

Total No. of Questions : 7]

SEAT No. :

P3582

[5270]-101

[Total No. of Pages : 1

M.C.A. (Management)

**IT-11: COMPUTER ORGANIZATION
(2012 Pattern) (New) (Semester-I)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 and Q. 7 compulsory.*
- 2) *Solve any four from remaining.*
- 3) *Draw diagram whenever necessary.*

Q1) a) Explain superscalar concept. Draw and explain Pentium architecture. [12]
b) Compare compiler with Interpreter. [3]

Q2) Explain interface block diagram in detail. [10]

Q3) Convert this: [10]

- a) $(1110.01)_2 = (?)_{10}$
- b) $(3FE)_{16} = (?)_8$
- c) $(27.13)_{10} = (?)_2$
- d) $(101111101)_8 = (?)_{10}$
- e) $(413.6)_{10} = (?)_{16}$

Q4) What is pipelining? Explain instruction pipelining with example. [10]

Q5) Compare synchronous and Asynchronous counter with example. [10]

Q6) a) Explain Hardwind and microprogram control in brief. [5]
b) Explain Instruction and Execution cycle. [5]

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

- a) DMA.
- b) Binary Adder.
- c) Performance of processors.
- d) System Bus.



Total No. of Questions : 9]

SEAT No. :

P3583

[Total No. of Pages : 3

[5270] - 102

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

IT-12 : C-PROGRAMMING

(2012 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. No. 1 is compulsory.*
- 2) *Solve any six from Q.No. 2 to Q.No. 9.*
- 3) *Assume suitable data wherever necessary.*
- 4) *Figures to the right indicate full marks.*

Q1) Find and explain output of the following (Any four) :

[10]

a) Void main ()

```
{
    char *s[ ] = {"Pune", "Mumbai", "Chennai", "Delhi"};
    char **p;
    p = s;
    printf("%s", ++*p);
    printf("%s", *p);
    printf("%s", *p++);
}
```

b) Void main ()

```
{
    int i, n; n = 0;
    for (i = 0; i <= 10; i++, printf("%d", i))
        n++;
    printf("%d", n);
}
```

c) Void main ()

```
{
    int m, n = 0;
    m = (n < 10? (n <= 20? 500 : 700) : 900);
    printf("%d", m);
}
```

P.T.O.

- d) `#define MAX(x, y) (x) > (y)? (x) : (y)`
`Void main ()`
`{`
`int i = 5, j = 10, k = 0;`
`k = MAX (i++, ++j);`
`printf("%d %d %d", i, j, k);`
`}`
- e) `Void main ()`
`{`
`int x = 9, y = 6, z = 3;`
`x = y >> z;`
`y = x << z;`
`printf ("x = %d\n y = %d\n z = %d", x, y, z);`
`}`

Q2) a) Write a program to print the following pattern **[5]**

```

A
B  C
D  E  F
G  H  I  J
-----
-----

```

b) Write a function to accept a decimal number and display its equivalent Binary number. **[5]**

Q3) Write a program to accept a multi-word string and reverse each word of the string. **[10]**

Q4) Struct exam **[10]**

```

{
    int  rollno;
    char studname [20];
    int  elesub [6];
};

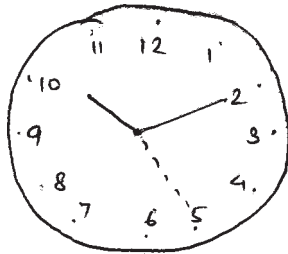
```

Using the above structure write a program to accept records for 10 students, where in the student can apply for any four subjects out of 6 subjects. Display subject wise list of students.

- Q5)** a) Write a recursive function to display the product of digits in a given number. [5]
b) Write a program to delete a given number from an array of integers and display the array. [5]

Q6) Write a program to reverse the contents of a file and copy into another file. Do not reverse the contents of the original file. [10]

- Q7)** a) Write a program to display the following : [5]



- b) Write a program to accept a 4×4 matrix and print row-wise sum. [5]

Q8) Write a program to accept the filename using command line argument and encrypt the contents of the file. [10]

Q9) Write short note on the following : [10]

- a) Bitwise Masking.
b) Storage Classes.



Total No. of Questions : 8]

SEAT No. :

P3584

[5270]-103

[Total No. of Pages : 2

M.C.A - I (Management)
IT - 13 :SOFTWARE ENGINEERING
(2012 & 2013 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q. 7 are compulsory.*
- 2) *Attempt any 4 out of remaining.*
- 3) *Figures to right indicate marks.*
- 4) *Write assumptions whenever 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. **[20]**

- a) Draw context and 1st level DED
- b) Prepare SRS (Scope, objective, function requirements, system specification) for the above system.

Q2) Design a data entry screen for a customer and also state input validations for registration with gas agency. The registration process will also take input of Customer Aadhar Card and Customer Saving Bank account details in separate input form linked with the main Gas Agency registration screen **[10]**

P.T.O.

Q3) Explain Elements of good design, along with Features of modern GUI. [10]

Q4) Explain CASE TOOLS with its components, also state advantages and Disadvantages. [10]

Q5) Explain method of estimating software maintenance cost. Give various components of legacy systems [10]

Q6) Explain Agile process in detail. [10]

Q7) Write short notes on (Any Four): [10]

- a) Functional Decomposition Diagram
- b) Fact Finding Technique
- c) Spiral Model
- d) Role & Skills of system Analyst
- e) Web engineering



Total No. of Questions : 6]

SEAT No. :

P3585

[5270]-104

[Total No. of Pages : 2

M.C.A. (Mgt. Faculty)

**BM - 11 - 104: PRINCIPLES AND PRACTICES OF
MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR
(2012 Pattern) (Semester - I)**

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 side indicate full marks.*

Q1) a) Elaborate on essential managerial skills and explain how these vary as per different managerial level? **[15]**

b) Define leadership and state its importance along with different leadership styles. **[10]**

Q2) What is managerial decision making? Explain Herbert simon's model in detail. **[15]**

Q3) Can motivation enhance organizational effectiveness? Explain in detail the need hierarchy theory of motivation. **[15]**

Q4) Define and explain the concept of organization which organizational structure is suitable for large scale industries? **[15]**

Q5) What are the different ego- states and discuss how transactional analysis can be used to resolve conflicts. **[15]**

P.T.O.

Q6) Write short notes (any 3):

[15]

- a) Planning
- b) Systems Approach
- c) Group dynamics
- d) Team work and performance
- e) Centralization Vs Decentralization



Total No. of Questions : 4]

SEAT No. :

P3586

[5270]-105

[Total No. of Pages : 3

M.C.A. (Management Faculty)
MT-11:116 : DISCRETE MATHEMATICS
(2012 and 2013 Pattern) (Semester-I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any two from Question numbers 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]**

$$P_1: \neg(P \wedge \neg Q), P_2: \neg Q \vee R, P_3: \neg R, C: \neg P$$

- b) Let $A = \{a, b, c, d\}$ and $R = \{(a, b), (b, a), (b, c), (c, d)\}$. Find R^+ (Transitive closure) by using Warshall's algorithm. **[5]**

- c) How many different signals, each consisting of 9 flags hung in a line, can be made from a set of 4 white flags, 3 red flags and 2 blue flags if all flags of the same colour are identical? How many if two blue flags hung on adjacent pole? **[5]**

- d) Find the number of integer valued solutions of the following equation.
 $x_1 + x_2 + x_3 = 29$ $x_1 > 3, x_2 \geq 4, x_3 > 5$ **[5]**

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

- f) Show that $(2Z, +)$ is an abelian group. Where $2Z$ is a set of all even numbers. **[5]**

Q2) Solve the following:

- a) Obtain PDF for the following: **[5]**

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

P.T.O.

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

$$f = \{(a, a), (b, a), (c, a)\}$$

$$g = \{(a, b), (b, c), (c, a)\}$$

$$h = \{(a, b), (a, c), (b, c), (c, a)\}$$

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

- c) i) Find the coefficient of $x^3 y^2 z^2$ in the expansion of $(2x^3 - y^2 - z)^4$.
 ii) How many different key rings can be made of four different colour-coded keys?

[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]

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

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]

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

- ii) Suppose 45% of all newspaper readers like wine, 60% like orange juice and 55% like tea. Suppose 35% like any given pair of these beverages and 25% like all three beverages: What percent of readers does not like any of the three beverages? [4]

Q4) Solve the following:

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

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

i) Converse of relation R .

ii) Relation matrix.

iii) Graph of relation.

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

The assignment will be complete if and only if Mahesh does the field work fast. Either Mahesh does the field work fast or he reads a book. Mahesh does not read a book. Therefore the assignment will be incomplete.

c) i) If $\sigma = (1, 3, 5)(2, 5, 7)(3, 7) \in S_7$, express σ as products of disjoint cycles. Also find σ^{-1} .

ii) Show that in a group $(G, *)$, if every element is inverse of itself then G is an abelian group.

[8]



Total No. of Questions : 8]

SEAT No. :

P3587

[5270]-201

[Total No. of Pages : 3

M.C.A. (Management)

**IT - 21 : OBJECT ORIENTED PROGRAMMING WITH C++
(2012 Pattern) (Semester - II)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Solve any six from Q.2 to Q.8.*
- 3) *Figures to the right indicate full marks.*

Q1) Explain output of the following program.

[10]

```
a) # include < iostream.h>
int square (int y)
{
    return y * y;
}
Void Main ( )
{
    int x = 5; b = 4, c;
    c = square ( a + b);
    Cout << Endl << "c = " <<c;
}

b) Class test
{
    Static int k;
    Public
    Static Void Cshow ( )
    {
        Cout << Endl << "k = " << ++k;
    }
};
int test :: k = 10;
Void Main ( )
{
    test t1, t2, t3;
    t1. Cshow ( );
    t2. Cshow ( );
    t3. Cshow ( );
}
```

P.T.O.

```

c) Void Main ( )
{   int a, *pa, &ra = a;
    pa = & a;
    a = 10;
    Cout << endl << "a = " << a << "* pa = " << * pa << "&ra = " << ra;
}

d) Class base
{
    Private :
        int x ;
    Public :
        int y ;
};

Class derived : Public base
{
    Protected :
        int a, b;
    Public :
    Void assign ( )
    {
        a = x;
        b = y;
    }
};

Void Main ( )
{
    derived d1;
    d1. assign ( );
}

```

- Q2)** a) Explain function overloading with example. [5]
 b) Explain parameterized constructor with default argument. [5]
- Q3)** a) Write a program to overload '~' operator to count length of a string. [5]
 b) What is abstract class explain with example. [5]
- Q4)** a) Explain this pointer with suitable example. [5]
 b) Explain the following functions [5]
 i) setf ()
 ii) width ()
 iii) fill ()
 iv) precision
 v) unsetf ();
- Q5)** Write a program that read file "stud. txt" having information rollno., name, department (Science, Commerce, Arts) and store them in three separate file according to their departments i.e student having department science must be in "sci.txt" commerce in file "comm.txt" & arts in file "art.txt"; [10]
- Q6)** Design a class degree and fahrenheit to store temperature in degree and fahrenheit. Both the classes should have member function. So that user should be able to write statement like d1 = F1 and F1 = d1 through C++ Main () where d1 is object of degree class & F1 is object of fahrenheit class? ($F = 32 + 1.8C$) [10]
- Q7)** a) Write a program which can handle all types of exceptions. [5]
 b) What is function template explain with suitable example. [5]
- Q8)** Write short notes on the following (any two) [10]
 a) STL
 b) Static cast & dynamic cast
 c) Nested Namespace.

x x x

Total No. of Questions : 6]

SEAT No. :

P3588

[5270]-202

[Total No. of Pages : 2

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

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 questions.*
- 3) *Figures to the right indicate full marks.*

Q1) Study the following service call report and normalize the data upto 3 N.F.[20]

Service Call Report					
Customer Code: _____		Customer Name: _____			
Customer Address: _____			Time: _____		
Date of Call: _____					
Sr. No	Machine Name	Problem	Spares used	Qty.	Amt.
				Total	
Service Charges: _____		Grand Total: _____			
Customer Remarks: _____			Date: _____		
Engg. Code: _____					
Engg. Name: _____		Customer Sign.			

Q2) Explain log-based recovery techniques in details. **[10]**

Q3) Explain Architecture of DBMS. **[10]**

Q4) Explain two-phase locking protocol for concurrency controls. **[10]**

P.T.O.

Q5) Consider the following table structure to solve queries using SQL (Any 5)[10]

Emp (empno, ename, hiredate, mgrno, sal, comm, deptno)

Dept (deptno, deptname, Location)

- a) Create above tables with proper constraints.
- b) Display list of Employees who's location is Mumbai.
- c) Display the list of employee's, Those who are getting commission.
- d) Display the list of employee's, Those who are reporting to 'Amol'.
- e) Display the list of employee in Ascending order of ename.
- f) List of employee, Those who are hired before 15/06/2001.

Q6) Write a short note on following (any 4)

[20]

- a) Relational Algebra.
- b) RAID.
- c) Codd's Rule.
- d) Encryption.
- e) View.

x x x

Total No. of Questions : 7]

SEAT No. :

P3589

[5270]-203

[Total No. of Pages : 1

M.C.A. (Mgmt. Faculty)

**IT-23: OPERATING SYSTEM CONCEPTS
(2012 Pattern) (Semester-II)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve any five from Question 1 to Question 6.*
- 2) *Question 7 is Compulsory.*

Q1) What is IPC? Explain how IPC is implemented in client - server system. **[10]**

Q2) Differentiate between preemptive and non preemptive process scheduling. **[10]**

Q3) Explain Bankers Algorithm with suitable example. **[10]**

Q4) Explain with example contiguous and non contiguous memory allocation. **[10]**

Q5) Explain SCAN and LOOK algorithm for disk scheduling. **[10]**

Q6) Consider following page reference string **[10]**

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6

How many page faults would occur in LRU, FIFO and Optimal Page replacement algorithm. Assume frame size of 3.

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

- a) Socket.
- b) RPC.
- c) PCB.
- d) Android.
- e) Semaphore.



Total No. of Questions : 7]

SEAT No. :

P3590

[5270]-204

[Total No. of Pages : 2

M.C.A. (Management)

**BM-21:MANAGEMENT INFORMATION SYSTEM & BUSINESS INTELLIGENCE
(2012 & 2013 Pattern) (Semester-II)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Questions 1 and 7 are compulsory.*
- 2) *Solve any four questions from remaining.*

Q1) a) Draw and Explain BI architecture. Enlist and explain any three BI technologies. **[7]**

b) Explain following BI analytics methods: **[8]**

i) Cluster Analysis.

ii) PCA.

Q2) Differentiate between OLTP and OLAP. **[10]**

Q3) Explain structure and working of Expert System. How Expert system is different than the conventional system? **[10]**

Q4) Define DSS. Give characteristics & capabilities of DSS. Explain DSS Components. **[10]**

Q5) The XYZ company launched new soft-drink into the market. The Company already started the manufacturing of the new launched product. Company wants to control the manufacturing of the same Company wishes to take online feedback from their customer via Company's website.

Design the Feedback form for the same and explain is these types of feedbacks are useful for controlling. **[10]**

P.T.O.

Q6) Explain Herbert-Simon Model with exmple.

[10]

Q7) Write short notes on (Any 3).

[3×5=15]

- a) Role of MIS
- b) Heuristic Programming
- c) Data Visualization
- d) EIS



Total No. of Questions : 7]

SEAT No. :

P3591

[5270]-205

[Total No. of Pages : 1

M.C.A. (Management Faculty)

IT-24 : ENTERPRISE RESOURCE PLANNING

(2012&2013 Pattern) (Semester-II)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 is compulsory.*
- 2) *Attempt any 5 questions from Q.2 to Q.7.*
- 3) *Figures to the right indicate full marks.*

Q1) a) Define ERP Implementation Life cycle in detail with example. [10]

b) Explain the modules in production planning and production control in ERP Systems. [10]

Q2) What is BPR ? Discuss BPR Lifecycle in detail with suitable diagram. [10]

Q3) Define CRM. Explain the importance of CRM in current scenario of globalization. [10]

Q4) Discuss the modules and submodules in Human Resource management. [10]

Q5) What are the ERP V/S In -house Applications. [10]

Q6) Explain Standardization of data code and Benefit of Integration. [10]

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

- a) Customization of ERP
- b) ERP Market
- c) Decision Support System
- d) Post Evaluation and Maintenance.



Total No. of Questions : 7]

SEAT No. :

P3592

[5270]-301

[Total No. of Pages : 1

M.C.A. (Management Faculty)

IT 31 : WEB TECHNOLOGIES

(2012&13 Pattern) (Semester-III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 is compulsory.*
- 2) *Solve any 5 from Q.2 to Q.7.*
- 3) *Draw neat diagrams.*

- Q1)** a) Explain plugins and how plugins can be evaluated with suitable examples. [10]
b) Explain XSLT and its different types with suitable examples. [10]
- Q2)** Explain event handling in Javascript with suitable examples. [10]
- Q3)** Design online application form using Javascript for placement cell and validate any five fields. [10]
- Q4)** Explain different types of authentication and SSL certificate. [10]
- Q5)** a) Explain SOAP with examples. [5]
b) Explain any two types of CSS with examples. [5]
- Q6)** WAP to give animation effect for increasing size of Text gradually using JQuery. [10]
- Q7)** Write short notes on (any two). [10]
a) Virtual vosting
b) SAX parser
c) AJAX events.



Total No. of Questions : 8]

SEAT No. :

P3593

[5270]-302

[Total No. of Pages : 1

M.C.A. (Management Faculty)

IT-32 : DATA COMMUNICATION & COMPUTER NETWORKS

(2012&13 Pattern) (Semester-III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 & Q.8 are compulsory.*
- 2) *Attempt any five from remaining.*
- 3) *Neat diagrams must be drawn wherever necessary.*

Q1) Why layered approach of networking model developed ? what are the advantages of layered model ? Explain the process of Data encapsulation in layered model ? **[10]**

Q2) Explain & compare circuit switching & virtual circuit switching networks?**[10]**

Q3) Explain HDCL protocol with its framing. **[10]**

Q4) What are the reasons the network designers create subnetting ? Explain reasons. **[10]**

Q5) Explain DHCP address discovery process, address renewed porcess and address release process. **[10]**

Q6) What is MIME ? Explain its purpose & format in detail ? **[10]**

Q7) Define VPN ? Explain the working of VPN ? What are the different advantages of using VPN ? **[10]**

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

- a) Proxy server
- b) Post office protocol
- c) IPV 6
- d) Ethernet
- e) Wimax



Total No. of Questions : 7]

SEAT No. :

P3594

[5270]-303

[Total No. of Pages : 2

M.C.A. (Management Faculty)

**IT-33: DATA STRUCTURES USING C++
(2012 Course) (Semester-III)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Write short notes on (Any Two):

[10]

- a) Define Data Structures and explain various data types.
- b) Dequeue.
- c) Sparse Matrix.
- d) Pre order traversal.

Q2) a) Write a function in C++ to delete a node at a given position from double linked list. **[7]**

b) Convert the given expressions in prefix and postfix. **[8]**

i) $(A + B) * (C \$ (D - E) + F) - G$

ii) $A + (((B - C) * (D - E) + F) / G) \$ (H - J)$

Q3) a) Show the stack contents for each step during conversion of given postfix expression into infix **[7]**

A B C D E - + \$ * E F * -

b) Write a function in C++ for deleting an element in dynamic circular queue. **[8]**

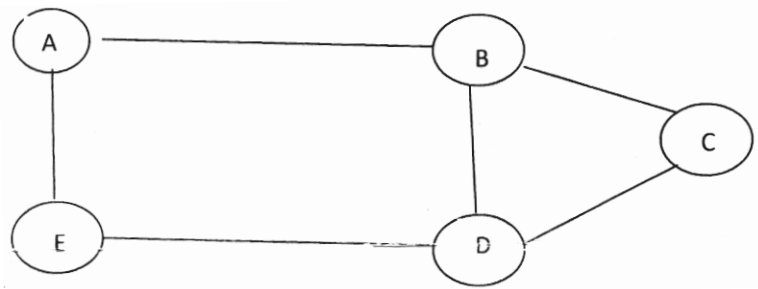
Q4) a) Show AVL tree construction for the given names: **[7]**

Anita, Amol, Avinash, Atharva, Aarya, Aparna, Aparajita, Ashish, Ashok, Aditya

b) Write a function in C++ for deleting a node from Binary search tree. **[8]**

P.T.O.

- Q5) a)** Generate BFS, DFS for node B. Write adjacency matrix and adjacency list for the following graph. [7]



- b) Write a function in C++ to generate BFS output for graph implemented using array. [8]
- Q6) a)** Write a function in C++ to insert a node in B Tree. [7]
- b) Write a function in C++ to convert infix expression into prefix expression. [8]
- Q7) a)** Write a program to multiply two polynomials. [7]
- b) Write C++ functions to create priority queue using linked representation and deleting a node from the same priority queue. [8]



Total No. of Questions :8]

SEAT No. :

P3595

[Total No. of Pages : 2

[5270] - 304

M.C.A. (Management Faculty)

IT-34: ADVANCED DATABASE MANAGEMENT SYSTEM

(2012 & 2013 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q-1 & Q-8 are compulsory.*
- 2) *Attempt any 4 questions from remaining.*
- 3) *Draw figure wherever it is required.*

Q1) a) What is intra-operation parallelism? Explain types of sorting as intra-operation Parallelism. **[10]**

b) What is Concurrency Control? Explain all protocols in Concurrency Control. **[10]**

Q2) Explain the 2 PC protocol in detail and also give the various failures and their solutions in 2PC protocol. **[10]**

Q3) a) Write and explain K-means Clustering algorithm. **[5]**

b) Deadlock handling in Distributed databases. **[5]**

Q4) Explain the various dimensional data modeling techniques in Data Warehouse. **[10]**

Q5) a) Explain Classification with example. **[5]**

b) Explain Object database architecture. **[5]**

P.T.O.

- Q6)** a) Explain the Data Warehousing Architecture? [5]
b) Explain Homogeneous and heterogeneous Distributed Database. [5]
- Q7)** a) Compare RDBMS, OODBMS and ORDBMS. [5]
b) Explain Data Partitioning techniques with example. [5]
- Q8)** Write short notes on following (any two): [10]
a) Mobile Databases.
b) XML DTD & Schema.
c) Operations on cubes.
d) n-tier architecture.
e) Cloud computing.

EEE

Total No. of Questions :7]

SEAT No. :

P3596

[Total No. of Pages : 2

[5270] - 305

M.C.A. (Management Faculty)

IT-35: OBJECT ORIENTED ANALYSIS AND DESIGN (OOAD)

(2012 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Management Development Institute (MDI), Gurgaon has organised an international Conference with various subject tracks. A website is developed by the institute where all the conference details are uploaded. The participants has to register online under category- Student, Faculty, Research Scholar, Corporate. He has to upload an abstract of his paper. If it gest selected, he has to upload final paper along with the registration fee. The registration fees varies according to the category of the participants. The payment can be done online or through DD. The paper presentation schedule is put up on the website under the defined tracks. After the conference the presented papers get published in online journal and participant can give his/her feedback online. Draw usecase diagram and class diagram for the above case. **[20]**

Q2) Explain Object Oriented Software Engineering (OOSE) methodology in detail. **[10]**

Q3) a) People use elevators to move from one floor to another. Discuss different scenario and prepare a sequence diagram showing different events and events exchanges between objects. **[5]**

b) Draw a collaboration diagram for online hotel booking. **[5]**

P.T.O.

- Q4)** Explain various approaches for identifying classes. [10]
- Q5)** Draw the State transition diagram for online shopping of books. [10]
- Q6)** a) Draw an activity diagram for online railway ticket booking. [5]
b) Explain the four phases of Rational Unified Process. [5]
- Q7)** Write short notes on (Any 2): [10]
- a) Mapping Object to Relational Data Structure.
 - b) Guidelines for preparing test plan.
 - c) Categories of Pattern.
 - d) Design Refinement.

EEE

Total No. of Questions :8]

SEAT No. :

P3597

[Total No. of Pages : 2

[5270] - 401

M.C.A. (Management Faculty)

IT-41: JAVA PROGRAMMING

(2012 & 2013 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No.1 and 8 are compulsory.*
- 2) Answer any five from Q.No. 2 to 7.*
- 3) Figures to the right indicate full marks.*
- 4) Draw neat diagram wherever necessary.*

Q1) Answer following:

[10]

- a) Explain difference between Static & Member Method.
- b) Explain Thread Life Cycle.
- c) Explain Wrapper Classes.
- d) List out four methods of Enumeration Interface.
- e) Explain Buffer reader & Buffer writer.

Q2) Write GUI based JDBC application for robotics event registration. Assume suitable structure. **[10]**

Q3) Write an applet to display scrolling text from left to right in an applet window. **[10]**

Q4) Write a client-server socket program. Client program will accept file name from user and sends it to server. If file does not exists, server will send "File does not exists" else server will read file contents, will replace vowels with '+' and sends it to client. **[10]**

P.T.O.

Q5) Write a program to design GUI to accept marriage registration details. Throw Invalid-Age-Exception, if age < 18 for girl and < 21 for a boy. **[10]**

Q6) Write RMI application to display amount in words. Accept amount in digits from client and display word value on server.. [For Ex. amount 1137, output should be One Thousand One Hundred Thirty Seven.] **[10]**

Q7) Explain MouseListener and MouseMotionListener with suitable example.**[10]**

Q8) Short notes (Any Two): **[10]**

- a) Stub & Skeleton.
- b) Beans Persistence.
- c) Serialization.

EEE

Total No. of Questions :8]

SEAT No. :

P3598

[Total No. of Pages : 2

[5270] - 402

M.C.A. (Management Faculty)

IT-42: MOBILE COMPUTING

(2012 & 2013 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 & 8 are compulsory.*
- 2) *Answer any three from the remaining.*
- 3) *Neat diagrams must be drawn where necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) a) What is MAC? Functions of MAC. Explain the various Issues of MAC. [10]

b) Write an Android application which will display Current Date & Time.[10]

Q2) a) Explain the Journey of Mobile technologies from 1G to 3G. [5]

b) What is Power-aware computing and context aware computing? Explain with a suitable example of each. [5]

Q3) a) What is Symbian Operating system and explain its features. [5]

b) What is SDK? Explain the various libraries in SDK. [5]

Q4) What are Layouts? Explain the role of Adapter in an android application with suitable example. [10]

Q5) What is Map Based Activity? Explain the various file management tools available for data retrieval and data sharing. [10]

P.T.O.

Q6) What is G-Talk? Explain the process for managing the chat sessions with a suitable example. **[10]**

Q7) What is GSM? Why is it used and explain the system architecture of GSM?**[10]**

Q8) a) Explain the role of Cursor in an android application with a suitable example. **[10]**

b) Write an Android application which will add three numbers and display the output on the TextView. **[10]**

EEE

Total No. of Questions :7]

SEAT No. :

P3599

[Total No. of Pages : 2

[5270] - 403

M.C.A. (Management Faculty)

IT-43: INFORMATION SECURITY AND AUDIT

(2012 and 2013 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No.1 and 7 are compulsory.*
- 2) *Solve any four questions from Q.No. 2 to 6.*

Q1) As being an external auditor, perform the audit of a networking firm. In this regard, you have to explain various: **[10]**

- a) Physical access security issues and guidelines.
- b) Network access security issues and guidelines.

Q2) Explain any two types of information security policies in brief. **[10]**

Q3) What do you mean by computer crimes? Explain various cyber crimes and attacks in detail. **[10]**

Q4) Explain the BCP and DRP process in detail. **[10]**

Q5) What is IT-Governance? Explain the ITIL model of IT-Governance in detail. **[10]**

Q6) What is IS Audit? Explain needs and objective of IS Audit in detail. **[10]**

P.T.O.

Q7) Write short notes on following (Any Four):

[4×5=20]

- a) Components of ISMS.
- b) Risks to Information security.
- c) Logical access security control.
- d) Ethical hacking.
- e) Windows Password Auditor.

EEE

Total No. of Questions :8]

SEAT No. :

P3600

[Total No. of Pages : 2

[5270] - 404

M.C.A. (Management Faculty)

IT- 44: DESIGN AND ANALYSIS OF ALGORITHMS

(2012 & 2013 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

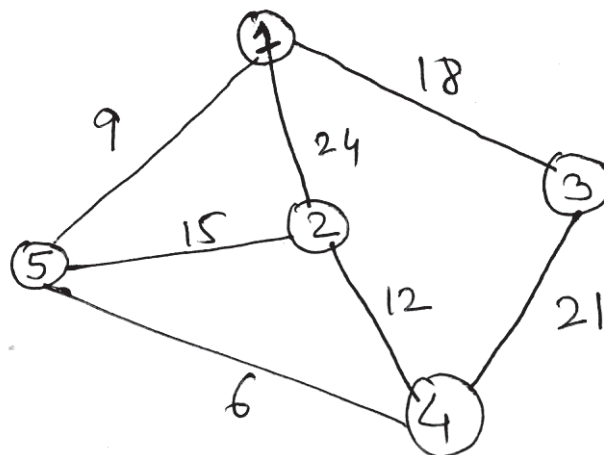
Instructions to the candidates:

- 1) Q.1 and Q.8 are compulsory.
- 2) Solve any five questions from Q.2. to Q.7.
- 3) Figures to the right side indicate full marks.
- 4) Make suitable assumptions if necessary.

Q1) a) Explain importance of space & time complexity for the analysis of algorithm. [5]

b) Write note on NP-hard and NP-complete. [5]

Q2) Find minimum cost spanning tree for the following graph using Prim's algorithm. [10]

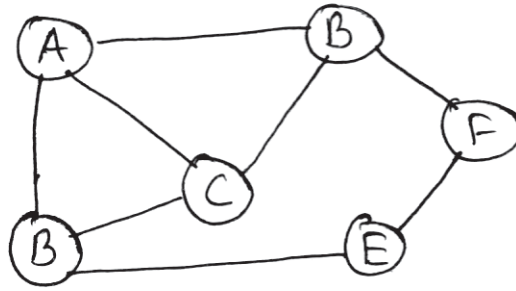


Q3) Write and explain algorithm of Merge sort. Sort given list of numbers using Merge sort Algorithm. [10]

Given $A[7] = \{92, 24, 48, 7, 85, 13, 4\}$; $n = 7$.

P.T.O.

Q4) a) Find Hamiltonian cycle for the following Graph. [5]



b) Explain 4-Queens problem with suitable example. [5]

Q5) Solve the instance of 0/1 knapsack problem using dynamic programming:
 $n=4, m=25$ [10]

$$(P_1, P_2, P_3, P_4) = (10, 12, 14, 16)$$

$$(W_1, W_2, W_3, W_4) = (9, 8, 12, 14)$$

Q6) Write algorithm for quick sort and apply for the following figures. Show all steps. [10]

65, 70, 75, 80, 85, 60, 55, 45

Q7) Design an algorithm for job sequencing with deadlines problem using Greedy method. Obtain the optimal job sequence for the following data of jobs. [10]

$$N = 4; (P_1, P_2, P_3, P_4) = (100, 10, 15, 27)$$

$$(D_1, D_2, D_3, D_4) = (2, 1, 2, 1)$$

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

- Set and disjoint set.
- Characteristics of good algorithm.
- Towers of Hanoi.

EEE

Total No. of Questions :5]

SEAT No. :

P3601

[Total No. of Pages :4

[5270] - 405

M.C.A. (Faculty of Mangement)

MT-41: OPTIMIZATION TECHNIQUES

(2012 & 2013 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. 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 right indicate full marks.*

Q1) a) Solve the following transportation problem:

[7]

		Destinations				Supply
		D	E	F	G	
Origins	A	13	10	16	21	250
	B	21	19	15	12	300
	C	16	19	13	9	400
Demand		200	225	275	250	

b) A small project is composed of eight activities whose time estimates are listed in the table as follow:

[7]

Activity	Estimated duration (weeks)		
	Optimistic	Most Likely	Pessimistic
1-2	1	1	7
1-3	1	4	7
2-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15
6-7	2	5	8

P.T.O.

- i) Draw the project network.
- ii) Determine the critical path and compute the expected completion time.
- iii) What is the probability that the project will be completed at least 3 weeks earlier than expected time?
- c) Customers arrive at a sales counter manned by a single person according to a Poisson process with a mean rate of 20 per hour. The time required to serve a customer has an exponential distribution with a mean of 100 seconds. Find: [7]
- i) Expected number customers waiting for the salesman.
- ii) The average time customer spends in the system.
- iii) Probability that queue length exceeds 5.
- d) Seven jobs are to be processed through 2 machines A and B in the order BA. Processing times (in hours) are given below: [7]

Jobs	1	2	3	4	5	6	7
Machine A:	10	9	6	15	18	11	14
Machine B:	12	8	7	12	10	6	13

Find the order of jobs that minimize the total elapsed time. Also find optimum elapsed time.

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

$$\text{Min: } Z = 4x_1 + 3x_2 + x_3$$

Subject to:

$$3x_1 + x_2 - 2x_3 \geq 12$$

$$x_1 - 2x_2 + 4x_3 \geq 8$$

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

- b) The following mortality rates have been observed for a certain type of light bulbs. [7]

Week	1	2	3	4	5
% failing by the end of week	10	25	50	80	100

There are 1000 bulbs in use and it costs Rs. 2 to replace an individual bulb which has burnt out. If all bulbs were replaced simultaneously it would cost 50 paise per bulb. It is proposed to replace all bulbs at fixed intervals whether or not they have burnt out and to continue replacing burnt out bulbs as they fail. At what intervals should all the bulbs be replaced?

Q3) a) The production department for a company requires 9600 kg of raw material for manufacturing a particular item per year. It has been estimated that the cost of placing an order is Rs.480 and the cost of carrying inventory is 25% of the investment in the inventories. The price of the raw material is Rs.40 per kg. [7]

Find:

- i) EOQ
 - ii) Number of orders to be placed in order to fulfill annual requirement.
 - iii) Total cost.
- b) Five new machines are to be located in a machine shop. There are Six possible locations in which the machines can be located. Following table represents cost of placing the machine at the respected place find optimum assignment schedule. [7]

		Place					
		A	B	C	D	E	F
Machine	1	12	8	15	18	10	13
	2	5	8	11	20	15	13
	3	8	9	12	20	10	17
	4	17	18	15	21	17	14
	5	10	8	22	27	18	17

Q4) a) Define: [7]

- i) Discount rate
- ii) Order Cycle
- iii) Latest allowable time of an event
- iv) Independent Float
- v) Optimistic Time
- vi) Activity
- vii) Basic Feasible solution of LPP

- b) Solve the following using Big- M 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) The following is the data regarding a project. [7]

Activity	Preceding Activity	Normal		Crash	
		Time(weeks)	Cost (Rs. '000)	Time(weeks)	Cost (Rs. '000)
A	-	10	20	7	30
B	-	8	15	6	20
C	B	5	8	4	14
D	B	6	11	4	15
E	B	8	9	5	15
F	E	5	5	4	8
G	A,D,C	12	3	8	4

Indirect Cost is Rs. 2800 per week. Find the optimum duration and the associated cost.

- b) In a bakery, the customers are handled by single person. 10 customers arrive per hour and baker takes 4 minutes to handle a customer. Find: [7]
- The probability that there are no customers.
 - Expected number of customers waiting in the bakery for their turn.
 - The average time spent by the customer in the bakery.

EEE

Total No. of Questions :7]

SEAT No. :

P3602

[Total No. of Pages : 2

[5270] - 501

M.C.A. (Management Faculty)

IT- 51: SOFTWARE TESTING & QUALITY ASSURANCE

(2012 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No.1 and 7 are compulsory.*
- 2) *Attempt any 4 from the remaining.*
- 3) *Figure to right indicate marks.*
- 4) *Draw neat diagrams wherever necessary.*

Q1) As a test manager, you have been assigned the task of writing a test plan for a web-based application for a school. Application is intended to establish a connection between teachers and parentas as well as parents with other parents. Parents as well as teachers have to register with the application. Thereafter teachers can inform about students' progress, marks and other issues if any on this application. On the other hand parents can interact with teachers regarding schedule for examinations, different activities in the school.

Write detailed test plan along with test cases for the above application. **[15]**

Q2) Explain the difference between black box and white box testing along with different techniques for test case designing. **[10]**

Q3) a) What is software reliability? How it can be measured? **[5]**

b) Calculate cyclomatic complexity for a program that accepts number with 4 digits and checks whether its a leap year or not. **[5]**

Q4) Why process improvement is important? What are the ways to achieve the same? **[10]**

P.T.O.

Q5) Explain different types of system testing with suitable example. **[10]**

Q6) Explain any 5 validation and verification techniques to ensure software quality. **[10]**

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

- a) Cleanroom Engineering.
- b) Software testing life cycle.
- c) Automated testing.
- d) Tester workbench.

EEE

Total No. of Questions :8]

SEAT No. :

P3603

[Total No. of Pages : 2

[5270] - 502

M.C.A. (Management Faculty)

IT-52: SOFTWARE PROJECT MANAGEMENT

(2012 & 2013 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 & 8 are compulsory.*
- 2) *Solve any five from remaining.*
- 3) *Use of non programmable calculator allowed.*

Q1) A project estimation for 80 KLOC has to be developed for development project also require **[10]**

- a) Software reliability is high (1.15)
- b) Analyst capability is high (0.86)
- c) Product complexity is high (1.15)

remaining all drivers are treated as nominal calculate effort, time, staff size & productivity.

Q2) What is risk management? Explain RMMM plan in detail. **[10]**

Q3) Consider project with following functional unit. **[10]**

- a) User Inputs: 32
- b) User Output: 40
- c) User enquires: 10
- d) User file: 06
- e) Internal Interface: 04

In addition to above system require

- i) Performance is very critical(5)
- ii) Significant data communication (4)

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

P.T.O.

- Q4)** Explain change control & version control in detail. [10]
- Q5)** You cannot satisfy a customer unless you know what he want. Justify this statement and explain how you can manage customer expectation. [10]
- Q6)** Describe role of user in project management. [10]
- Q7)** Describe project plan in detail. Explain PMLC. [10]
- Q8)** Short note (any two): [10]
- a) MS project.
 - b) PERT / CPM.
 - c) Team structure.
 - d) Configuration Management Tool.

EEE

Total No. of Questions : 7]

SEAT No. :

P3964

[Total No. of Pages : 2

[5270]-503

M.C.A. (Semester - V)

MANAGEMENT FACULTY

**IT - 53 : Emerging Trends in Information Technology
(2012 and 2013 Pattern)**

Time :3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Government of Maharashtra wants to launcher enterprise content management system. You as a consultant suggest different types of content and process to the Government. **[15]**

Q2) Explain features and need of Social Networking. **[10]**

Q3) What is Cloud Computing? Explain Key Characteristics and Deployment models of cloud. **[10]**

Q4) What is E-learning? Explain E-learning models with suitable example. **[10]**

Q5) What is E-commerce? Explain C2C E-commerce with suitable example. **[10]**

Q6) What is POS? Explain E-commerce Advantages and Disadvantages. **[10]**

P.T.O.

Q7) Write a short notes on (any 3) :

[15]

- a) WBT Vs. CBT.
- b) NIST Model
- c) Security Issues with social Networking sites.
- d) SAAS
- e) Paypal



Total No. of Questions :7]

SEAT No. :

P3604

[Total No. of Pages : 2

[5270] - 504

M.C.A. (Management Faculty)

IT-54: ADVANCED DEVELOPMENT TECHNOLOGY

(2012 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain data adapter, data set, data reader, command object & connection object in detail. **[10]**

Q2) Explain server side state management technique with example. **[15]**

Q3) Explain any three validator controls in detail. **[15]**

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

- a) Populate & display course name in a dropdown list.
- b) Select a course name from dropdown list and display its details in underlying text boxes.
- c) Add a record.
- d) Delete a record.
- e) Edit selected record.

Name of table: Course (CourseID, CourseName, CourseDuration, CourseFee, CourseIntake)

Name of server: MYASPDB (SQL Server)

P.T.O.

- Q5)** a) Explain ASP.Net architecture in detail. [10]
b) Write a program to implement hit counter using global.asax file. [5]
- Q6)** Explain following controls (Any Three): [15]
a) Adrotator control.
b) Text Box control.
c) Button control.
d) Wizard control.
- Q7)** Write short notes on following (Any Three): [15]
a) Event Driven Programming.
b) Exception Handling.
c) Ajax web server control.
d) Namespaces.

EEE

Total No. of Questions :7]

SEAT No. :

P3605

[Total No. of Pages : 2

[5270] - 505

M.C.A. (Management Faculty)

IT-55: ADVANCED INTERNET TECHNOLOGY

(2012 - 2013 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No.1 & 7 is compulsory.*
- 2) *Answer any four questions from remaining (Q2-Q6).*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) a) List out JSP Standard Actions. Explain any two briefly. [10]

b) Explain Session and Cookies in PHP. [5]

Q2) Explain how we can manage COOKIES with suitable examples in Servlet.[10]

Q3) Write PHP code to accept details about patient and store it into the database. [10]

Q4) Explain CGI architecture and various features of Perl. [10]

Q5) Design html page to display the available CDs with check box. Allow user to select multiple check box & submit form. Write Servlet code to display details about CDs those are checked. [10]

Q6) What is ORM and Hibernate? Explain benefits of using spring with Hibernate. [10]

P.T.O.

Q7) Write short notes on following (Any 3):

[15]

- a) Apache Tomcat and Jasper.
- b) Thread safe Servlet.
- c) Require() and include() in PHP.
- d) JSP implicit objects.
- e) Differentiate between Get and Post methods.

EEE