compulsory.*
- 2) *Solve any four questions from Q. 2 to Q. 7.*

Q1) Write short note on any two :

[10]

- a) Generalized Linked List
- b) B⁺ Tree
- c) Queue empty and full condition of a circular queue.

Q2) a) A graph is implemented by adjacency matrix Write a non-recursive algorithm for depth first search. **[7]**

b) Write a C++ code for circular queue with insert, delete & display function. **[8]**

Q3) a) Write a C++ code for addition of two polynomials. **[7]**

b) Convert prefix to postfix form and show contents of stack at each step. **[8]**

*+a-bc/-de+-fgh

Q4) a) Write a program to evaluate postfix expression. **[7]**

b) Write C++ code for insertion & deletion of elements in a queue. **[8]**

P.T.O.

- Q5)** a) Write a function for Right-Left rotation. [7]
b) Draw AVL tree for following: [8]
40,20,10,50,90,30,60,70,95
- Q6)** a) Write a function to insert node in threaded binary tree. [7]
b) Draw a binary search tree for following. Also write preorder traversal for this. [8]
23,89,34,67,99,2,55,45,78,12,56
- Q7)** a) Write a program to implement priority queue using Link list. [7]
b) Write a function to insert an element in B tree. [8]



Total No. of Questions : 7]

SEAT No. :

P1870

[Total No. of Pages : 2

[4775]-304

M.C.A. (Management Faculty) (Semester - III)

**IT - 34 : Advanced Database Management System
(2013 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any five questions from Q. 2 to Q. 7.*
- 3) *Figures to the right indicate full marks.*

Q1) a) Compare RDBMS, OODBMS and ORDBMS in detail. [10]

b) Explain the operations of OLAP. [10]

Q2) Explain Inter - operational and Intra-operational parallelism with relevant examples. [10]

Q3) Explain 2PC protocols. Discuss its failure & recovery techniques. [10]

Q4) Describe classification. Explain any two classification algorithms with examples. [10]

Q5) What are the various applications of XML? Elucidate the difference between DTD & XML schema. [10]

Q6) Explain multimedia architecture. Mention the requirements for mobile databases. [10]

P.T.O.

Q7) Write short notes on (any two) :

[2 × 5 = 10]

- a) N-tier architecture
- b) SOAP
- c) Text mining
- d) Snowflake Schema



Total No. of Questions : 7]

SEAT No. :

P1871

[Total No. of Pages : 2

[4775]-305

M.C.A. (Management Faculty) (Semester - III)

IT - 35 : OBJECT ORIENTED ANALYSIS AND DESIGN

(2012 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 and 7 is compulsory.*
- 2) *Solve any four from the remaining.*
- 3) *Mention assumptions for solving case studies.*

Q1) Disha is a Vehicle Inspection Centre. The centre carries out the inspection process as follows:

Customer arrives at the centre with his vehicle and stand in a queue. The data of vehicles are recorded when they come for initial inspection and the registration number is allocated to them. For the next inspection customer has to provide his registration number. The clerk searches the vehicle information with the help of the registration number. Actual inspection is performed and the vehicle data is updated. The future appointment data is generated by the clerk for vehicle inspection. The clerk has to maintain the dates for which bookings for inspection are full and should also consider the holidays on which the centre is closed.

- a) Draw Use Case diagram. [10]
- b) Class diagram. [10]

Q2) Draw the State Transition Diagram for a petrol station where on arrival for filling gas, attendants can perform two task in parallel, filling petrol as well as washing windshield. [10]

- Q3)**
- a) Draw a Sequence diagram for sending friend request on Facebook Make suitable assumption. [5]
 - b) Differentiate between aggregation and composition. [5]

P.T.O.

Q4) MCA admission procedure is as followed : **[10]**

- a) DTE advertises the date of MCA entrance examination.
- b) Student has to apply for the entrance examination.
- c) Results are declared by DTE.
- d) Students has to fill up option form to select the college of his/her choice.
- e) DTE displays the allotment list in the website and intimation to all colleges.
- f) Students should report the allotted colleges and complete the admission procedure. Draw Activity Diagram.

Q5) Compare Grady Booch Methodology with OMT. **[10]**

Q6) Explain four major approaches of Rational unified Process. **[10]**

Q7) Write short notes on any two : **[10]**

- a) CRC approach
- b) Benefits of Pattern
- c) Testing Strategies
- d) Multiple Inheritance



Total No. of Questions : 7]

SEAT No. :

P1833

[4775] - 31

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - III)

IT - 31: Web Support Technologies

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 is compulsory.*
- 2) *Attempt any five from remaining.*
- 3) *Figures to the right indicate full marks.*

Q1) a) Explain error Handling in VBScript with examples. **[10]**

b) Explain event handling in JavaScript with examples. **[10]**

Q2) Design a form to accept international conference registration details and validate any five fields with different formats using JavaScript. **[10]**

Q3) Write XML to maintain 'International Journal' details like volume, issue, ISSN, Title, publisher, subscription-rate, etc and convert XML into HTML format with header and footer. **[10]**

Q4) What is CSS? Explain different types of CSS properties with examples. **[10]**

Q5) a) Explain DOM parser with examples. **[5]**

b) Explain string and date object in java script. **[5]**

Q6) a) Explain Global.asa with examples. **[5]**

b) Explain request and response object with examples. **[5]**

P.T.O.

Q7) Write short notes (any two)

[10]

- a) N-tier Architecture.
- b) History and location object in DOM.
- c) SOAP.



Total No. of Questions : 7]

SEAT No. :

P1834

[4775] - 32

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - III)
IT - 32: Data Communication and Computer Networks
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Attempt any three from remaining.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) a) Justify with **True** or **False** (not more than **60** words). **[10]**

- i) The data rate of the ISDN basic access D-channel is 192 Kbps.
 - ii) HTTP is a request and response protocol.
 - iii) A 1-persistent strategy requires a station to transmit immediately after sending on idle medium.
 - iv) The more host addresses allocated for, the fewer network address available.
 - v) Only the dynamic address allocation scheme is used in DHCP.
- b) What is HTTP? What are the different types of HTTP request? Explain any five of them. **[10]**

Q2) What is the limitation of network and host addressing scheme of Class - A, Class-B and Class-C. What is the default mask for the following IP host addresses 172. 14.6.8 and 205.35.66.12.

(Solve with proper procedure). **[10]**

Q3) Define and explain transport layer services. What are the advantages of UDP over TCP? **[10]**

P.T.O.

Q4) What is firewall? Explain policies and rules of firewall. **[10]**

Q5) Explain DHCP scope resolution with examples. **[10]**

Q6) What are the advantages of using virtual path in ATM? Explain traffic management in ATM. **[10]**

Q7) Write short notes (any 4). **[20]**

- a) Packet switching.
- b) TCP/IP model.
- c) Resource record.
- d) FTP.
- e) SNMP organization.
- f) Secure socket layer.



Total No. of Questions : 8]

SEAT No. :

P1835

[4775] - 33

[Total No. of Pages : 3

M.C.A. (Management Faculty) (Semester - III)
IT - 33 – 303 : Object Oriented Programming Using C++
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 is compulsory.*
- 2) *Solve any six from Q. 2 to Q. 8.*

Q1) Write output with Explanation :

[5 × 2 = 10]

- a)

```
#include <iostream.h>
#define SQUARE(x) x*x
inline float square (float y)
{
    return y * y;
}
int main()
{
    float a=0.5, b=0.5, c, d;
    c=SQUARE(++a);
    d=square(++b);
    cout<<"c=>"<<c<<"\td=>"<<d;
    return 0;
}
```
- b)

```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>
void main( )
{
    int x=100;
    float f=56.75;
    cout<<hex<<x<<dec<<x<<endl;
    cout<<setw(8)<<setfill('#')<<f;
}
```

P.T.O.

```

c) #include<iostream.h>
void main()
{
    char s [ ] =" PROGRAM";
    int i;
    for(i=0;s[i];i++)
        cout<<"\n"<<s[i++]<<*(s+i);
}

d) #include<iostream.h>
class MCA
{
public:
    int a;
private:
    int b;
protected:
    int c;
};
void main ( )
{
    MCA M;
    cout<<M.a<<M.b<<M.c;
}

e) #include<iostream.h>
void main()
{
    int a=10;
    while( 1 )
    {
        switch(a)
        {
            case 10:cout<<a++;
            case 11:cout<<a--;
            case 12:cout<<a++;
        }
    }
}

```

- Q2)** a) Write a program for finding largest of three elements using function template. [5]
b) Write a short note on friend function. [5]
- Q3)** a) What is namespace? Explain how it is used to solve conflict. [5]
b) Explain how to create user define manipulators with example. [5]
- Q4)** a) What is constructor? Explain type of constructor. [5]
b) What is Exception? Explain how certain exception types are not allowed to be thrown. [5]
- Q5)** Write a program that create file which has information Name, A/c number, balance and perform following operation on it through menu. [10]
a) Add record
b) Modify balance of specific a/c no
c) Display content of file
d) Display name of person having balance > 10,000
- Q6)** a) Write a program to overload (). [5]
b) Explain need of virtual base class with example. [5]
- Q7)** Write a program that create two classes Dangle and Rangle. Dangle stores angle in degree and Rangle stores angle in Radian. Write appropriate function so user can be able to write $D = R$ and $R = D$. Where R is object of Rangle and D is object of Dangle ($\text{Angle in Radian} = \text{Angle in degree} * 3.142 / 180$). [10]
- Q8)** Write short note on (any two) [2 × 5 = 10]
a) New style cast.
b) Standard template library.
c) Static data member & static member function.



Total No. of Questions : 7]

SEAT No. :

P1836

[4775] - 34

[Total No. of Pages : 1

M.C.A. (MANAGEMENT FACULTY) (Semester - III)
IT 34 – 304: Advanced Database Management Systems
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 7 is compulsory.*
- 2) *Solve any five questions from 1 to 6.*
- 3) *Figures to the right indicate full marks.*

Q1) Explain intra-operational and inter - operational parallelism. **[10]**

Q2) Differentiate between: OODBMS, ORDBMS, RDBMS. **[10]**

Q3) Explain 2PC protocol in distributed DBMS. **[10]**

Q4) What is data mining? Explain any 2 approaches/algorithms used in data mining. **[10]**

Q5) Discuss the ETL process in detail. **[10]**

Q6) What is XML? Explain what is DTD & its importance with example. **[10]**

Q7) Write short note any 4 **[4 × 5 = 20]**

- a) Visualization.
- b) Multimedia databases.
- c) Outlier analysis.
- d) Predictive mining.
- e) Fact constellation schema.



Total No. of Questions : 7]

SEAT No. :

P1837

[4775] - 35

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - III)
BM - 31 : Management Support System and Is Security
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q.No. 1 and 7 are compulsory.*
- 2) Attempt any four from Q. No. 2 to Q. No. 6.*
- 3) Figures to the right indicate full marks.*

Q1) Define exception and explain how to handle exception in management support system. **[10]**

Q2) Explain in detail the structure of MIS based on management activities and functions. **[10]**

Q3) Brief newell - simon model of human information processing system. **[10]**

Q4) Explain the information requirement for functional area with respect to production management. **[10]**

Q5) What is heuristic programming? Explain decision making heuristics in detail. **[10]**

Q6) Define expert system. Differentiate conventional and expert system. **[10]**

P.T.O.

Q7) Write short notes on (any four)

[4 × 5 = 20]

- a) Simulation technique.
- b) Operational research techniques.
- c) Subsystem approach.
- d) Feedback control.
- e) Integrated executive information system.
- f) Control audit of information security.



Total No. of Questions : 8]

SEAT No. :

P1872

[Total No. of Pages : 2

[4775]-401

M.C.A. (Management Faculty) (Semester - IV)

IT - 41 : JAVA PROGRAMMING (New)

(2012 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any six from the remaining.*

Q1) Solve the following questions : [10]

- a) Explain finalize ()
- b) List out four methods of Enumeration Interface.
- c) Explain difference between Static & Member Method.
- d) What is object serialization.
- e) What is URL?

Q2) Write GUI based JDBC application for candidate registration. Assume suitable table structure. [10]

Q3) Write Java application to demonstrate add, replace delete, copy node in Hashset. [10]

Q4) Write a Java socket program to accept file name at client side, and server accepts file name and sends no. of words in the file or indicate that the file doesn't exist. [10]

Q5) Write an applet to display scrolling text from right to left in an applet window. [10]

P.T.O.

Q6) Explain RMI architecture and write RMI application to check whether entered No. is palindrom No. of Not. **[10]**

Q7) What is exception? Explain types of exceptions with example. **[10]**

Q8) Write notes (any two) : **[10]**

- a) Beans persistence
- b) Layout managers
- c) Thread life cycle



Total No. of Questions : 7]

SEAT No. :

P1873

[Total No. of Pages : 1

[4775] - 402

M.C.A. (Management Faculty) (Semester - IV)

IT - 42 : MOBILE COMPUTING

(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any 5 from the remaining.*

Q1) a) What are cellular systems? Explain the main reasons for using cellular systems.[5]

b) What is Mobile IP? Explain the various components of Mobile IP. [10]

c) What is handover? Explain the reasons why handover is needed in GSM.[5]

Q2) What is Android? Explain the Architecture and Features of Android. [10]

Q3) What is database hoarding? Explain the various caching Invalidation mechanism.[10]

Q4) Explain the various file system in Android. [10]

Q5) Write an Android Program to demonstrate TIP calculator. [10]

Q6) What is G+ Talk? Explain the various Techniques for managing chat sessions.[10]

Q7) Write short notes on (Any Two) [10]

- a) GPRS
- b) Palm O.S.
- c) Map based Activities.



Total No. of Questions : 7]

SEAT No. :

P1874

[Total No. of Pages : 1

[4775] - 403

M.C.A. (Management Faculty) (Semester - IV)

IT - 43 : Information Security and Audit

(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Solve any four from Q.2 to Q.6.*
- 3) *Figures to the right side indicate full marks.*

Q1) A person buying gadgets through online shopping comes across a popup window with a discount offer and requested to share bank account details. Discuss security related issues. **[10]**

Q2) What are the components of ISMS and explain conceptual framework. **[10]**

Q3) Explain the threats of information security. **[10]**

Q4) Which are the different types of information security policies. **[10]**

Q5) Explain COBIT framework in detail. **[10]**

Q6) Explain logical and physical access control. **[10]**

Q7) Short notes on (any Four) **[4 × 5 = 20]**

- a) NGS auditor
- b) Internet access security
- c) BCP and DRP
- d) Ethical hacking
- e) Audit standards



Total No. of Questions : 8]

SEAT No. :

P1875

[Total No. of Pages : 1

[4775] - 404

M.C.A. (Management Faculty) (Semester - IV)

IT - 44 : Design and Analysis of Algorithms

(2012 & 2013 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) *Question 1 and 8 are compulsory.*
- 2) *Solve any five questions from Q.2 to Q.7.*
- 3) *Figures to the right indicate full marks.*

- Q1)** a) What is an algorithm? State different characteristics of good algorithm. [5]
b) Differentiate between the Greedy and Dynamic approach of the problem solving.[5]

- Q2)** Design an algorithm for fractional knapsack problem using greedy method. Trace it with suitable example. [10]

- Q3)** What are the characteristics of divide and conquer method? Discuss Quick sort algorithm with its complexity. Assume suitable data. [10]

- Q4)** Write an algorithm for multistage graph using dynamic programming technique.[10]

- Q5)** Write and analyze the recursive Tower of Hanoi algorithm with $n = 3$. [10]

- Q6)** Discuss 0/1 Knapsack problem using branch and bound technique and write the algorithm for same. [10]

- Q7)** Explain the term heap. State the types of heap and write a heap sort algorithm for max - heap. [10]

- Q8)** Write short note on any two of the following : [10]

- a) Asymptotic Notations.
- b) Graph Coloring
- c) NP complete and NP Hard Problems.



Total No. of Questions : 5]

SEAT No. :

P1876

[Total No. of Pages : 4

[4775] - 405

M.C.A. (Faculty of Management) (Semester - IV)

MT - 41 : OPTIMIZATION TECHNIQUES

(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) Question No. 1 is compulsory.
- 2) Attempt any Three from the remaining.
- 3) Use of non programmable calculators is allowed.
- 4) Figures to the right indicate full marks.

Q1) a) Solve the Transportation Problem

[7]

		Destinations				Supply
		D ₁	D ₂	D ₃	D ₄	
Origins	O ₁	40	25	33	22	100
	O ₂	44	35	30	30	30
	O ₃	38	38	30	28	70
Demand		40	20	30	50	

b) The following information regarding a project is given

[7]

Activity	Immediate Predecessor	Time in days		
		Most Optimistic	Most Likely	Most Pessimistic
A	-	4	6	8
B	A	5	7	15
C	A	4	8	12
D	B	15	20	25
E	B	10	18	26
F	C	8	9	16
G	E	4	8	12
H	D,F	1	2	3
I	G, H	6	7	8

- i) Construct an arrow diagram for this problem.
- ii) Determine the critical path and compute the expected completion time.
- iii) Determine the probability of completing the project in 55 days.

P.T.O.

- c) In a bank with a single cashier, customer arrives on an average every 10 minutes. The cashier takes 5 minutes to attend a customer. Find : [7]
- The average number of customers waiting for the cashier.
 - The average time spend by a customer in the bank.
 - The probability that there will be 5 customers in the bank at any point of time.
- d) There are seven jobs, each of which has to be processed on machine A and then on Machine B. Processing time is given in hours. Find the optimal sequence in which the jobs are to be processed so as to minimize the total time elapsed.[7]

Jobs	1	2	3	4	5	6	7
Machine A	3	12	15	6	10	11	9
Machine B	8	10	10	6	12	1	3

- Q2) a)** Solve the following LPP by Dual Simplex Method. [7]

$$\text{Min : } Z = 36x_1 + 60x_2 + 45x_3$$

Subject to :

$$x_1 + 2x_2 + 2x_3 \geq 40$$

$$x_1 + x_2 + 5x_3 \geq 25$$

$$x_1 + 4x_2 + x_3 \geq 50$$

$$x_1, x_2, x_3 \geq 0$$

- b) A firm is thinking of replacing a particular machine whose cost price is Rs. 12,200. The scrap value of the machine is Rs. 200/-. The maintenance costs are found to be as [7]

Year	1	2	3	4	5	6	7	8
Maintenance Cost in Rs.	220	500	800	1200	1800	2500	3200	4000

Determine when the firm should get the machine replaced.

- Q3) a)** The demand for an item is 3000 units per annum. The cost of one procurement is Rs. 100 and the holding cost per unit is Rs. 2.40 per year. The replenishment is instantaneous and no shortages are allowed. Determine [7]

- Economic order quantity
- Number of order per years
- The time between the orders.

- b) A small garment making unit has five tailors stitching five different types of garments. All the five tailors are capable of stitching all the five types of garments. The output per day per tailor for each type of garment is given below : [7]

		Garments				
		1	2	3	4	5
Tailors	A	7	9	4	8	6
	B	4	9	5	7	8
	C	8	5	2	9	8
	D	6	5	8	10	10
	E	7	8	10	9	9

Determine which type of garment should be assigned to which tailor in order to optimize production?

- Q4) a)** Define : [7]

- i) Gradual Failure of Machines
- ii) Optimum Lot Size
- iii) Critical Path
- iv) Dummy Activity
- v) Pessimistic Time
- vi) Activity
- vii) Total Float

- b) Solve the following using Dual Simplex Method. [7]

Minimize $Z = x_1 + x_2$ subject to

$$2x_1 + x_2 \geq 2$$

$$-x_1 - x_2 \geq 1$$

$$x_1, x_2 \geq 0$$

- Q5) a)** A small project has the following activities, duration (in weeks) and associated cost. Draw the network diagram, find the normal duration and normal cost. Also systematically crash the activities to find the optimum cost. Indirect cost is Rs. 1000 per week. [7]

Activity	Preceding Activity	Normal		Crash	
		Time	Cost	Time	cost
A	-	5	25000	2	34000
B	-	4	30000	2	40000
C	A	10	45000	6	81000
D	A	5	30000	3	38000
E	B	7	30000	6	37000
F	C, D	5	20000	3	26000
G	E, F	4	35000	2	44000
H	F	6	35000	3	65000

- b) In a departmental store one cashier is there to serve the customers. And the customers pick up their needs by themselves. The arrival rate is 20 customers per hour and the cashier can serve 24 customers per hour. Assuming Poisson arrival rate and exponential distribution for service rate, [7]
- i) Average number of customers in the system.
 - ii) Average time a customer spends in the system.
 - iii) Average time a customer spends in the queue.



Total No. of Questions : 8]

SEAT No. :

P1838

[4775] -41

[Total No. of Pages : 2

M.C.A.Management Faculty (Semester - IV)

IT - 41 : JAVA PROGRAMMING

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *Question 1 compulsory.*
- 2) *Solve any six from remaining.*

Q1) Answer following :

[10]

- a) What is Adapter class?
- b) Explain checked exceptions.
- c) What is method overloading?
- d) How static keyword is used?
- e) Explain Result set Metadata.

Q2) Write JDBC application to register Kabaddi team for Pro-Kabaddi matches.
Assume suitable structure. **[10]**

Q3) Write multi threaded server - client chatting application. **[10]**

Q4) Write an applet to display mouse position on status line. **[10]**

P.T.O.

Q5) What is user defined exception? Explain with example. **[10]**

Q6) Write Java application that reads lower case stream from command line and writes it to file strcomp.txt in upper case. **[10]**

Q7) What is RMI architecture? Explain with example. **[10]**

Q8) Write Notes : (Any Two) **[10]**

- a) Types of beans
- b) Explain any 5 controls of AWT.
- c) Access specifiers.



Total No. of Questions : 6]

SEAT No. :

P1839

[4775] - 42

[Total No. of Pages : 2

M.C.A.(Mgt. Faculty) (Semester - IV)

IT - 42 : SOFTWARE TESTING AND QUALITY ASSURANCE

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *Q. 1 and Q. 6 are compulsory.*
- 2) *Attempt any 3 from the remaining.*
- 3) *State assumptions if any.*
- 4) *Draw neat labeled diagrams where necessary.*
- 5) *Figures to right indicate marks.*

Q1) Write a detailed test plan for web based railway reservation system. Your plan should cover scope of testing, risks and contingencies, strategies and schedule. Write test cases for login screen, ticket availability screen, ticket booking and cancellation screen, source and destination fields. **[20]**

Q2) What do you mean by Acceptance testing? Explain functional testing attributes in detail. **[10]**

Q3) Calculate cyclometric complexity & design test cases for printing the area of a rectangle. **[10]**

Q4) Write a brief note on Testing Life cycle. **[10]**

Q5) What is the need of process improvement & how it can be achieved? **[10]**

P.T.O.

Q6) Write short notes on (Any four)

[20]

- a) Reliability Models
- b) SQA building blocks
- c) CAST
- d) Testing levels
- e) White Box Testing.



Total No. of Questions : 7]

SEAT No. :

P1840

[4775] - 43

[Total No. of Pages : 2

M.C.A.(Management Faculty) (Semester - IV)

IT - 43 - 403 : OBJECT ORIENTED ANALYSIS AND DESIGN

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *Q.1 is compulsory.*
- 2) *Solve any 5 questions from remaining.*
- 3) *Mention the assumptions made for solving case study.*

Q1) ICBI Bank is a global commercial bank based in China. It plans to build an online Credit Card Management System in order to handle a large amount of information in an efficient way and provide better service to their customers. Most commercial banks provide the following major online services to facilitate their credit card business. Credit Card application, on-line credit card payment, Special offers to customer, Credit Card transaction checking etc. With the advance of information technology, ICBI is planning to extend the above services through online Credit Card Management System (CCMS).

- Customers may make an application by filling up an online application form through the CCMS.
 - The transaction data with respect to customer's payments and purchases taking place randomly are transferred from the Card Brand Corp. to CCMS on a daily basis at each midnight (12:00 p.m.)
 - CCMS allows customers to check their Credit Card transactions and monthly statement information online.
- a) Draw use Case diagram.
 - b) Draw class diagram.

[20]

P.T.O.

Q2) Explain Coad -Yourdan methodology for object Oriented Analysis (OOA).[10]

Q3) Draw the activity diagram for online Flight Reservation System. Write your own assumptions. [10]

Q4) a) Draw a Sequence diagram for the registration at Job Portal for placement. [5]

b) Draw a Collaboration diagram for sending an SMS to your friend. [5]

Q5) Draw a State - transition diagram for an automatic washing machine. [10]

Q6) Explain Unified Approach with all the components. [10]

Q7) Write short notes on (Any Two) [10]

a) OODBMS

b) Common Class Pattern approach

c) Categories of Pattern

d) Test Case Guidelines.



Total No. of Questions : 4]

SEAT No. :

P1841

[Total No. of Pages : 4

[4775] - 44

M.C.A. (Semester - IV) (Management Faculty)

MT - 41 : OPTIMIZATION TECHNIQUES

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any TWO questions from question Nos. 2,3, and 4.*
- 3) *Use of Scientific Calculator and Statistical Tables are allowed.*
- 4) *Figures to the right indicate full marks.*

Q1) a) A project consists of different activities and relevant data as follows: [9]

Activity	Immediate predecessor	Duration (weeks)		
		Optimistic	Most Likely	Pessimistic
A	-	2	3	4
B	-	2	2	2
C	A	2	4	6
D	A	5	7	9
E	B	1	2	3
F	C	2	2	2
G	E	2	3	4
H	E	1	4	7
I	D,G	1	3	5
J	F, I	1	5	9

- i) Draw PERT Network of the project.
- ii) Find the Expected duration of the project and variance.
- iii) Fine the probability that the project will completed before 16 weeks.

b) Solve the following Integer Programming Problem: [9]

$$\text{Max : } Z = 2x_1 + 5x_2$$

Subject to :

$$2x_1 + 5x_2 \leq 10$$

$$4x_1 + 3x_2 \leq 20$$

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

P.T.O.

- c) A TV repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs sets in the order in which they come in. if the arrival of sets is approximately Poisson with an average rate of 10 per 8-hour day, Find: [6]
- Repairman's expected idle time each day.
 - Expected number of TV sets in the shop.
- d) Following table represents performance of salesman (sales in '000 units) in different districts. Solve the assignment problem to optimize the sales. [6]

		District				
		D ₁	D ₂	D ₃	D ₄	D ₅
Salesman	S ₁	7	8	2	5	2
	S ₂	2	8	6	7	6
	S ₃	8	4	3	9	6
	S ₄	9	8	4	2	5
	S ₅	2	8	5	3	6

- Q2) a) Find the Optimum Solution for the given Transportation Problem: [9]

		Warehouses				Supply
		P	Q	R	S	
Factory Plants	A	10	8	7	12	500
	B	14	12	8	8	600
	C	7	9	14	10	200
	D	8	10	12	14	700
Demand		700	550	450	300	

- b) The following are the failure rates of certain types of capacitors. [6]

Week:	1	2	3	4	5
percent of failing at end of week:	10	25	55	80	100

There are 1000 such capacitors are present in the machine. The cost of replacing individually a failed capacitor is Rs.3. If all the capacitors are replaced at fixed interval, whether they are working or not working, it would cost Re.1 per capacitor. What policy the maintenance manager should follow between individual replacement policy and group replacement policy, if group policy is adopted, at what interval of time he should replace all capacitors.

- c) Draw the network diagram for the following data: [5]

Activity	A	B	C	D	E	F	G	H	I	J	K
Predecessor	-	A	A	C,B	D	D	D	G	F,H	I	E,I

Q3) a) Solve the following LPP by Big M method : **[9]**

$$\begin{aligned} \text{Min : } Z &= 3x_1 + 6x_2 \\ \text{Subject to :} \\ 7x_1 + 5x_2 &\geq 35 \\ 4x_1 + 10x_2 &\geq 80 \\ x_1, x_2 &\geq 0 \end{aligned}$$

b) An aircraft requires 5000 Kg of rivets per year. The cost of 1 Kg of rivet is Rs. 20 and it costs Rs.200 to place an order and the carrying cost is 10% per unit per year. Find: **[6]**

- i) The Optimum Lot Size
- ii) The time interval between the orders
- iii) Minimum yearly total cost.

c) Explain the terms: **[5]**

- i) Optimistic Time
- ii) Slack
- iii) Unbounded Solution
- iv) Unbalanced Transportation Problem
- v) Alternate Optimum Solution

Q4) a) The time (days) and costs of a certain project is given in the following table: **[9]**

Activity	Normal		Crash	
	Time	Cost	Time	Cost
1 - 2	7	1600	4	1900
1 - 3	8	2000	5	2900
2 - 3	4	1100	2	1500
2 - 4	3	800	2	1400
3 - 4	0	0	0	0
3 - 5	6	900	3	1500
4 - 6	10	2500	6	3500
5 - 6	3	500	2	800

The indirect cost of the project is Rs. 300 per day. Draw the project network and find the normal duration and cost. If the activities are systematically crashed, then what would be the optimum duration and cost of the project.

- b) Express the following Assignment Problem as LPP: [6]

	A	B	C	D	E
I	3	8	5	3	8
II	2	4	4	6	8
III	3	3	5	7	4
IV	5	4	2	2	7
V	8	1	8	5	3

- c) Describe the various characteristics of the queuing system. [5]



Total No. of Questions : 7]

SEAT No. :

P1842

[4775] - 45

[Total No. of Pages : 2

M.C.A. (Management Faculty) (Semester - IV)

MIS FRAMEWORK & IMPLEMENTATION

(2008 Pattern) (Elective)

Time : 3 Hours]

[Max. Marks : 70

Instructions :

- 1) Q.1 and 7 are compulsory.*
- 2) Solve any four questions from remaining.*
- 3) Figures to the right indicate full marks.*

Q1) Define MIS. Explain need and objectives of MIS in detail. **[10]**

Q2) How Information Technology charging the way Human Resource function is performed. **[10]**

Q3) Explain the different threats to IT Infrastructure. **[10]**

Q4) Explain the informational needs of the manager working at different levels of managerial hierarchy. **[10]**

Q5) Explain the impact of IT Infrastructure on the Socio-economic environment of the organization. **[10]**

P.T.O.

Q6) Explain the role played by IT - Infrastructure in operational control and decision support system in an organization. **[10]**

Q7) Write short notes on (Any four) **[4 × 5 = 20]**

- a) Group Decision Support System
- b) Competitive Advantage
- c) Expert System
- d) Critical Success Factor in Implementing IT applications
- e) Objectives of good IT Policy.



Total No. of Questions : 9]

SEAT No. :

P1843

[Total No. of Pages : 2

[4775]-46

M.C.A. (Faculty of Management) (Semester - IV)
412: FOUNDATION OF DECISION PROCESSES
(2008 Pattern) (Elective)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Attempt any Seven from the following.*
- 2) *Use of non-programmable calculators is allowed.*
- 3) *Figures to the right indicate full marks.*

Q1) Explain the various Models of Queuing system. **[10]**

Q2) A retailer purchases strawberries every morning at Rs.50 a case and sells them for Rs.80 a case. Any case remaining unsold at the end of the day can be disposed off next day at a salvage value of Rs.20 per case (thereafter they have no value). Past sales have ranged from 15 to 18 cases per day. The following is the record of sales for the past 120 days. **[10]**

Cases Sold	15	16	17	18
No. of Days	12	24	48	36

Find how many cases the retailer should purchase per day to maximize his profit.

Q3) A management is faced with a problem of choosing one of three products for manufacturing. The potential demand for each product may turn out to be good, moderate or poor. The probabilities for each of the states of nature were estimated as follows: **[10]**

Product	Nature of Demand		
	Good	Moderate	Poor
X	0.70	0.20	0.10
Y	0.50	0.30	0.20
Z	0.40	0.50	0.10

P.T.O.

The estimated profit or loss in Rs. Under the three states may be taken as:

Product	Good	Moderate	Poor
X	30000	20000	10000
Y	60000	30000	20000
Z	40000	10000	-15000

Prepare the expected value table and advise the management about the choice of the product.

Q4) Explain the steady state Markov process with example. [10]

Q5) In a Bank, handled by one teller, customers arrive at the rate of 15 in an hour. The teller takes 2 minutes to handle a customer. Find: [10]

- a) The probability that the teller is busy.
- b) Expected number of customers waiting in the bank.
- c) The average time spent by the customer in the bank waiting for their turn.

Q6) Explain the various decision making criteria with illustrations. [10]

Q7) Solve the game for the given pay-off matrix: [10]

-5	3	1	20
5	5	4	6
-4	-2	0	-5

Q8) Explain the dominance rules in Game with proper example. [10]

Q9) A company manufactures 30 items per day. The sale of these items depends upon demand which has the following distribution: [10]

Sales (Units)	27	28	29	30	31	32
Probability	0.10	0.15	0.20	0.35	0.15	0.05

The production cost and sale price of each unit are Rs.40 and Rs.50 respectively. Any unsold product is to be disposed off at a loss of Rs.15/- unit.

Use the following random numbers to estimate total profit/loss for next 10 days.

10 99 65 97 01 79 11 16 20 34



Total No. of Questions : 6]

SEAT No. :

P1844

[Total No. of Pages : 1

[4775]-47

M.C.A. (Management Faculty) (Semester - IV)
INFORMATION SYSTEM AUDIT AND GOVERNANCE
(2008 Pattern) (BME-1) (Elective)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.6 are compulsory.*
- 2) *Solve any 3 from Q.2 to Q.5.*
- 3) *Figures to the right side indicate full marks.*

Q1) You are appointed as an external auditor for a networking firm ABC. Explain various physical & logical network controls for handling network issue of the firm. Generate the report of list of evidences. **[20]**

Q2) Explain Audit Standards in detail. **[10]**

Q3) Explain various steps involved in Risk Assessment process. **[10]**

Q4) Discuss in brief different IT crimes along with security and privacy issues. **[10]**

Q5) Explain the framework of e-commerce. **[10]**

Q6) Short notes (any four) : **[4 × 5 = 20]**

- a) Digital Signature.
- b) Management Control.
- c) Segregation of duties.
- d) E-governance.
- e) Long term and short term plan.



Total No. of Questions : 7]

SEAT No. :

P1845

[Total No. of Pages : 1

[4775]-48

M.C.A. (Management Faculty) (Semester - IV)

BME-414: COLLABORATIVE MANAGEMENT

(2008 Pattern) (Elective)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Attempt any five questions.*
- 2) *Figures to the right indicate full marks.*

Q1) Explain in detail Mckinsey's 7s frame work. **[14]**

Q2) What are the different stakeholders of an organization? What roles do they play in strategic issue identification and resolution? **[14]**

Q3) Explain different types of growth strategies and issues involved in post acquisition scenario with examples. **[14]**

Q4) Explain Porter's Five forces Model in detail. **[14]**

Q5) Explain the importance of Corporate Social Responsibility. **[14]**

Q6) a) Define strategy and strategic management.
b) Define Budgeting. Explain the importance of budgeting in corporate planning. **[14]**

Q7) Write short notes (Any Two) : **[14]**

- a) Diversification Strategies.
- b) Project implementation.
- c) Symptoms of malfunctioning of strategy.
- d) Competitive Advantage.



Total No. of Questions : 7]

SEAT No. :

P1846

[Total No. of Pages : 1

[4775]-49

M.C.A. (Management Faculty) (Semester - IV)
BME-5-415: DECISION SUPPORT SYSTEM
(2008 Pattern) (Elective)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 and 7 are compulsory.*
- 2) *Answer any four questions from remaining questions.*

Q1) Discuss various models of ES and DSS integration. **[10]**

Q2) Explain importance of Artificial Intelligence and expert system in DSS. **[10]**

Q3) Explain traditional SDLC and state alternative development methodologies. **[10]**

Q4) Explain the database organization and structures used in DSS. **[10]**

Q5) What is Data Mining? Explain the classification of data mining tools and techniques. **[10]**

Q6) Define MIS and explain the role of DSS. **[10]**

Q7) Write short note on (any four) : **[20]**

- a) SCM.
- b) Risk factors in end user developed DSS.
- c) DSS Implementation.
- d) OLAP.
- e) ODSS.



Total No. of Questions : 6]

SEAT No. :

P1847

[Total No. of Pages : 2

[4775]-50

M.C.A. - II (Semester - IV)

ENTERPRISE RESOURCE PLANNING

(2008 Pattern) (BME - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 & 6 are compulsory.*
- 2) *Solve any three from Q.2 to Q.5*
- 3) *Figures to the right indicate full marks.*

Q1) 'Ratnadeep Warehouse Pvt. Ltd', is a well reputed business organization engaged in warehousing, supply chain management and transportation activities across Maharashtra. Presently the organization is having manual system for administrative work which is time consuming and incompetent. So the top management has decided to develop the integration of various functionalities for office automation. As an ERP consultant discuss the pre-implementation & post implementation key success factors. Also prepare the detail report about the ERP implementation. **[20]**

Q2) a) Explain the importance of component based ERP system. **[5]**

b) Discuss the Human Resource Management module in purview of ERP implementation. **[5]**

Q3) a) Explain the importance of Data mining tools for ERP system. **[5]**

b) Explain the role of middle management in ERP implementation. **[5]**

Q4) What is BPR? Explain BPR lifecycle in detail with suitable diagram. **[10]**

Q5) Explain 'CRM attained through ERP' with suitable example. **[10]**

P.T.O.

Q6) Write short notes on any four of following :

[20]

- a) GAP Analysis.
- b) Data Warehousing.
- c) DSS.
- d) Applications of OLAP.
- e) Fmea & SCM.



Total No. of Questions : 6]

SEAT No. :

P1877

[Total No. of Pages : 1

[4775] - 501

**M.C.A. (Management Faculty) (Semester - V)
(IT - 51) : Software Testing & Quality Assurance
(2012 Pattern)**

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) *Question 1 & 6 are compulsory.*
- 2) *Solve any 3 from the remaining.*

Q1) Write a detailed test plan for a mobile Application “Movie - Masti” to book online movie tickets. Also write test case for this movie ticket booking system. Also write about test document & test strategies. **[20]**

Q2) Explain path, statement, branch and decision coverage in structural testing. Give examples for each. **[10]**

Q3) a) Calculate cyclomatic complexity for checking even/odd number. **[5]**
b) Compare Alpha Vs Beta Testing **[5]**

Q4) Explain software reliability models and measures in detail. **[10]**

Q5) Explain different types of reviews with suitable examples? **[10]**

Q6) Write short notes on following :(any 4) **[4 × 5 = 20]**

- a) Equivalence partitioning.
- b) Tester’s workbench
- c) Black box Vs white box testing.
- d) CMM
- e) Web based Application Testing.



Total No. of Questions : 8]

SEAT No. :

P2828

[4775] - 502

[Total No. of Pages : 2

M. C. A. (Management Faculty) (Semester - V)

502 : Software Project Management

(2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions carry equal marks.*
- 2) *Solve any seven questions from Q. No. 1 to 8.*

Q1) Draw a network diagram from the given information. **[10]**

- a) Find Start Time, End Time, Total Float and Critical Path.
- b) If activity D crashed by 2 weeks, draw network diagram and find out critical path and shortest path.

Activity	ImmediatePredecessor	Duration (in week)
A	-	3
B	A	4
C	-	4
D	C	3
E	D,J	4
F	E,B	3
G	F	3
H	-	5
J	H	3

Q2) A new project with estimated 350 KLOC system has to be developed. For development project also requires. **[10]**

- a) Software reliability is High (1.15)
- b) Product Complexity is High (1.15)
- c) Analyst Capability is high (0.86)
- d) Programming Language Experience is low (1.07)
- e) Remaining all driver are treated as Nominal.

Calculate the effort, development time, average staff size and productivity of the project.

P.T.O.

Q3) Consider a project with the following functional units **[10]**

- a) Number of User Inputs – 42
- b) Number of User output – 42
- c) Number of User enquiries – 57
- d) Number of User files – 06
- e) Number of external Interfaces – 06

In addition to above, system requires significant data communication (4)

In addition to above, system requires significant data communication (4)

Performance is very Critical – (05)

Designed code may be moderately reusable – 02

Other Complexity factors are treated as average. Compute the functional point for the project.

Q4) What is risk management? Explain the different stage involved in risk management **[10]**

Q5) Explain versioning and version control. **[10]**

Q6) Explain performance management. **[10]**

Q7) Explain user role in project management. **[10]**

Q8) Write short note on (any two) **[10]**

- a) Gantt Chart.
- b) Project Organization.
- c) Defect Management.
- d) Rayleigh Curve.



Total No. of Questions : 7]

SEAT No. :

P1878

[Total No. of Pages : 1

[4775] - 503
MCA (Semester - V)
MANAGEMENT FACULTY
IT - 53 : Emerging Trends in Information Technology
(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) Question No. 1 & Question 7 are compulsory.*
- 2) Solve any four from Questions from the remaining.*
- 3) Figures to the right indicate full marks.*

Q1) A deemed university want to implement e - learning model for distance learning programs. As an IT consultant do comparative analysis of various e - learning models and suggest suitable e - learning model to university also justify your suggestion.[15]

Q2) Explain advantages & disadvantages of cloud computing. [10]

Q3) Explain different types of social networking sites. [10]

Q4) Explain various electronic payment methods. How transactions are performed in E - banking.

Q5) Explain telemonitoring and E - coaching. [10]

Q6) Explain E - commerce architecture. [10]

Q7) Write A short Note (Any 3) : [15]

- a) Features and need of social networking.
- b) Meeting Tools.
- c) Cloud computing models
- d) POS
- e) Applications of m - commerce.



Total No. of Questions : 7]

SEAT No. :

P1879

[Total No. of Pages : 2

[4775] - 504

M.C.A. (Management Faculty) (Semester - V)

IT - 54 : Advanced Development Technology

(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 is compulsory.*
- 2) *Solve any Four questions from Q.No. 2 to Q.No. 7.*
- 3) *Figures to the right indicates full marks.*

Q1) Explain ASP. Net server side state management techniques in detail. **[10]**

Q2) Explain various login controls in detail. **[15]**

Q3) Explain the concept of error pages and error logging with the help of suitable example. **[15]**

Q4) Design a form and write code to : **[15]**

- a) Populate and display student's name in a drop down list.
- b) Select a student from DDL and display its details in underlying text boxes.
- c) Add a record.
- d) Delete selected record.
- e) Edit selected record.

Name of table : Studentmaster (StudID, StudName, DOB, percentage, courseName)

Name of server : MYASPDB (SQL Server)

Q5) a) Write a code and steps to create and consume web service. **[10]**

b) Explain the advantages and disadvantages of client side state management technique. **[5]**

P.T.O.

Q6) Explain uses, properties and methods of following controls (Any Three)[15]

- a) Gridview control.
- b) Drop downlist control.
- c) File upload control
- d) Check Box control

Q7) Write short notes on following (Any Three)

[15]

- a) Compare Validator control.
- b) Menu Navigation control
- c) Ajax control
- d) Exception handling



Total No. of Questions : 7]

SEAT No. :

P1880

[Total No. of Pages : 1

[4775] - 505

M.C.A. (Management Faculty) (Semester - V)

IT - 55 : ADVANCED INTERNET TECHNOLOGY

(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 70

Instructions to the candidates:

- 1) *Question 1 & 7 are compulsory.*
- 2) *Answer any Four questions from remaining (Q2 - Q6)*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) a) What is JSP? Explain JSP elements with example. [10]

b) Explain SESSION and COOKIE in PHP. [5]

Q2) Explain CGI architecture. Write a perl program to create a file, insert into that file and display the contents into that file. [10]

Q3) Explain Http Servlet Request and Http Servlet Response with suitable examples. [10]

Q4) What is ORM and Hibernate? What are the levels of ORM? [10]

Q5) Design html page to display list of available books in a list box. Allow user to select multiple books & submit form. Write Servlet code to display selected book. [10]

Q6) Write PHP code to accept Passport registration information from the customer, store it into the database and display the customer information. [10]

Q7) Write short notes on (Any 3) [15]

- a) Servlet life cycle
- b) Arrays in PHP
- c) JSP directives
- d) Perl array functions
- e) Aspects which can affect the performance of Tomcat server.



Total No. of Questions : 7]

SEAT No. :

P1848

[Total No. of Pages :2

[4775] - 51

M.C.A.(Management Faculty) (Semester -V)
IT 51: HUMAN COMPUTER INTERFACE
(2008 Pattern)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates :

- 1) *Q. 1 is compulsory.*
- 2) *Answer any five from the remaining (Q2-Q7).*

Q1) Answer any four.

[4 × 5 = 20]

- a) What are the guidelines for data entry?
- b) What are the goals of system engineering?
- c) Explain individual window design.
- d) Write icon-specific guidelines.
- e) Explain presentation styles for error messages.

Q2) Explain OAI Model for Web site Design.

[10]

Q3) Explain four phase framework for textual search.

[10]

Q4) Explain eight golden rules of Interface design.

[10]

Q5) Explain three pillars of design.

[10]

P.T.O.

Q6) Explain Goals of co operations.

[10]

Q7) Write short note on (any two).

[10]

- a) Response time and display rate.
- b) Speech recognition.
- c) Surveys.



Total No. of Questions : 7]

SEAT No. :

P1849

[Total No. of Pages :2

[4775] - 52

M.C.A.(Management Faculty)(Semester - V)

SOFTWARE PROJECT MANAGEMENT

(2008 Pattern)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates :

- 1) Q. No. 1 is compulsory.*
- 2) Solve any five from remaining.*

Q1) a) Explain COCOMO Model in depth with all its models & examples.[10]

b) Explain in detail Software Configuration Management. [10]

Q2) Explain Project Development Life Cycle with the help of a Diagram. [10]

Q3) Explain different Software Testing Methods. Compare Black Box & white Box testing methods. [10]

Q4) What is function point analysis? How is it used to determine cost of project?[10]

Q5) State benefits of component based Software development. [10]

Q6) Explain CMM in all its phases with example. [10]

P.T.O.

Q7) Write short notes (ANY 2):

[10]

- a) Version Control
- b) Software reviews
- c) CPM/PERT
- d) Practices & controls in HRM.



Total No. of Questions : 7]

SEAT No. :

P1850

[Total No. of Pages :2

[4775] - 53

M.C.A.(Management Faculty) (Semester -V)

**IT - 53: EMERGING TRENDS IN INFORMATION
TECHNOLOGY**

(2008 Pattern)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates :

- 1) Q. 1 and Q. 7 are compulsory.*
- 2) Attempt any four from remaining.*

Q1) Star - auto is a automobile industry specialized in designing and manufacturing hatch back cars - it has corporate office in pune and 5 plants in all over India. Design business Continuity Planning System which would be implemented in corporate office and all the plants of star auto. **[15]**

Q2) Discuss various E-learning models in detail. **[10]**

Q3) What is knowledge managements? Explain architecture and tools of it. **[10]**

Q4) What is GIS? Explain spatial objects and data models. **[10]**

Q5) What is E- agriculture? Explain corp management. **[10]**

Q6) Explain in detail warehousing management and transportation management.**[10]**

P.T.O.

Q7) Write short notes (any three).

[3 × 5 = 15]

- a) ERP packages
- b) Digital signatures
- c) Palm devices
- d) RFID



Total No. of Questions : 7]

SEAT No. :

P1851

[Total No. of Pages :2

[4775] - 54

M.C.A.(Management Faculty) (Semester -V)

IT - 55: ADVANCED INTERNET TECHNOLOGY

(2008 Pattern)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates :

- 1) *Questions NO.1 & Question No. 7 are compulsory.*
- 2) *Attempt any four questions from remaining.*
- 3) *Right side indicates marks.*

Q1) What is E-commerce? what are the types of E-commerce? Explain benefits of E-commerce. **[15]**

Q2) Write a servlet program to accept online registration details of candidates for appearing campus drive for Infosys. Assume suitable table structure. **[10]**

Q3) Write a PERL program to accept a string , character from user and count the number of times that particular character occurs in a given string also display number of characters, number of words & No. of punctuations (!,?,",etc) present in a string. **[10]**

Q4) Write a PHP code to display company wise student's placement report of MCA-III yr. (Assume suitable table structure). **[10]**

Q5) Explain pattern matching in PERL with example. **[10]**

P.T.O.

Q6) Explain types of arrays, with any five methods in PERL. **[10]**

Q7) Write short note on any three. **[15]**

- a) Cookies in servlet
- b) ISP standard Actions
- c) ISP directives
- d) CGI Architecture
- e) PHP Error Handling



Total No. of Questions : 6]

SEAT No. :

P1852

[Total No. of Pages :2

[4775] - 55

M.C.A.(Management Faculty) (Semester -V)

ITE - 1: CYBER LAW AND IT SECURITY

(2008 Pattern) (Elective)

Time : 3 Hours]

[Max. Marks :70

Instructions :

- 1) *Que. 1 and Que. 6 are compulsory.*
- 2) *Solve any three from remaining questions.*

Q1) a) What is E-Governance? Explain one example of E- Governance. [10]

b) Explain Certifying Authorities with its need and authority. [10]

Q2) Explain violations of Data Privacy under Cyber Crimes. [10]

Q3) Describe the Digital Signature with advantage and disadvantage. [10]

Q4) Explain Cryptography in details with its type. [10]

Q5) Explain E-Commerce. How to provide security to E-Commerce Application. [10]

P.T.O.

Q6) Write short note on following (ANY 4)

[20]

- Trademark dispute
- Certifying authorities
- Guideline for protecting information from unauthorized access
- Ethical Hacking
- Framing & Spamming



Total No. of Questions : 7]

SEAT No. :

P1853

[Total No. of Pages :2

[4775]-56

**M.C.A. (Management Faculty) (Semester - V)
PROGRAMMING LANGUAGES PARADIGM
(Elective)
(2008 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. 1 and 7 are compulsory.*
- 2) Attempt any FOUR questions from remaining.*
- 3) Figures to the right side indicate full marks.*

Q1) Explain program interpretation and execution in conventional computer with block diagram. **[15]**

Q2) Explain binding time classes and its importance in programming Language. **[10]**

Q3) Explain implementation of recursive function call. **[10]**

Q4) Explain syntactic elements of a programming Language. **[10]**

Q5) Explain stack and heap storage management. **[10]**

Q6) Explain analysis of source program with block diagram. **[10]**

P.T.O.

Q7) Write short notes (any three):

[15]

- a) Composite Data Types
- b) Firmware Computer
- c) Methods of parameter transmission
- d) Features of Java Language



Total No. of Questions : 7]

SEAT No. :

P1854

[Total No. of Pages :2

[4775]-57

M.C.A. (Management Faculty) (Semester - V)

ITE - 1: ADVANCED UNIX (Elective)

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. one and seven are compulsory.*
- 2) Solve any four from remaining.*
- 3) Assume suitable data whenever necessary.*
- 4) Figures to the right side indicate full marks.*

Q1) Explain the following system calls/functions (any five): **[5 × 2 = 10]**

- a) open()
- b) mount()
- c) wait()
- d) close()
- e) kill()
- f) free()

Q2) Describe the use of File and Record locking. And explain how to implement them. **[10]**

Q3) What is Orphan Process? Explain the ways by which it can be avoided. **[10]**

Q4) What are pipes? What happens when a pipe system is called? Explain how they are different from ordinary files. **[2 + 4 + 4]**

P.T.O.

Q5) What are message Queues? Explain the structure of information maintained by Kernel for every message Queue. **[4 + 6]**

Q6) What is shared memory? What is the importance of it? Explain in detail about the process of "Allocating a shared memory segment". **[3 + 2 + 5]**

Q7) Write short notes on (any four): **[4 × 5 = 20]**

- a) inode table
- b) Methods of Inter Process Communication
- c) Process states
- d) Zombie process
- e) buffer queue



Total No. of Questions : 7]

SEAT No. :

P1855

[Total No. of Pages :2

[4775]-58

M.C.A. - III (Management Faculty) (Semester - V)

MOBILE COMPUTING

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 and 7 are compulsory.*
- 2) *Attempt any three from remaining.*

Q1) a) Define the following Terms. [10]

- i) TCP issue
- ii) CDMA
- iii) SIM
- iv) Mobile Management
- v) UMTS

b) Compare DSSS & OFDM. [10]

Q2) Explain the logical channel of GSM network. [10]

Q3) How can DHCP used for mobility & How it support to mobile IP. [10]

Q4) What is WAP gateway? What are its function. [10]

Q5) What is Hidden node problem and how it is resolved in 802.11. [10]

P.T.O.

Q6) What are the Advantage and disadvantage of wireless networking. **[10]**

Q7) Write short notes (any four): **[20]**

- a) Visitor Location Register
- b) Frame Error Rate
- c) Function of mobile Management
- d) SPIN
- e) Distributed Computation



Total No. of Questions : 8]

SEAT No. :

P1856

[Total No. of Pages :2

[4775]-59

M.C.A. (Management Faculty) (Semester - V)

**ITE5: DISTRIBUTED DATABASE MANAGEMENT SYSTEM
(2008 Pattern) (Elective)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. 8 is compulsory. Solve any 5 from remaining.*
- 2) Draw suitable diagram where needed.*
- 3) Give suitable examples if required.*
- 4) Whenever necessary state assumptions.*
- 5) Right side indicates marks.*

Q1) Explain the various Distributed design Issues. [10]

Q2) What are the different types of fragmentation? Explain with suitable example. [10]

Q3) What is query optimization? Explain the various factors governing query optimization. [10]

Q4) What is a transaction and explain the various goals of transaction management with respect to distributed databases. [10]

Q5) What is Dom? Explain the various reasons why objects are distributed.[10]

Q6) What is reliability in DDBMS and explain the various types of failures.[10]

Q7) Explain the various concurrency control mechanism for Distributed databases. [10]

P.T.O.

Q8) Write short notes (any four):

[20]

- a) Objectives of query Processing
- b) Global Directory Issues.
- c) Advantages of DDBMS.
- d) Fragmentation and its types.
- e) States of Transaction.

