

Total No. of Questions :7]

SEAT No. :

P3606

[Total No. of Pages : 2

[5270] - 1001

M.C.A. (Mangement Faculty)

IT-11: FUNDAMENTALS OF COMPUTER

(2015 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No.1 & 7 is compulsory.*
- 2) *Solve any four from remaining.*
- 3) *Draw neat and labeled diagrams wherever necessary.*

Q1) a) Compare RISC and CISC in details. [8]

b) Explain in detail the CPU building blocks. [7]

Q2) Convert the following: [5×2=10]

a) $(A2B.D4)_{16} = (?)_{10}$

b) $(1010101010)_2 = (?)_8$

c) $(513)_8 = (?)_{16}$

d) $(110110.110)_2 = (?)_{16}$

e) $(FC16)_{16} = (?)_2$

Q3) Draw memory hierarchy and explain all types of memory. [10]

Q4) Explain multiplexer and demultiplexer. [10]

Q5) What is counter? Explain synchronous and asynchronous counter. [10]

P.T.O.

Q6) Define coomputer? Explain the concept of digital computer.

[10]

Q7) Write short notes on (any 3):

[3×5=15]

- a) Full Addder.
- b) Types of software.
- c) Shift Register.
- d) Pipeline Hazards.
- e) Cache memory.

EEE

Total No. of Questions : 7]

SEAT No. :

P3607

[5270]-1002

[Total No. of Pages : 2

M.C.A. (Management)

IT-12 : C PROGRAMMING WITH DATA STRUCTURE

(2015 Pattern) (Semester-I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) a) Write C programme to accept names of two files. Merge these files into third file. Display third file. **[10]**

b) Write C programme to implement selection sort on integer array of 'n' elements. **[10]**

Q2) Write C programme to generate 'n' terms of fibonacci series using recursion. Accept number of terms - 'n' from user. **[10]**

Q3) Write C function to perform addition of two polynomial. **[10]**

Q4) Write programme to accept information about cricket players as teamno, player no, player name, no-of-runs, no-of-wickets with proper data type for 30 players. Print name of player with highest no-of-runs and name of player with highest no-of-wickets. **[10]**

Q5) Convert given expression from post fix to infix in tabular format. **[10]**

$45 + 36 * -32 ^ + 82/3 * -57 * +$

P.T.O.

Q6) Write C programme to implement insert and delete operations on circular queue. **[10]**

Q7) Write short notes on (any 2): **[10]**

- a) Pre processors.
- b) Enumerated Data types.
- c) Data structure.
- d) Jump statement.



Total No. of Questions : 7]

SEAT No. :

P3608

[5270]-1003

[Total No. of Pages : 2

M.C.A. (Management Faculty)
IT-13 : SOFTWARE ENGINEERING
(2015 Pattern) (Semester-I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 and Q. 7 are compulsory.*
- 2) *Attempt any three from Q. 2 to Q. 6.*
- 3) *Figures to the right indicate full marks.*
- 4) *Write assumptions wherever necessary.*

Q1) An institutional hostel takes care about the students in terms of accommodation as well as their breakfast, lunch and dinner. Since no. of students are increased in a hostel, the hostel authorities have decided to adopt computerized Mess Management System. Draw DFD and ERD for the same.

- Processes must be designed in detail.
- Mention the primary key.

[20]

Q2) What do you mean by software Requirements? How these requirements can be categorized into functional, non-functional and domain requirements?[10]

Q3) Explain the importance of functional decomposition diagram and elaborate decision tree. **[10]**

Q4) Describe designing and objectives of Input and Output. **[10]**

Q5) How documentation plays a vital role in software maintenance. List the essential documents required for maintenance with its key features. **[10]**

P.T.O.

Q6) Explain types of CASE tools and describe advantages, disadvantages of CASE tools. **[10]**

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

- a) Role and skills of system Analyst.
- b) Fundamental problems in defining requirements.
- c) Data Dictionary.
- d) Principles of UI design.
- e) Prototyping



Total No. of Questions : 7]

SEAT No. :

P3609

[5270]-1004

[Total No. of Pages : 2

M.C.A. (Management Faculty)

**IT-14 : DATABASE MANAGEMENT SYSTEM
(2015 Pattern) (Semester-I)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 is compulsory.*
- 2) *Solve any five from the remaining.*
- 3) *Mention the assumptions wherever necessary.*

Q1) The railway reservation system facilitates the passengers to enquire about the trains available on the basis of source and destination, booking and cancellation of tickets, enquire about the status of the booked tickets, etc.

The aim of case study is to design and develop a database maintaining the records of different trains, trains status and passengers. The record of train includes its number, name, source, destination and days on which it is available, whereas records of train status includes dates for which tickets can be booked, total number of seats available and number of seats already booked. The database has been developed and tested on the oracle.

Design the E-R model and normalized it upto 3NF. **[20]**

Q2) Write SQL statement for the following (any 5). **[10]**

Employee (Empno, Name, Deptno, Job, Salary)

Department (Deptno, Dname, Location).

- a) Display Deptno wise employee count
- b) Display Deptno wise employee count whose salary more than 5000 and Job is "IT=PROG".
- c) List Empno, Name, Dname and salary of each employee.
- d) Display employee Name in UPPER, LOWER and INITCAP format.
- e) Display Empno, Name and salary for 'IT-PROG' department.
- f) Display Deptno wise maximum, minimum, average salary.

P.T.O.

Q3) Explain various keys in DBMS. What is Non-SQL database. **[10]**

Q4) Explain E.F. codd's rules in details. **[10]**

Q5) What is lock in DBMS? Explain two phase locking protocol for concurrency control. **[10]**

Q6) Explain database backup & recovery from catastrophic failure. **[10]**

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

- a) Characteristic of DBMS.
- b) Database security issues.
- c) Views in DBMS.
- d) Deadlock.



Total No. of Questions : 6]

SEAT No. :

P3610

[5270]-1005

[Total No. of Pages : 1

M.C.A. (Management Faculty)

**BM-11 : PRINCIPLES & PRACTICES OF MANAGEMENT AND
ORGANIZATIONAL BEHAVIOUR
(2015 Pattern) (Semester-I)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question no. 1 is compulsory.*
- 2) *Attempt any 3 Questions from the remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw diagrams wherever necessary.*
- 5) *Handwriting must be neat and clean.*

- Q1)** a) Give meaning and definition of the term management. Explain the need and scope of management. What is the process of management? [15]
b) Explain the systems approach to management with examples. [10]
- Q2)** Explain in brief fourteen management principles by Henri Fayol. [15]
- Q3)** Explain Decision making under different Decision making environments with examples. [15]
- Q4)** Explain Johari Window with its applications. [15]
- Q5)** Explain conflict resolution modes with examples. [15]
- Q6)** Write short notes:- (Attempt any three) [15]
- a) Theory Z.
 - b) Group dynamics.
 - c) Ego states.
 - d) Tall organization v/s Flat organization.
 - e) Virtual Organization.



Total No. of Questions : 7]

SEAT No. :

P3611

[5270]-2001

[Total No. of Pages : 2

M.C.A. (Management Faculty)

**IT-21 : ESSENTIALS OF OPERATING SYSTEM
(2015 Pattern) (Semester-II)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 and 7 are compulsory.*
- 2) *Solve any 4 from remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat diagram wherever necessary.*

Q1) Explain various disk scheduling algorithms with example. **[10]**

OR

What is deadlock? Explain deadlock prevention and avoidance. **[10]**

Q2) Identify the number of page faults for the given reference string using FIFO, LRU and Optimal for a three frame list. **[10]**

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

Q3) Explain File structure and Directory structure with suitable examples. **[10]**

Q4) What is process? Explain PCB and process states with suitable diagram. **[10]**

Q5) Explain Queueing Model and Simulation Model used for evaluations of CPU scheduling algorithms. **[10]**

P.T.O.

Q6) Assume a page size of 4 words. Logical memory and page table information is given below. **[10]**

Page No.	Offset	Content
0	0	a
	1	b
	2	c
	3	d
1	0	e
	1	f
	2	g
	3	h
2	0	i
	1	j
	2	k
	3	l

Logical Memory

Page No.	Offset
0	3
1	2
2	0

Page Table

Calculate the physical address for 'a', 'c', 'g', 'j' & 'l'.

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

- a) System calls.
- b) Interprocess communication.
- c) Critical section problem.
- d) Paging.
- e) Free Space Management.
- f) RAID structure.



Total No. of Questions : 7]

SEAT No. :

P3612

[5270]-2002

[Total No. of Pages : 1

**M.C.A. (Management Faculty)
IT-22 : WEB TECHNOLOGIES
(2015 Pattern) (Semester-II)**

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 diagram wherever necessary.*

Q1) a) Explain get () and post () methods with examples. **[10]**

b) Explain text formatting tags with examples. **[10]**

Q2) Create an external style sheet for ordered and unordered list. **[10]**

Q3) Write a Javascript for displaying a running digital clock in following format.

[10]

Q4) Explain the concept of session and cookies in ASP. **[10]**

Q5) Explain History and Navigator objects in Javascript with examples. **[10]**

Q6) Write ASP application to accept student details through Student Registration Form. Assume suitable fields. **[10]**

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

- a) <div> and tags.
- b) Math and date object in Javascript.
- c) Global. asa.



Total No. of Questions : 8]

SEAT No. :

P3613

[5270]-2003

[Total No. of Pages : 2

M.C.A. (Management Faculty)

IT-23 : CORE JAVA

(2015 Pattern) (Semester-II)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 and Q. 8 are compulsory.*
- 2) *Answer any five from remaining.*
- 3) *Figures to the right indicate full marks.*

Q1) Attempt the following:

[5×2=10]

- a) Finalize Method.
- b) Access Modifier.
- c) 'this' keyword.
- d) Features of JAVA.
- e) Hash Map.

Q2) Write a program to implement a user defined exception "Not Prime Exception". Read number from command line and check whether the number is prime or not. If it is prime then display message "Number is Prime" and if it is not prime throw the exception "Not Prime Exception". **[10]**

Q3) Write a program to search for a given word in file. Also display number of occurrences of the word. **[10]**

Q4) Explain Thread Synchronization. Elaborate with suitable example. **[10]**

Q5) Write a program using AWT/Layout Managers to draw a Human face using an applet. **[10]**

P.T.O.

Q6) Create a package called “math”, then use the package in your program to perform different functions like addition, Subtraction, Multiplication & Division. **[10]**

Q7) What is the difference between a class and interface? What is the use of interface? Write a program in Java to illustrate the use of an interface. **[10]**

Q8) Write short notes on (ANY Two): **[2×5=10]**

- a) Inner class.
- b) Set Interface.
- c) Anonymous classes.



Total No. of Questions : 6]

SEAT No. :

P3614

[5270]-2004

[Total No. of Pages : 1

M.C.A. (Management Faculty)
IT-24: ESSENTIALS OF NETWORKING
(2015 Pattern) (Semester-II)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 & 6 are compulsory.*
- 2) *Solve any three from the remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw the neat diagram wherever necessary.*

Q1) a) What is multiplexing. Explain FDM & TDM. **[10]**

b) Explain IP Addressing with Network Masks and Network Addresses?**[10]**

Q2) What is switching? Explain circuit switching with neat diagram. **[10]**

Q3) What is OSI model? Explain the functions of Transport layer in detail. **[10]**

Q4) What is DNS? Explain DNS Records in detail. **[10]**

Q5) Explain POP3 and IMAP4 protocols. Write the differences between them.**[10]**

Q6) Write a short note (Any Four): **[4×5=20]**

- a) HTTP messages.
- b) TCP - three way handshake.
- c) RIP.
- d) FTP.
- e) IPv6 packet format.
- f) NIC.



Total No. of Questions : 4]

SEAT No. :

P3615

[5270]-2005

[Total No. of Pages : 3

M.C.A. (Management)

**MT-21 : DISCRETE MATHEMATICS
(2015 Pattern) (Semester-II)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 1 is compulsory.*
- 2) *Attempt any two from remaining.*
- 3) *Scientific calculators are allowed.*

Q1) a) Show that the conclusion C follows from the premises H_1 & H_2 : **[5]**

i) $H_1: P \rightarrow Q$ $H_2: Q \rightarrow R$ $C: P \rightarrow R$

ii) $H_1: \neg Q$ $H_2: P \rightarrow Q$ $C: \neg P$

b) Let $A = \{a, b, c, d, e\}$. $R: A \rightarrow A$ and $S: A \rightarrow A$ **[5]**

$$R = \{ \langle a, a \rangle, \langle a, b \rangle, \langle b, e \rangle, \langle d, c \rangle, \langle c, e \rangle, \langle e, a \rangle \}$$

$$S = \{ \langle b, d \rangle, \langle e, b \rangle, \langle c, a \rangle, \langle d, e \rangle, \langle a, d \rangle \}$$

Find:

i) $(R \circ S) \circ R$

ii) $\tilde{S} \circ \tilde{R}$

c) Define semigroup and cyclic group with example. **[5]**

d) Show that in a simple graph, there is always even no. of vertices of odd degree. **[5]**

e) Rewrite the following statements in predicate logic notations: **[5]**

i) Every book has an author.

ii) Every author has written a short book.

iii) There is an author who has not written a book.

f) Prove that the relation “congruence modulo 3” is given by $= \{ \langle x, y \rangle / (x-y) \text{ is divisible by } 3 \}$ over the set of Integers is an equivalence relation. **[5]**

P.T.O.

Q2) a) The compatibility relation on a set $\{x_1, \dots, x_6\}$ be given by the matrix. **[5]**

x_2	1				
x_3	1	1			
x_4	0	0	1		
x_5	0	0	1	1	
x_6	1	0	1	0	1
	x_1	x_2	x_3	x_4	x_5

Draw the graph and find the maximal compatibility blocks of the relation.

b) Define regular graph and complete Bipartite graph with example. **[5]**

c) Obtain principle conjunctive normal form of **[5]**

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

d) Show that $(\forall x)(\forall y)(P(x, y) \rightarrow W(x, y)), \neg W(a, b) \Rightarrow \neg P(a, b)$. **[5]**

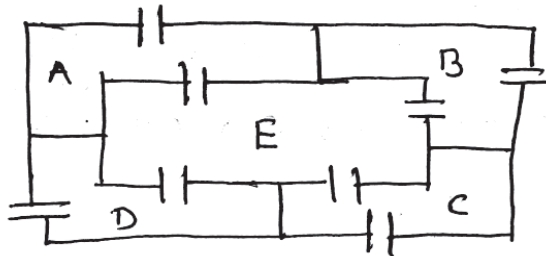
Q3) a) Let $A = \{p, q, r, s, t\}$ and R be the relation. **[5]**

$$R = \{\langle p, p \rangle, \langle p, r \rangle, \langle q, s \rangle, \langle s, t \rangle, \langle t, q \rangle, \langle r, s \rangle, \langle r, t \rangle\}$$

Use Warshall's algorithm to find the transitive closure of R.

b) Given algebraic system $\langle \mathbb{N}, + \rangle$ and $\langle \mathbb{Z}_4, +_4 \rangle$. Show that, there exist homomorphism from $\langle \mathbb{N}, + \rangle$ to $\langle \mathbb{Z}_4, +_4 \rangle$. **[5]**

c) Draw a graph for given floor plan of house and check whether it has Euler path or Euler circuit. **[5]**



d) Draw Binary tree with **[5]**

i) 7 vertices

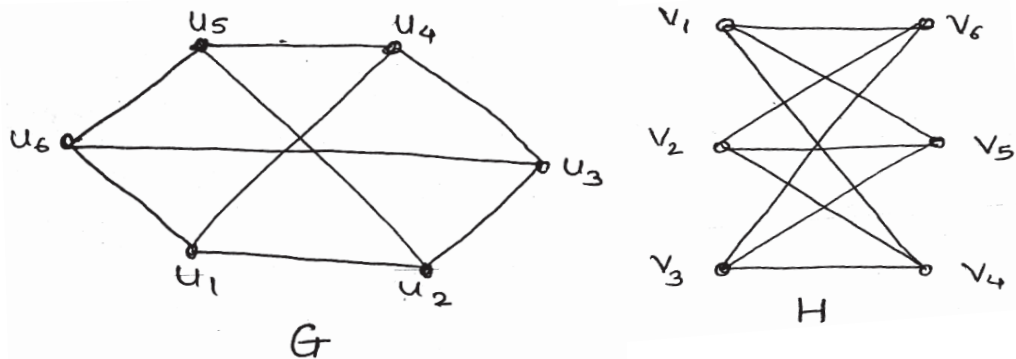
ii) 21 vertices

Q4) a) Write the code words generated by H, where **[5]**

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

b) Let, $X = \{2, 3, 6, 12, 24, 36\}$ and $R = \{\langle x, y \rangle / x \text{ divides } y\}$. Show that R is POSET. Draw its Hasse diagram. **[5]**

c) Show that the graphs G and H are isomorphic: **[5]**



d) Construct the truth table for the following statements: **[5]**

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

ii) $(\neg P \rightarrow Q) \vee (\neg R \leftrightarrow Q)$

→ → →

Total No. of Questions : 5]

SEAT No. :

P3616

[Total No. of Pages : 3

[5270] - 3001

M.C.A. (Management Faculty)

MTC-31 : PROBABILITY AND COMBINATORICS

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 compulsory.*
- 2) *Solve any three from remaining questions.*
- 3) *Use of statistical table and non programmable calculator is allowed.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve five :

a) There are 13 people for dinner, 3 Indians, 4 French men, 4 Danes and 2 Italians. How many ways can they sit with same nationalities together (on circular table). **[5]**

b) A company has two plants to manufacture scooters. Plant I manufactures 80 percent of the scooters and Plant II manufactures 20%. At Plant I, 85 out of 100 scooters are rated standard quality or better. At Plant II, only 65 out of 100 scooters are rated standard quality or better.

What is the probability that scooter is of standard quality? **[5]**

c) For the joint probability distribution of two random variables X and Y given below. **[5]**

X \ Y	1	2	3
1	5/27	4/27	2/27
2	1/27	3/27	3/27
3	3/27	4/27	2/27

i) Obtain the marginal probability distribution X and Y.

ii) Find conditional probability of X given $Y = 2$.

d) Find the coefficient of $x^6y^6z^5$ in the expression of $(2x^2 - 3y^3 + 5z)^{10}$. **[5]**

e) How many seven letter palindromes can be made out of English letters. If no letter can be repeated? **[5]**

P.T.O.

- Q2) a)** In how many ways 5 cakes be given to 7 children if, **[7]**
- i) no child can possess more than one cake.
 - ii) a child can have any number of cakes.

- b) Prove the following by combinatorial argument. **[4]**

$$\binom{2n}{2} = 2\binom{n}{2} + n^2$$

- c) If X is uniformly distributed over (0, 10), calculate the probability that, **[4]**
- i) $X < 3$
 - ii) $X > 6$
 - iii) $3 < X < 8$.

- Q3) a)** An elevator starts at the basement with 8 people (excluding the elevator operator) and discharges them all by the time it reaches the top floor, number 6. In how many ways could the operator have perceived the people leaving the elevator if all people look alike to him? What if the 8 people consist of 5 men and 3 women and operator could tell a man from a woman? **[7]**

- b) A deck of 52 playing cards is distributed randomly to 4 players. Find the probability that each player gets exactly one ace. **[8]**

- Q4) a)** Find the mean and variance of defective bolts in a total lot of 400 bolts, if the defective bolts follow Binomial distribution. Let the probability of defective bolts be 0.1. **[4]**

- b) Find the probability that no one gets matching pair using following information.

There are six pairs of shoes of different designs. All left shoes are kept in one box and right shoes in another box. Six people blindly pick up one left shoe each and then again blindly pick up one right shoe each. **[4]**

- c) Find m.g.f. and c.g.f. of Binomial Distribution. **[7]**

Q5) a) If $B \subseteq A$ then, prove that **[4]**

i) $P(A \cap \bar{B}) = P(A) - P(B)$

ii) $P(B) \leq P(A)$

b) Define and illustrate **[4]**

i) Probability mass function.

ii) Mutually exclusive event.

c) Assume mean is 68.22 and S.D. = 3.266. **[7]**

Calculate following probability.

i) $P(X < 72)$.

ii) $P(X < 66)$.



Total No. of Questions : 9]

SEAT No. :

P3617

[Total No. of Pages : 4

[5270] - 3002

M.C.A. (Management)

T1-IT 31 : ADVANCED DATA STRUCTURE & C++

PROGRAMMING

(2015 Pattern) (Semester - III) (Track - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q. No. 1 and Q.No. 9 are compulsory.
- 2) Attempt any Five from Q.No. 2 to Q.No. 8.

Q1) a) Trace the output (Mention your assumptions clearly) :

[6]

```
i) class Base
    { public:
    Base()
    { fun();
    }
    virtual void fun ()
    { cout<<"\nBase Function";
    }
    };
class Derived: public Base
    { public:
    Derived(){ }
    virtual void fun()
    { cout<<"\nDerived Function";
    }
    };
int main()
    { Base* pBase = new Derived();
    delete pBase;
    return 0;
    }
```

P.T.O.

```

ii) class Test
    {
        private :
            int marks = 75;
        public :
            Test(int marks)
            {
                cout<< this->marks;
                cout<<endl;
            }
    };
int main()
{
    Test t(95);
    return 0;
}

```

```

iii) int i=5;
      int &j=i;
      j*=j;
      i*=i;
      cout<<"i="<<i<<"j="<<j;

```

b) True/False (Justify your answer) : [4]

- i) Static members can be accessed by non-static member functions, but non-static member cannot be accessed by static members of a class.
- ii) For every abstract class there should have at least zero pure virtual function.

Q2) a) Explain Static Data Members & Function with example. [5]

b) Write a C++ Program to overload [] array subscript operator with suitable class. [5]

Q3) What is Inheritance? Explain Different Types of Inheritance with example. [10]

Q4) a) Write a function in C++ to reverse a doubly linked list and display its contents. [5]

b) What are the Advantages of using object as a function argument? Explain with example. [5]

Q5) a) Write a complete Object Oriented Program for Matching Parenthesis of Expression. [5]

b) Write class declaration for Linked List and complete functions for [5]

i) Inserting a node at Beginning.

ii) Inserting a node at the Position.

Q6) Write a program in C++ that merge the content of one file in to another file and count number of words in the file. Use command line argument wherever necessary. [10]

Q7) a) Construct binary Search tree for the following : [5]

7, 4, 2, 3, 6, 5, 12, 9, 8, 15, 20.

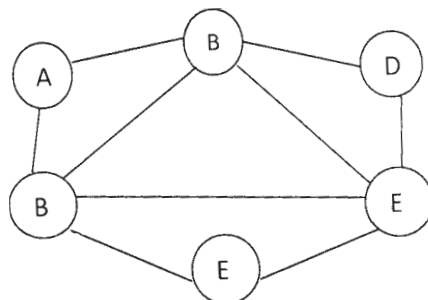
Write in-order, pre-order and post-order sequence.

b) Draw AVL Tree for the following : [5]

Int, char, float, double, long, short, signed, unsigned, asm, far, class, private, goto, break

Write in-order traversal of final AVL tree.

Q8) Consider Following Graph : Use A as starting vertex. [10]



a) Generate the output of BFS.

b) Generate the output of DFS.

c) Write adjacency matrix.

d) Write adjacency list.

Q9) Write a short notes on : (Any Two)

[10]

- a) Base Member initialization in Inheritance.
- b) Types of Queue.
- c) Abstract Classes.
- d) Tokens in CPP.



Total No. of Questions : 7]

SEAT No. :

P3618

[Total No. of Pages : 1

[5270] - 3003

M.C.A. (Management)

T2-IT 31 : IT INFRASTRUCTURE ARCHITECTURE

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Q.No. 1 (10 Marks) and Q.No.7 (20 Marks) are compulsory.*
- 2) *Answer any 4 questions from Q.No. 2, 3, 4, 5 and 6. (Each carries 10 marks).*
- 3) *Draw diagrams/flow charts to substantiate your answers wherever necessary.*

Q1) Discuss the security concerns for various system management viz. storage management and security management. **[10]**

Q2) Explain Incident management and problem management concepts. Highlight the salient differences between the two. **[10]**

Q3) Explain Design issues of IT Organization and IT infrastructure in details. **[10]**

Q4) Explain Database concept and Application protection in details. **[10]**

Q5) Explain IT service continuity management with impact on system performance. **[10]**

Q6) What is disaster recovery? Explain techniques of Cloud disaster recovery. **[10]**

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

- a) IT service management.
- b) Physical security.
- c) Computer security.
- d) Capacity management.
- e) Service level management.



Total No. of Questions : 8]

SEAT No. :

P3619

[Total No. of Pages : 1

[5270] - 3004

M.C.A. (Computer Management)

T3-IT-31 : ENTERPRISES RESOURCE PLANNING

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Q.No. 1 is compulsory and carries 20 marks.*
- 2) *Answer any 5 from Q.2 to Q.8. (Each question carries 10 marks).*

Q1) "XYZ Bank" is planning for implementation of ERP in their organization. Which all modules would you prefer to implement in such an organization. Discuss the role of consultant in this implementation. Also throw some light on the challenges faced during the implementation.

Q2) What is ERP? Explain the success and failure factors of an ERP system?

Q3) What are the different methodologies of implementing ERP?

Q4) Define CRM. Explain CRM in current scenario of Globalisation.

Q5) Write short notes on : (Any Two)

- a) Data mining.
- b) ESS.
- c) BPR.

Q6) Discuss various parameters to be used in comparing various ERP packages.

Q7) Discuss the ERP implementation life cycle for an organization.

Q8) Explain the utility of HRM and Marketing management modules and explain how it can help to the organization?



Total No. of Questions : 7]

SEAT No. :

P3620

[Total No. of Pages : 1

[5270] - 3005

M.C.A. (Computer Management)

T4-IT 31 : NETWORK ADMINISTRATION-I

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 7 is compulsory.*
- 2) *Attempt any Five from remaining.*

Q1) Discuss WAN connections & WAN cabling standards. **[10]**

Q2) Explain Ethernet UTP cabling in detail. **[10]**

Q3) "IP addressing helps routing". Comment. **[10]**

Q4) Draw and explain TCP/IP protocol architecture. **[10]**

Q5) Explain LAN switching concept with suitable diagram. **[10]**

Q6) Explain User and Enable (Privileged) Modes in switches. **[10]**

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

- a) Extended ping.
- b) Cisco IOS Software Command.
- c) Routing protocols.
- d) Switching Logic.
- e) Multiplexers & filters.



Total No. of Questions : 8]

SEAT No. :

P3621

[Total No. of Pages : 2

[5270] - 3006

M.C.A. II

(Management Faculty)

T1-IT-32 : DESIGN & ANALYSIS OF ALGORITHMS

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q. No. 1 and Q.No. 8 are compulsory.
- 2) Solve any Five from Q.No. 2 to Q.No. 7.
- 3) Figures to the right indicates full marks.

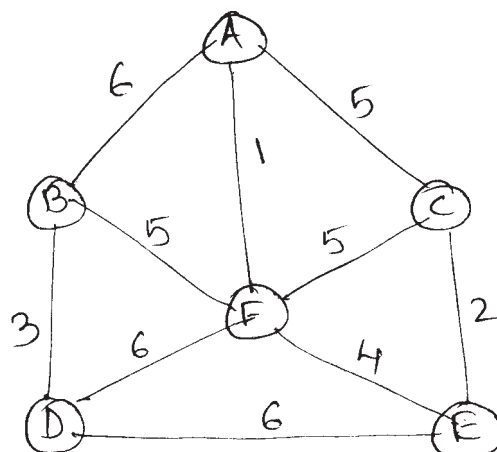
Q1) Define Algorithm. Explain characteristics of good algorithm and also explain time and space complexity of algorithm. [10]

Q2) a) Write an algorithm for Tower of Hanoi. [5]

b) Sort the following element using merge sort.

(411, 356, 267, 768, 578, 911, 389, 600, 39) [5]

Q3) Apply Prim's Algorithm to obtain minimum cost spanning tree for the following graph. [10]



Q4) Find optimal solution for fractional knapsack problem where knapsack capacity $M = 40$, $N = 3$. $(P_1, P_2, P_3) = (50, 48, 30)$ and $(W_1, W_2, W_3) = (36, 30, 20)$. [10]

P.T.O.

Q5) Discuss Branch and Bound technique and write algorithm for TSP. [10]

Q6) What is n Queen's problem; write the solution of 4 Queen's problem by Back tracking strategy. [10]

Q7) Write TSP algorithm using Dynamic programming approach. [10]

Q8) Write short notes (any 2) [5 × 2 = 10]

- a) NP complete and NP Hard problem.
- b) Graph coloring.
- c) Divide and conquer general strategy.



Total No. of Questions : 6]

SEAT No. :

P3622

[Total No. of Pages : 1

[5270] - 3007

M.C.A. (Management)

**T2-IT 32 : DATA CENTRE ARCHITECTURE & STORAGE
MANAGEMENT**

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Q.No. 1 and Q.No. 6 are compulsory.*
- 2) *Attempt any three questions from remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat diagram wherever necessary.*

Q1) a) Explain Data Center Layered Architecture with diagram. **[10]**
b) Explain remote replication technologies and how Disaster Recovery is provided for Data Center management. **[10]**

Q2) Explain Striping, Mirroring and Parity in RAID. Explain different RAID levels for different application environments. **[10]**

Q3) Explain Fiber Channel storage area network (FC-SAN) Architecture and Topologies. **[10]**

Q4) What is type of Archives? Explain features and benefits of CAS. Describe how CAS fulfils the need. **[10]**

Q5) Explain architecture of backup/recovery and the different backup/recovery topologies for Data Center Management. **[10]**

Q6) Write short notes : (Any four) : **[20]**

- a) Cooling system options in Data Center Design.
- b) Impact of downtime in Data Center.
- c) Integrated and Modular storage systems.
- d) Differentiate between RTO and RPO.
- e) Storage Virtualization Configurations.



Total No. of Questions : 6]

SEAT No. :

P3623

[Total No. of Pages : 2

[5270] - 3008

M.C.A. (Computer Management)

T3-IT 32 : DATA COMMUNICATION & COMPUTER NETWORKS

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 and Q.No. 6 are compulsory.*
- 2) *Attempt any three from remaining.*
- 3) *Neat diagram must be drawn whenever necessary.*
- 4) *Figures to the right indicate full marks.*

Q1) a) Justify with true or false (Not more than 60 words) : [10]

- i) The hamming distance between two words of the same size is the number of differences between the corresponding bits.
 - ii) HDLC is a general protocol that can be used for both point to point and multipoint configuration.
 - iii) Datagram packet switching follows dedicated path for the transmission of data packets.
 - iv) Telnet is not a general-purpose client/server application program.
 - v) FTP needs two TCP connections.
- b) A receiver received the hamming code 11001010101 with even parity. Find the error in received code and give corrected data. [10]

Q2) For the IP address 197.79.49.111 and the subnet mask 255.255.255.192, determine the following : [10]

- a) IP address in binary notation.
- b) Subnet address in binary notation.
- c) Identify network bits, subnet bits and host bits.
- d) Network address.
- e) Subnetwork address.
- f) Host address.

Q3) What is Gigabit Ethernet? What are the goals behind Gigabit Ethernet implementation? Explain Gigabit implementation in detail. [10]

P.T.O.

Q4) Explain Simple Mail Transfer Protocol with example. **[10]**

Q5) What is framing? Explain different types of framing methods with suitable example. **[10]**

Q6) Write short notes : (Any four) **[4 × 5 = 20]**

- a) Wi-Max.
- b) VPN.
- c) Proxy servers.
- d) IPv6 packet.
- e) BGP.



Total No. of Questions : 7]

SEAT No. :

P3624

[Total No. of Pages : 1

[5270] - 3009

M.C.A. (Management)

T4-IT-32 : WINDOWS SERVER CONFIGURATION

(Net Working)

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 7 is compulsory.*
- 2) *Attempt any 5 from the remaining.*
- 3) *Write your assumptions.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat diagrams wherever necessary.*

Q1) Explain OU? Write steps to configure users and groups in AD. **[10]**

Q2) Write the steps to configure DHCP for Windows server 2012. **[10]**

Q3) Write installation steps for windows server 2012. **[10]**

Q4) Explain WinRM and steps to configure remote management. **[10]**

Q5) What is Active Directory? Write steps to implement Active Directory in windows server 2012. **[10]**

Q6) Explain GPT & MBR in windows server 2012. Write steps to configure it. **[10]**

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

- a) Hyper-V.
- b) Different Server Roles.
- c) Group Policy Object (GPO).
- d) Various Active Directory Objects.
- e) S/W Restriction Policies.
- f) Steps to configure windows firewall.



Total No. of Questions : 7]

SEAT No. :

P3625

[Total No. of Pages : 2

[5270] - 3010

M.C.A. (Management Faculty)

T1-IT-33 : OBJECT ORIENTED ANALYSIS & DESIGN

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. No. 1 and Q.No. 7 are compulsory.*
- 2) *Solve any 4 from the remaining.*
- 3) *Mention assumptions made for solving the case studies.*

Q1) Railway Reservation system is a system used for booking tickets over internet. Any customer can book tickets for different trains. Customer can book a ticket only if the availability of tickets then if the tickets are available he books the tickets by initially filling details in a form. Tickets can be booked in two ways by i-ticket or by e-ticket booking. In case of i-ticket booking customer can book the tickets online and the tickets are couriered to particular customer at their address, but in case of e-ticket booking and cancelling tickets are booked and cancelled online sitting at the home and customer himself has to take print of the ticket but in both the cases amount for tickets are deducted from customer account. For cancellation of ticket the customer has to got at reservation office then cancellation form and ask the clerk to cancel the ticket then the refund is transferred to customer account after booking ticket the customer has to checked by paying fare amount to clerk.

Draw use case diagram and class diagram for the above case. **[20]**

Q2) What is RUP? Explain its phases with diagram. **[10]**

Q3) a) Draw sequence diagram for Student Registration System. **[5]**

b) Draw collaboration diagram for online mobile recharge. **[5]**

Q4) a) Differentiate between SSAD and OOAD. **[5]**

b) Draw Activity Diagram for Hospital discharge system. **[5]**

P.T.O.

Q5) What is object persistence and explain the Object Oriented Database Management system? **[10]**

Q6) Explain the various steps in UML based process. **[10]**

Q7) Write short notes on (any two) : **[2 × 5 = 10]**

- a) Object and classes.
- b) Object oriented methodology by Booch.
- c) Benefits of patterns.



Total No. of Questions : 7]

SEAT No. :

P3626

[Total No. of Pages : 1

[5270] - 3011

M.C.A. (Management Faculty)

T2-IT-33 : INTRODUCTION TO INFORMATION SECURITY

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

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

Q1) What is information security? Explain concept of computer security? [10]

Q2) Explain public key encryption in details. [10]

Q3) What is ethical hacking? Explain ethical hacking in details? [10]

Q4) Define malicious software? Explain type of malicious software? [10]

Q5) Explain PDCA model in detail? [10]

Q6) Explain message authentication & Hash Function? [10]

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

- a) Attacks.
- b) Digital Signature.
- c) Role Based Access Control.
- d) Laws of IPR.
- e) Indian IT act.



Total No. of Questions : 7]

SEAT No. :

P3627

[5270]-3012

[Total No. of Pages : 2

M.C.A. (Computer Management)

**T3-IT 33 : DATA WAREHOUSE, MINING, BI TOOLS & APPLICATIONS
(2015 Pattern) (Semester-III)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question 7 is compulsory.*
- 2) *Solve any Five questions from Q.1 to Q.6.*
- 3) *Figures to the right indicate full marks.*
- 4) *Simple Calculator and log table is allowed.*

Q1) Explain the architecture of data warehouse with neat diagram. **[10]**

Q2) Explain KDD process in detail with neat diagram. **[10]**

Q3) What is Association rule? With FP-Growth algorithm explain how it is useful for Market-Basket analysis. (Trace it with proper example). **[10]**

Q4) What is Decision Tree ? Explain decision tree induction algorithm in data mining and build a decision tree with the help of following data. **[10]**

outlook	Temperature	Humidity	Windy	Play
sunny	85	85	false	0
sunny	80	90	true	0
overcast	83	86	false	1
rainy	70	96	false	1
rainy	68	80	false	1
rainy	65	70	true	0
overcast	64	65	true	1
sunny	72	95	false	0
sunny	69	70	false	1
rainy	75	80	false	1
sunny	75	70	true	1
overcast	72	90	true	1
overcast	81	75	false	1
rainy	71	91	true	0

P.T.O.

Q5) What is web mining explain it in detail. **[10]**

Q6) Explain any five applications in various domains where BI is used. **[10]**

Q7) Write short note on (Any Four) **[20]**

- a) OLAP Data Cube
- b) Data Mining Process
- c) Discovery of Sequential Patterns
- d) Density Based Clustering
- e) Balance Scorecard
- f) Rule Based Classification



Total No. of Questions : 8]

SEAT No. :

P3628

[5270]-3013

[Total No. of Pages : 1

M.C.A. (Computer Management)

T4-IT 33 : IT INFRASTRUCTURE MONITORING

(2015 - 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.*

Q1) Explain Backup & Restore mechanism in storage devices. **[10]**

Q2) Explain Nagios plug-ins in detail. **[10]**

Q3) Discuss project plan & project schedule. **[10]**

Q4) Give installation and configuration steps for OPENNMS. **[10]**

Q5) Explain different types of External storage devices in detail. **[10]**

Q6) With the help of suitable diagram differentiate between SAN & NAS. **[10]**

Q7) Discuss project estimation process in detail. **[10]**

Q8) Write short notes: (Any two) **[2×5=10]**

- a) Nagios External Commands
- b) Data retention
- c) Responsibility Matrix
- d) NMS Tools



Total No. of Questions : 8]

SEAT No. :

P3629

[5270]-3014

[Total No. of Pages : 1

M.C.A.

MANAGEMENT FACULTY

**T1-IT-34 : Advanced Internet Technology
(2015 Pattern) (Semester-III)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 & 8 are compulsory.*
- 2) *Solve any Five from Questions 2 to 7.*

Q1) Write PHP program to fill on-line form for ADHAR card registration (Design registration form with suitable fields) and insert into database. Write php script to display the details on different page using \$-GET or \$-POST. **[10]**

Q2) Explain in detail JQuery DOM Traversing methods. **[10]**

Q3) Write XML - DTD program for to create employee record (Assume suitable table structure) apply CSS elements (at least 5). **[10]**

Q4) Explain the video and audio tag with example. **[10]**

Q5) Explain any two angular JS Filters with the help of suitable program. **[10]**

Q6) What is XML - DSO? Display the contents of XML documents using XML- DSO objects. **[10]**

Q7) Write a program to Resizable the image using JQuery. **[10]**

Q8) Write short notes on - (Any two) **[2×5=10]**

- a) XML schema
- b) PHP include () and Require () method
- c) PHP Array Functions
- d) AJAX



Total No. of Questions : 7]

SEAT No. :

P3630

[5270]-3015

[Total No. of Pages : 2

M.C.A. (Management Faculty)

T2 - IT 34 : OFFICE AUTOMATION TOOLS

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. 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) *Draw neat labeled diagram wherever necessary.*

Q1) Prepare a sample sheet having 10 rows and 6 columns. Give the name's to column as item-code, item-description, opening-stock, production, sales and closing stock. Fill the sample data in all cells and do the following analysis on it. **[10]**

- a) Prepare any one charts and one Graphs of any type.
- b) Set the formula to calculate closing stock. Write calculated values in closing stock column by using formula.

Q2) Expalin workstation communication and convergence of technologies for office automation. **[10]**

Q3) Describe various features of "writer". **[10]**

Q4) Explain document flow management of a well known corporate business office. **[10]**

Q5) Explain how you will adding, formatting pictures and Graphic objects in impress Guide. **[10]**

P.T.O.

Q6) Write the steps for setting up and customizing Impress. **[10]**

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

- a) Calc macros.
- b) Mail merge.
- c) Office Automation Tools.
- d) Customizing writer.
- e) Data pilot.



Total No. of Questions : 7]

SEAT No. :

P3631

[5270]-3016

[Total No. of Pages : 1

M.C.A. (Management)

Track-3 : INFORMATION MANAGEMENT & QUALITY CONTROL

T3 - IT34 : Information Security and Audit

(2015 Pattern) (Semester-III)

Time : 3 Hours]

[Max. 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.*
- 4) *Draw neat diagrams wherever necessary.*

Q1) You have been appointed as a lead auditor for auditing an online examination system of a university. Discuss.

- a) Possible threats and risks.
- b) Provide 5 physical and logical controls for the threats identified. [10]

Q2) Explain ITIL and BS 15,000 in detail. [10]

Q3) Explain threats of information security in detail. [10]

Q4) What are the different evidence collection techniques used by Auditors ? Explain. [10]

Q5) What is Cyber Crime ? Explain types of Cyber Crimes in detail. [10]

Q6) Explain IT Audit standard in detail. [10]

Q7) Write short notes on (Any 4 only). [20]

- a) ISMS
- b) DRP
- c) SSE - CMM
- d) Ethical hacking
- e) Pillars of Information Security.



Total No. of Questions :7]

SEAT No. :

P3632

[Total No. of Pages : 1

[5270] - 3017

M.C.A. (Management Faculty)

T4 - IT34: LINUX ADMINISTRATION - I

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No.1 and No. 7 are compulsory.*
- 2) *Solve any 4 from Q.2 to Q.6.*

Q1) a) Explain Linux file system Hierarchy. [10]

b) Explain Group Management commands with example. [10]

Q2) Explain steps to configure the DNS using BIND. [10]

Q3) Explain how to configure & manage network printer using CUPS. [10]

Q4) What are different backup strategies for Backup. Explain how to copy files from source to destination. [10]

Q5) Explain mount, unmount & relocating file system with example. [10]

Q6) Explain steps for configure DHCP. [10]

Q7) Write short notes on (Any Two): [2×5=10]

- a) Disk Quota.
- b) Networking with TCP/IP.
- c) System Rescue.

EEE

Total No. of Questions : 5]

SEAT No. :

P3633

[5270] - 4001

[Total No. of Pages : 5

M.C.A. (Faculty of Management)
(ITC 41) OPTIMIZATION TECHNIQUES
(Semester - IV) (2015 Pattern)

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 the right indicate full marks.*

- Q1)** a) Obtain initial solution by VAM and find the optimal solution by MO-DI method for the following transportation problem. [7]

		Depot					Supply
		A	B	C	D	E	
Manufacturing Centre	P	4	1	3	4	4	60
	Q	2	3	2	2	3	35
	R	3	5	2	4	4	40
Requirement		22	45	20	18	30	

- b) The data regarding a project with activities A to I are given below: [7]

Activity	Immediate Predecessor	Time (weeks)
A	-	3
B	A	2
C	A	4
D	A	4
E	B	6
F	C, D	6
G	D, F	2
H	D	3
I	E, G, H	3

- i) Draw the project network and find critical path.
- ii) Also find total, free and independent floats for each activity.

P.T.O.

- c) On an average, 6 customers reach a telephone booth every hour to make calls. Assuming that arrivals follow Poisson distribution with 4 customers in a 30- minute time period. Find: [7]
- The proportion of time the telephone booth is idle.
 - How long the customer has to wait for his/her turn.
 - The number of customers waiting for the telephone booth.
- d) A machine costs Rs.500. Operation and maintenance costs are zero for the first year and increase by Rs.100 every year. If money is worth 10% every year, determine the best age at which the machine should be replaced. The resale value of the machine is negligibly small. What is the optimum age of replacing the machine? [7]

Q2) a) Solve the following LPP: [7]

$$\text{Max: } Z = 2x_1 + 3x_2 + 4x_3$$

Subject to:

$$3x_1 + 1x_2 + 6x_3 \leq 600$$

$$2x_1 + 4x_2 + 2x_3 \geq 480$$

$$2x_1 + 3x_2 + 3x_3 \geq 540$$

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

- b) In a machine shop, 6 different jobs are being manufactured. The processing times on two machines A and B are given below [7]

Jobs	1	2	3	4	5	6
Machine A:	30	45	15	20	65	10
Machine B:	20	30	50	35	50	40

Find the sequence of jobs that minimizes the total elapsed time. Also calculate the minimum processing time.

Q3) a) An aircraft uses rivets at an approximately constant rate of 5,000 kg per year. The rivets cost Rs.20 per kg. and the company personnel estimate that it costs Rs.200 to place an order and the carrying cost of inventory is 10% per year. Find: [7]

- i) The economic order quantity.
- ii) Total cost of inventory.
- iii) The number of orders per year.

b) Solve the following Assignment Problem: [7]

	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆
S ₁	12	10	15	22	18	8
S ₂	10	18	25	15	16	12
S ₃	11	10	3	8	5	9
S ₄	6	14	10	13	13	12
S ₅	8	12	11	7	13	10

Q4) a) Choose the correct answer for the following: [7]

- i) In LPP _____ are expressed is in the form of inequities or equations.
 - (A) Constraints
 - (B) Objective Functions
 - (C) Both A and B
 - (D) None of the Above
- ii) In simplex method, we add _____ variables in the case of ‘=’ constraint.
 - (A) Slack
 - (B) Surplus
 - (C) Artificial
 - (D) None of the Above

- iii) Which of the following statement is incorrect?
- (A) All activities on a critical path are critical activities.
 (B) A project network may have none, one, or more critical paths.
 (C) A delay in critical activity surely delays the completion of project.
 (D) Each critical activity has identical earliest and the latest start times.
- iv) In single server queuing model which of the following is true?
- (A) $\lambda < \mu$ (B) $\mu < \lambda$
 (C) $\lambda = \mu$ (D) None of the Above
- v) If EOQ = 360 units, order costs are Rs.5 per order, and carrying costs are Re.0.20 per unit, what is the usage in units?
- (A) 1,29,600 (B) 25,920
 (C) 2,592 (D) 18,720
- vi) Crashing of activities in a project will reduce
- (A) Costs (B) Duration
 (C) Both A and B (D) None of the Above
- vii) The standard deviation of a path is computed as:
- (A) The sum of the standard deviations of all activities on the path.
 (B) The square root of the sum of the standard deviations of all activities on the path.
 (C) The sum of the variances of all activities on the path.
 (D) The square root of the sum of the variances of all activities on the path.

b) Solve the following LPP by using Dual Simplex method: [7]

$$\text{Min : } Z = 6x_1 + 30x_2$$

Subject to:

$$-2x_1 + 6x_2 \geq 5$$

$$3x_1 + x_2 \geq 7$$

$$x_1, x_2 \geq 0.$$

- Q5) a)** The time (weeks) and costs of a certain project is given in the following table: [7]

Activity	Immediate Predecessor	Normal		Crash	
		Time (Weeks)	Cost	Time (Weeks)	Cost
A	—	10	500	8	740
B	A	7	430	6	590
C	A	4	370	2	490
D	C	1	250	1	250
E	B	5	390	4	480
F	D	6	460	3	610
G	E	2	280	2	280
H	F	4	410	1	620
I	G	5	480	3	780

The indirect cost of the project is Rs. 120 per week. 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) The inter-arrival times at tool crib are exponential with an average time of 10minutes. The length of the service time is assumed to be exponentially distributed,with mean 6 minutes. Find: [7]
- i) Average system time.
 - ii) Average queue length.
 - iii) Average number of customers in the system.



Total No. of Questions :8]

SEAT No. :

P3634

[Total No. of Pages : 2

[5270] - 4002

M.C.A. (Management Faculty)

T1- IT41: ADVANCE JAVA

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No.1 is compulsory.*
- 2) *Answer any four from remaining.*

Q1) Answer the following:

[10]

- a) What is AOP.
- b) List out JSP implicit objects.
- c) What is stub & skeleton in RMI.
- d) What is servlet context.
- e) URL class in networking.

Q2) Write networking program to accept file name from client & server count the occurrence of 'A' character from given file & print on client side. **[15]**

Q3) Write servlet application to insert record into teacher table & display record in tabular format assume suitable table structure [Write HTML, Web - kml, servlet class] **[15]**

Q4) Write JSP program to accept empno from HTML page & delete from table. If record not found display error page or display suitable message. **[15]**

P.T.O.

Q5) What is RMI? Explain with suitable example.

[15]

Q6) Write short notes on (Any three):

[15]

- a) Type of statement.
- b) Dependency injection in spring.
- c) Servlet life cycle.
- d) Java Beans.
- e) JSP Directive.

EEE

Total No. of Questions :7]

SEAT No. :

P3635

[Total No. of Pages : 1

[5270] - 4003

M.C.A. (Management)

T2 -IT 41: IDENTITY AND ACCESS MANAGEMENT

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No.1 is compulsory.*
- 2) *Draw diagrams as required.*
- 3) *Attempt any five from remaining.*

Q1) a) What is access control? Why access controls are required in organization? **[10]**

b) Write steps for installing a configuring AD RMS server components. **[10]**

Q2) Explain active directory server roles in IDA management. **[10]**

Q3) Explain the procedure for deploying and managing certificates. **[10]**

Q4) Explain configuration for AD LDS Replication. **[10]**

Q5) Explain administration of AD RMS. **[10]**

Q6) Explain the maintenance of access management solution by using AD LDS and AD RMS. **[5]**

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

- a) Trouble shooting of ADCS.
- b) Components of identity management.
- c) Configuring certificate recovery.

EEE

Total No. of Questions :7]

SEAT No. :

P3636

[Total No. of Pages : 1

[5270] - 4004

M.C.A. (Management Faculty)

T3-IT41: E-COMMERCE & KNOWLEDGE MANAGEMENT

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. No.1 & Q.No.7 are compulsory.*
- 2) *Solve any four from remaining.*

Q1) What is knowledge management? Explain various factors influencing knowledge management. **[10]**

Q2) Explain ANY TWO E-commerce models. **[10]**

Q3) Explain knowledge sharing system and knowledge discovery system. **[10]**

Q4) Explain various types of payment system. **[10]**

Q5) Explain security risk in E-commerce, types and sources of threats. **[10]**

Q6) What is EDI? Discuss in detail steps in EDI system along with its advantages. **[10]**

Q7) Write a notes on following (Any Four): **[20]**

- a) VPN
- b) WAP
- c) Mobile Banking
- d) Service Centre
- e) KM Tools

EEE

Total No. of Questions :7]

SEAT No. :

P3637

[Total No. of Pages : 1

[5270] - 4005

M.C.A. (Management Faculty)

T4-IT-41: NETWORK ADMINISTRATION - II

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Que.1 and 7 are compulsory.*
- 2) *Solve any four from remaining.*
- 3) *Figures to right indicates full marks.*

Q1) Explain the concept of VLAN and state the importance? **[10]**

Q2) Explain DHCP and DHCP operation in details? **[10]**

Q3) Define the purpose and operations of dynamic routing protocol. List the dynamic routing protocols & explain any two of them? **[10]**

Q4) Explain OSPF and step by step configuration of OSPF. **[10]**

Q5) Explain EIGRP operations in detail? **[10]**

Q6) Explain point to point protocol with configuration. **[10]**

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

- a) Normal LAN switching forwarding process.
- b) ICMP.
- c) RIP.
- d) OSPF Database exchange.
- e) PPP
- f) Ping and Trace Route commands.

EEE

Total No. of Questions :7]

SEAT No. :

P3638

[Total No. of Pages : 2

[5270] - 4006

M.C.A. (Management Faculty)

T1-IT42: PYTHON PROGRAMMING

Track - I: Software and Application Development

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q. 7 are compulsory.*
- 2) *Solve any four questions from Q.2 to Q.6.*

Q1) a) Write a Python user defined function to calculate area of Rectangle and area of Triangle. **[8]**

b) Write a Python code to validate mobile number (10-digit) using regular expression. **[7]**

Q2) What is Inheritance? Explain multiple inheritance and multilevel inheritance with example. **[10]**

Q3) a) Write a Python program to print prime number between given range. **[5]**

b) Write a Python program to remove the characters which have odd index values of given string. **[5]**

Q4) Write Python code to create a text file & write code to display first n & last m lines from the created file. **[10]**

Q5) What is dictionary? Write a python code to create dictionary? Perform cmp(), len(), get() and has-key() operations on it. **[10]**

P.T.O.

- Q6)** a) What is exception. Explain user-defined exception with example. [5]
b) Write Python code to transpose of matrix. [5]

Q7) Write short notes (Any 3): [3×5=15]

- a) Features of Python.
- b) Modules in Python.
- c) List functions.
- d) Constructor & Destructor in Python.

EEE

Total No. of Questions :8]

SEAT No. :

P3639

[Total No. of Pages :2

[5270] - 4007

M.C.A. (Management Faculty)

T2-IT42: IT ADVISORY SERVICES

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. 8 is compulsory.*
- 2) Answer any 5 from remaining.*
- 3) Figures to right indicate full marks.*

Q1) Explain major obstacles in Advisory Service organisations. **[10]**

Q2) Explain various IT consulting skills. **[10]**

Q3) Who is consultant? Explain with types of consulting. **[10]**

Q4) Explain various operational aspects in global tendering. **[10]**

Q5) Explain strategic issues in mergers & acquisitions. **[10]**

Q6) How competitive advantage is achieved in business in context with optimization & utilisation of resources. **[10]**

Q7) Discuss success & failure of companies who did not hire consultants. **[10]**

P.T.O.

Q8) Write short notes on (Any four):

[20]

- a) Trade-mark & copyright.
- b) Pre-requisites of contracts.
- c) Independant consultants/contractors.
- d) Licensing & quality aspects.
- e) Four-tier system of professional services.

EEE

Total No. of Questions :7]

SEAT No. :

P3640

[Total No. of Pages :2

[5270] - 4008

M.C.A. (Management)

T3-IT-42: CYBER LAW & INTELLECTUAL PROPERTY RIGHTS

(New 2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Solve any two cases:

[20]

Case 1:

Brain software developer is a growing I.T. Company developing different software product. The company wants to use original programming code for the software development but the employee used the readymade code from internet to complete development task as security expert create security policy to protect coping code and also suggest some security to protect unauthorized access of data from external users.

Case 2:

The institute wants to use biometric device for attendance & keeping watch on movement of students. As a security manager suggest proper biometric device for the purpose along with it's merits & demerits.

Case 3:

Aryan Private LTD Company is Government company developing missile. The production going on remote place which is far away from India. The plan & design for missile designed by group of people from India. This group shares the design of missile over the internet by sending the mail to each other as well as production department. As security expert find out threats for design exchange & also implements security.

P.T.O.

- Q2)** Explain Cyber Crime with different type? [10]
- Q3)** What is E-Commerce? What are the threats related E-Commerce? [10]
- Q4)** Explain Trademark issues in Cyberspace? [10]
- Q5)** Describe Intellectual Property Rights with it's type. [10]
- Q6)** Explain Indian IT act with positive aspects, weak areas. [10]
- Q7)** Write short notes on (Any 4): [20]
- a) Digital signature.
 - b) Cyber Crime with Mobile Device.
 - c) How to secure Electronic Transactions.
 - d) Domain Name Dispute.
 - e) Online software Piracy - Legal issues.

EEE

Total No. of Questions :7]

SEAT No. :

[Total No. of Pages : 1

P3641

[5270] - 4009

M.C.A. (Management Faculty)

T4-IT42: INTERNET OF THINGS

(2015 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 from remaining.*

Q1) a) What is IoT, explain. [7]

b) Explain various components of IoT. [8]

Q2) Describe how IoT can be used in retail industry. [10]

Q3) Explain IEEE 802.15.4e in detail. [10]

Q4) Explain privacy and security issues in IoT. [10]

Q5) Explain end-to-end security in IoT. [10]

Q6) Explain the role of sensors in IoT applications. [10]

Q7) Write short notes on (any three): [15]

- a) RFID
- b) GSM
- c) LTE
- d) IPv 6

EEE

Total No. of Questions :7]

SEAT No. :

P3642

[Total No. of Pages : 1

[5270] - 4010
M.C.A. (Management)
T1-IT-43: ADVANCE DBMS
(2015 Pattern) (Semester - IV)

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 the Architecture of Data Warehouse with diagram. **[10]**
- Q2)** Compare RDBMS, OODBMS & ORDBMS. **[10]**
- Q3)** Explain Inter-query and Intra-query parallelism in detail? **[10]**
- Q4)** What is Market - basket Analysis? Discuss Apriori Algorithm with explain with an example. **[10]**
- Q5)** Explain the Two-Phase (2PL) Commit Protocol in distributed database system? **[10]**
- Q6)** Explain Relevance Ranking using Terms and Hyperlinks. **[10]**
- Q7)** Write short notes on (Any Four): **[20]**
- a) Multimedia database.
 - b) Cloud based servers.
 - c) Data Visualization.
 - d) Parallelism on Multicore processors.
 - e) Outlier Analysis.
 - f) Snowflake schema.

EEE

Total No. of Questions :7]

SEAT No. :

P3643

[Total No. of Pages : 1

[5270] - 4011

M.C.A. (Computer Management)

T2-IT43: INFRASTRUCTURE SECURITY AND AUDIT

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 7 is compulsory.*
- 2) *Attempt any five from remaining.*

Q1) Explain Network based IDSs in detail. **[10]**

Q2) Why security audit of IT infrastructure is important? Explain. **[10]**

Q3) What is security zone? Explain security zones in DMZ and Intranet. **[10]**

Q4) Explain DRP in detail along with its importance in detail. **[10]**

Q5) What are the building blocks of IT infrastructure? Explain. **[10]**

Q6) Explain following networking concepts: **[10]**

- a) Virtual private networks.
- b) Intrusion detection system.

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

- a) BYOD.
- b) ACL.
- c) Removable media security concerns.
- d) Network hardening.
- e) NAT.

EEE

Total No. of Questions :7]

SEAT No. :

P3644

[Total No. of Pages :2

[5270] - 4012

M.C.A. (Management)

**T3-BM-43: CUSTOMER RELATIONSHIP MANAGEMENT &
SUPPLY CHAIN MANAGEMENT**

(Track - III- 2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q.No.1 & Q.No. 7 are compulsory.*
- 2) Solve any 4 from the remaining.*
- 3) Figures to right indicate full marks.*

Q1) Case Study:

[10]

NOKIA reported saving of \$700 million by restructuring its internal operations and integrating process with suppliers and customers with the help of web-base tools. The SAMSUNG & SAMSUNG GALAXY experiences demonstrate how information sharing can be utilized for mutual advantage. Through sound information, SAMSUNG shares point of sale information from its many retail outlet directly with SAMSUNG GALAXY and other major suppliers like Philips Electronics. Information Technology and its use in NOKIA Organizations and across the supply chain has become a determinant of competitive advantage. New NOKIA must realize that they must harness the power of technology to collaborate with their business partners. Customer's expectations are also increasing and companies are prone to more and more uncertain environments in the face of increasing competition. To survive, NOKIA will fine that their conventional supply chain integration which will have to be expanded beyond their boundaries so as to integrate all stakeholders. Adoption of information technology tools is vital for such efforts. You have been deputed as a SCM consultant to analyses and suggest solutions on following points:

- a) Identify SCM areas of this business use case.
- b) Identify challenges in implementing IT in SCM.
- c) Suggest IT tools and applications for this SCM.
- d) How IT in helping to restructure the entire distribution set up to achieves higher service levels, lower inventory and lower supply chain costs?
- e) Explain the advantage of SCM.

P.T.O.

- Q2)** Define CRM. Explain six E's of E-CRM in detail. [10]
- Q3)** What are the advantages and disadvantages of Bar Coding? How Bar Coding helps in e-Supply Chain Management? [10]
- Q4)** Define SCM. Explain why there is a need of e-SCM in detail. [10]
- Q5)** Define Inventory Management. Explain the role of Inventory Control in SCM. [10]
- Q6)** Explain the ITR in inventory managing in SCM. [10]
- Q7)** Write a short note on any four: [20]
- a) TMS.
 - b) Architecture of E-CRM.
 - c) Inventory Sourcing in SCM.
 - d) EDI.
 - e) Technology Components of CRM & e-CRM.

EEE

Total No. of Questions :7]

SEAT No. :

[Total No. of Pages :2

P3645

[5270] - 4013

M.C.A. (Management)

Track 4 - Networking

T4-IT-43: LINUX ADMINISTRATION - II

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No.7 is compulsory.*
- 2) *Attempt any 5 from the remaining.*
- 3) *Write your assumptions.*
- 4) *Figures to right indicate full marks.*
- 5) *Draw neat diagrams wherever necessary.*

Q1) Write in detail about WU-FTPD & steps to configure WU-FTPD server in Linux. **[10]**

Q2) Write about fetchmail and steps to configure fetchmail in Linux. **[10]**

Q3) Explain kernel & module management in Linux. **[10]**

Q4) Write MYSQL instructions for the following:

- a) Create user “admin” and grant create, insert & select privileges to him for “PAYROLL” db. **[2]**
- b) Create table “stud” with proper columns and constraints. **[2]**
- c) Take back up of PAYROLL database. **[2]**
- d) Drop the data base “PAYROLL” at command prompt. **[2]**
- e) Recover PAYROLL database. **[2]**

P.T.O.

Q5) Explain the process of configuring and using the scanner in Linux. **[10]**

Q6) Explain Email Protocols and different Email Agents. **[10]**

Q7) Write short notes on (Any 4 Only): **[20]**

- a) Sendmail.
- b) Internet Connectivity in Linux.
- c) PPP server.
- d) FTP server.
- e) Linux Kernel.
- f) Configuring Sound card in Linux.

EEE

Total No. of Questions :8]

SEAT No. :

P3646

[Total No. of Pages : 1

[5270] - 4014

M.C.A. (Mangement Faculty)

T1- IT 44: CLOUD COMPUTING

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. No.1 is compulsory.*
- 2) *Attempt any six from the remaining.*

Q1) What is virtualization? Why is it required? Explain the benefits of virtualization. **[10]**

Q2) What is Iaas? Why is it required. **[10]**

Q3) What is SOA? Benefits of using SOA. **[10]**

Q4) Differentiate between cloud computing, cluster computing and Grid Computing. **[10]**

Q5) What is cloud security? Explain the various security issues in cloud. **[10]**

Q6) What is Data Migration? Explain the various practices needed to protect data during migration. **[10]**

Q7) Explain cloud security fundamentals. **[10]**

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

- a) Paas.
- b) Microsoft Azure.
- c) VMware

EEE

Total No. of Questions : 7]

SEAT No. :

P3647

[Total No. of Pages : 1

[5270] - 4015

M.C.A. (Management Faculty)

T2-IT-44 : ENTERPRISE & SOLUTION ARCHITECTURE

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

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

Q1) Explain architecture granularity in detail with proper example. **[10]**

Q2) What is the need of Data Architecture? Discuss the components of Data Architecture? **[10]**

Q3) What is the structure and component and pattern of software architecture?[10]

Q4) Describe the design used for Data Security. **[10]**

Q5) What is the process to address the request for architecture work and stakeholder concerns? **[10]**

Q6) Explain the roles and goals of architect. **[10]**

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

- a) Architecture models.
- b) Content Management.
- c) Network Topologies.
- d) Architecture Governance.
- e) Application platform.



Total No. of Questions : 7]

SEAT No. :

P3648

[Total No. of Pages : 1

[5270] - 4016

M.C.A. (Management Faculty)

T3-IT 44 : SOFTWARE QUALITY ASSURANCE & CONTROL

(2015 Pattern) (New) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 and Q.No. 7 are compulsory.*
- 2) *Solve any Four from remaining.*

- Q1)** a) Write a software inspection checklist for railway reservation system. **[10]**
b) Explain steps to develop & implement SQA plan in detail. **[10]**
- Q2)** Explain verification & validation model in detail. **[10]**
- Q3)** What is SQA? Explain various SQA Activities in detail. **[10]**
- Q4)** Explain software quality indicators in detail. **[10]**
- Q5)** Define objectives & process of training & certification in detail. **[10]**
- Q6)** What is software reliability? Explain how reliability is measured. **[10]**
- Q7)** Short Notes : (Any two) **[10]**
a) Supporting quality devices.
b) CMM.
c) Product Quality Metrics.
d) Clean room software development.



Total No. of Questions : 7]

SEAT No. :

P3649

[Total No. of Pages : 1

[5270] - 4017

M.C.A. (Management)

T4-IT-44 : WIRELESS NETWORKS

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

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

- Q1)** a) Discuss the services offered by the wireless LAN MAC sublayer. [10]
b) Discuss tight coupling architecture between the IEEE 802.11 WLAN and GPRS. [10]
- Q2)** Discuss the basic evolutionary path from GSM to UMTS. Also explain the Air Interfaces. [10]
- Q3)** What is Table - driven routing Protocols? Explain AODV routing Protocol.[10]
- Q4)** Discuss briefly local multipoint distribution system (LMDS). [10]
- Q5)** Explain IMS Architecture. [10]
- Q6)** Explain the features of 4G. [10]
- Q7)** Write short Notes : (Any four) [20]
- a) Mobile IP approach-to Connect WLANs and 3G Networks.
 - b) TD-CDMA.
 - c) Characteristics of WLAN.
 - d) Session Mobility.
 - e) Classification of WSN.
 - f) Wireless ATM.



Total No. of Questions : 7]

SEAT No. :

P3650

[Total No. of Pages : 2

[5270] - 5001

M.C.A. (Management Faculty)

IT-51 : SOFTWARE PROJECT MANAGEMENT

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

- Q1)** a) Soft Tech Industry has computerized its Human Resource Management System by using various functions for Selection, Training, Performance Evaluation and Retention of their Employees. You as a project manager :
- i) Identify various risk involved in it.
 - ii) Propose suitable solution for the same. **[10]**
- b) A new project with estimated 400 KLOC system has to be developed. For development project also requires : **[10]**
- i) Software Reliability is High (1.15).
 - ii) Product Complexity is High (1.15).
 - iii) Analyst Capability is Low (0.86).
 - iv) Programming Experience is Low (1.07).
 - v) Storage capacity is High (1.06).
- Remaining all driver are treated as Nominal. Calculate the effort, development Time, Average Staff Size and Productivity of the project.

Q2) What do you mean by Software Project Management? Describe SPLC. **[10]**

Q3) Describe Software Configuration Management. Explain SCM process in detail. **[10]**

Q4) What is Software Quality Assurance? Explain SQA Activities in detail. **[10]**

Q5) Explain Function Point Analysis in detail. **[10]**

P.T.O.

Q6) Describe Team Structure and how will you manage customer expectations as a Project Manager? **[10]**

Q7) Write short notes : (Any Two) **[10]**

- a) MS Project.
- b) Software Quality Attributes.
- c) PERT/CPM.
- d) Version Management.



Total No. of Questions : 7]

SEAT No. :

P3651

[Total No. of Pages : 2

[5270] - 5002

M.C.A. (Management Faculty)

T1-IT 51 : ASP.NET USING C#

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Design a form and write a code for online shopping portal to perform following tasks :

- a) Add Record of customers in the database.
- b) Display all Records of customers in Grid View control from database.

[Note : Assume required tables with suitable fields and data types] **[15]**

Q2) Explain ASP.NET Architecture in detail. **[10]**

Q3) What is Web Service? Write steps to create and use Web Service. Write a Web Service to perform addition of Two numbers. **[10]**

Q4) Explain any Five validation control in details. **[10]**

Q5) Explain Data Adapter, Data Set, Data Reader, Command Object & Connection object in detail. **[10]**

Q6) What is exception? Explain Page level & application level error in Exception Handling. **[10]**

P.T.O.

Q7) Write a short notes on following : (Any Three)

[3 × 5 = 15]

- a) Authentication and Authorization.
- b) MVC Architecture.
- c) Ajax.
- d) Deployment of Web Application.



Total No. of Questions : 7]

SEAT No. :

P3965

[Total No. of Pages : 1

[5270]-5003

M.C.A. (Management) (Semester - V)
T2 - IT51 : QUALITY VERIFICATION
(2015 Pattern)

Time :3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Attempt any four from Q.2. to Q.6.*
- 3) *Your answers should be specific and to the point.*
- 4) *Support your answers with suitable live examples.*
- 5) *Draw neat diagrams wherever necessary.*

Q1) Explain in detail Software quality issues in Black Box Testing & White Box Testing. **[15]**

Q2) Write a detailed note on Patents. **[10]**

Q3) Explain in detail quality standard TQM. **[10]**

Q4) Discuss in detail Continuous Process Verification. **[10]**

Q5) Explain in detail quality standard Six Sigma. **[10]**

Q6) Explain in detail quality standard ISO 9001 & ISO 27001. **[10]**

Q7) Indian Railways has implemented successfully Passenger Reservation System since 1983. The system adhere to better quality and there are minimum failures. A team of IIT Mumbai has verified the quality of the system using various techniques.

List the various techniques available for quality verification and indicate techniques used by the team for successful verification. **[15]**



Total No. of Questions : 6]

SEAT No. :

P4344

[Total No. of Pages : 2

[5270]-5004

M.C.A. (Management Faculty)

T3 - IT 51 : SOFTWARE TESTING & TOOLS

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *Q1 and Q6 are compulsory.*
- 2) *Attempt any 3 from the remaining.*
- 3) *Figures to the right indicate marks.*
- 4) *Draw neat labeled diagrams wherever necessary.*

- Q1)** a) Write a detailed test plan for an online admission and registration system (OARS).The application aims at expanding and attracting students from all over the world to study in it. The application enables the applicants to perform the admission process online and this includes creating a new username and logging on with it, filling the application form, uploading and attaching required documents, checking the status of the admission process and then receive the final decision whether accepted, rejected or on hold. If accepted the applicant can pay admission fee either through card or net-banking mode. **[12]**
- b) Design suitable test cases for the above application **[8]**
- Q2)** a) Explain the impact of agile methodology on software testing **[5]**
- b) Short note on Static Analysis Tools **[5]**
- Q3)** Explain what are localisation and internationalisation testing and differentiate between them **[10]**
- Q4)** Define the need of reviews in software development process, explain different types of reviews **[10]**

P.T.O.

Q5) Explain testing of Object Oriented Application and testing of Web Based Application **[10]**

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

- a) Cyclomatic complexity
- b) Test Metrics
- c) Security Testing
- d) Regression Testing
- e) Test Execution Tool



Total No. of Questions : 6]

SEAT No. :

P3652

[Total No. of Pages : 2

[5270] - 5005

M.C.A. (Management)

T4-IT 51 : NETWORK ROUTING ALGORITHMS

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 and Q.No. 6 are compulsory.*
- 2) *Answer any three questions from remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat diagrams wherever necessary.*

Q1) a) What are different types of Routing methods in Telephone Networks? Explain in short their method and procedure. **[10]**

b) What is Unicast routing? Explain with example Distance Vector Multicast Routing protocol. **[10]**

Q2) Explain Routing and Wavelength Assignment (RWA) in Optical Networks. What are the problems of RWA in traffic model? Explain Adaptive Routing algorithm. **[10]**

Q3) What are key characteristics of RIP? Explain RIP timers that support its operation. Explain RIP instability problem. **[10]**

Q4) Why Hierarchical Mobile IP is used? Explain architecture of Hierarchical Mobile IP. **[10]**

Q5) What is reactive routing? Explain Destination Sequenced Distance Vector (DSDV) Routing method with example. **[10]**

P.T.O.

Q6) Write short notes (Any Four) :

[20]

- a) Link state routing in Telephone Networks.
- b) Hybrid routing in Mobile Ad-hoc Network.
- c) Multicast Routing Open Shortest Path First Auxiliary Graph Algorithm in optical networks.
- d) Cellular IP.
- e) Lightpath Migration in Optical Networks.



Total No. of Questions : 8]

SEAT No. :

P3653

[Total No. of Pages : 2

[5270] - 5006

M.C.A. (Management Faculty)

T1-IT 52 : SERVICE ORIENTED ARCHITECTURE

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q.No. 1 and Q.No. 8 are compulsory.*
- 2) Solve any Five questions from Q.2 to Q.7.*
- 3) Each question carries 10 marks.*

Q1) Define Service and explain pitfalls of adopting SOA.

Q2) Explain the concept of Addressing and Reliable messaging with the help of suitable example.

Q3) Explain common principle of Service Orientation.

Q4) Explain SOA Delivery Life Cycle along with agile strategy.

Q5) Explain SOAP Language basics with suitable example.

Q6) Describe Service design guidelines in detail.

Q7) Explain SOA Framework with suitable diagram.

P.T.O.

Q8) Write short notes on (any two) :

- a) Roots of SOA.
- b) Contrasting service modeling approaches.
- c) SOA Extensions.
- d) WS-coordination.



Total No. of Questions : 7]

SEAT No. :

P3654

[Total No. of Pages : 2

[5270] - 5007

M.C.A. (Theory Management)

T2-IT-52 : INFRASTRUCTURE AUDITING & IMPLEMENTATION

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q.No. 1 (10 Marks) and Q.No. 7 (20 Marks) are compulsory.*
- 2) Answer any 4 questions from Q.No. 2, 3, 4, 5 and 6. (Each carries 10 marks).*
- 3) Draw diagrams/flow charts to substantiate your answers wherever necessary.*

Q1) What are the different methods of Infrastructure audit? How to choose correct method? Explain. **[10]**

Q2) Define risk assessment with relation of IT audit. What are the entities, strategies and policies for risk assessment, please explain. **[10]**

Q3) IT audit is playing an important role in alignment with business strategy. Please explain the statement. **[10]**

Q4) Explain acquisition and implementation process for packaged soft wares. **[10]**

Q5) What are configuration audits, please explain. **[10]**

Q6) Highlight the role and impact of different standards and regulations in implementation of infrastructure audits. **[10]**

P.T.O.

Q7) Write short notes (Any Four) :

[20]

- a) Vendor selection criteria.
- b) Implementation of security policy.
- c) Issues of site licenses.
- d) Explain COBIT in details.
- e) Strong change management process.



Total No. of Questions : 7]

SEAT No. :

P3655

[Total No. of Pages : 2

[5270] - 5008

M.C.A. (Management Faculty)

T3-BM-52 : ENTREPRENEURSHIP DEVELOPMENT

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 1 and Q.No. 7 are compulsory.*
- 2) *Solve any 4 out of the remaining.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat diagrams and quotes examples wherever necessary.*

Q1) Case Study :

[10]

Air travel has become a regular mode of commute, especially for the people who work in the company which has multiple presence or having customers at various locations. As per the norms, the passenger needs to check-in 02 hours in advance, which is very critical due to busy schedule.

As an aspiring entrepreneur, identify an opportunity for a start up in the above mentioned scenario.

Prepare a detailed Project Report for your business plan.

Q2) Explain the role of DIC to promote Entrepreneurship Development. [10]

Q3) What is Entrepreneurial mobility? Support your answers with motivational theories. [10]

Q4) Explain "McClelland's Need Achievement" theory in details. [10]

Q5) What is EDP? Explain the different phases of an EDP. What is its relevance in today's world? [10]

P.T.O.

Q6) What is Business Plan? Explain the elements of effective business plan. [10]

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

[4 × 5 = 20]

- a) Social Entrepreneurship.
- b) Franchising.
- c) Sole Proprietorship.
- d) Growth of Entrepreneurship in India.
- e) Marketing Mix.
- f) MSME Act 2006.



Total No. of Questions : 7]

SEAT No. :

P3656

[Total No. of Pages : 1

[5270] - 5009

M.C.A. (Management)

T4-IT 52 : COMPUTER AND NETWORK SECURITY

(Track 4 - Networking)

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.No. 7 is compulsory.*
- 2) *Attempt any 5 from the remaining.*
- 3) *Write your assumptions.*
- 4) *Figures to the right indicate full marks.*
- 5) *Draw neat diagrams wherever necessary.*

Q1) What are different roles and responsibilities of Security organization? [10]

Q2) Explain steps to maintain data and network security. [10]

Q3) Explain importance of network administration and what are the steps to harden your network? [10]

Q4) Explain onion defence and lollipop models in detail. [10]

Q5) What are the principles and applications of data security architecture? [10]

Q6) Explain how Kerberos Authentication system works in Embedded Application Security. [10]

Q7) Write short notes (Any Four) : [20]

- a) Switches & routers.
- b) Risk Analysis.
- c) D's of security.
- d) Access Control List. (ACL).
- e) Anti spoofing & source routing.
- f) ICMP.



Total No. of Questions : 7]

SEAT No. :

P3657

[Total No. of Pages : 1

[5270] - 5010

M.C.A. (Management Faculty)

T1-IT 53 : BIG DATA ANALYTICS

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Q.No. 7 is compulsory.*
- 2) *Attempt any 5 Questions from Q.1 to Q.6.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) What is Enterprise Information Management? Explain big data analytics for Telecom. **[10]**

Q2) Differentiate between BDW and EDW design principles. **[10]**

Q3) What is In-Memory Database Grids? How does real-time Analytics works? **[10]**

Q4) What is Hadoop? Explain components of Hadoop Framework. **[10]**

Q5) Explain big data analytics methodology with the help of Loan Repayment Delinquency problem. **[10]**

Q6) What is a No SQL DB and explain its advantages over SQL DB. **[10]**

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

- a) Map reduce.
- b) Scale out architecture.
- c) Challenges is Big Data Analysis.
- d) CAP Theorem.
- e) ACID Vs. BASE.



Total No. of Questions : 8]

SEAT No. :

P3658

[Total No. of Pages : 1

[5270] - 5011

M.C.A. (Management)

T2-IT-53 : IT SERVICE MANAGEMENT

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Attempt any seven questions.*
- 2) Your answers should be specific and to the point.*
- 3) Support your answers with suitable live examples.*
- 4) Draw neat diagrams wherever necessary.*

Q1) Explain in detail RFID wireless network along with business continuity with IT services on storage management. **[10]**

Q2) Explain Configuration audits. **[10]**

Q3) Explain Proactive Problem Management in detail. **[10]**

Q4) What is Change Management? Explain the role of Change Advisory Board. **[10]**

Q5) Explain underpinning contracts and OLAs. **[10]**

Q6) Write a short note on (5 marks each) **[10]**

- a) Budgeting.
- b) IT Accounting & Charging.

Q7) Explain Vital Business Functions (VBF) in detail. **[10]**

Q8) Discuss culture of IBM from the perspectives of IT Service Management. **[10]**



Total No. of Questions : 7]

SEAT No. :

P3659

[Total No. of Pages : 1

[5270] - 5012

M.C.A. (Management Faculty)

T3-IT-53 : DECISION SUPPORT SYSTEM

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain in detail DSS technology levels & tools. **[10]**

Q2) What is enterprise information system? Explain evolution of executive & enterprise information system. **[10]**

Q3) Explain how an intelligent DSS can be implemented? **[10]**

Q4) Explain data collection problems & its quality. **[10]**

Q5) Explain prototyping as a DSS development methodology. **[10]**

Q6) DSS development platform. - Explain. **[10]**

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

- a) OLAP.
- b) Artificial Intelligence.
- c) Data Mining.
- d) Characteristics of EIS.
- e) Business Intelligence.



Total No. of Questions : 7]

SEAT No. :

P3660

[Total No. of Pages : 1

[5270] - 5013

M.C.A. (Computer Management)

T4-IT 53 : CLOUD ARCHITECTURES AND SECURITY

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Q.No. 1 is compulsory.*
- 2) *Attempt any five from remaining.*
- 3) *Neat diagram must be drawn whenever necessary.*
- 4) *Figures to the right indicate full marks.*

Q1) What is Cloud Computing? What are the various applications of cloud computing? Explain Private, Public and hybrid clouds in detail with suitable examples. **[20]**

Q2) Give the importance of security aspects in PaaS, IaaS and SaaS. **[10]**

Q3) What is vulnerability? Highlight upon hypervisor vulnerabilities and hypervisor escape vulnerabilities. **[10]**

Q4) Explain VM migration attack in detail. **[10]**

Q5) What is sandboxing? Explain virtualization-based sandboxing in detail. **[10]**

Q6) Enlist legal and compliance issues w.r.t. cloud computing and explain in detail. **[10]**

- a) Responsibility.
- b) Ownership of data.

Q7) Write short notes (Any two) **[5 × 2 = 10]**

- a) Right to penetration test.
- b) HIDPS.
- c) Hyperjacking.



Total No. of Questions : 7]

SEAT No. :

P3661

[Total No. of Pages : 1

[5270] - 5014

M.C.A. (Management Faculty)

T1-IT 54 : MOBILE APPLICATION DEVELOPMENT

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Make suitable Assumptions wherever required.*
- 2) *Q.No. 1 and Q.No. 7 are compulsory.*
- 3) *Solve any four questions from Q. 2 to Q.6.*

Q1) a) Draw and explain Architecture of Android. [10]

b) Write an Android code to make phone call using Intent. [10]

Q2) Explain following Widgets. (Any two) : [10]

a) Text view.

b) Spinner.

c) Button.

Q3) Explain Alert Dialog Box with the help of example. [10]

Q4) What is Layout and explain Linear Layout and relative layout with the help of example. [10]

Q5) Explain CRUD operations for Items Table using SQLite Database. [10]

Q6) Write an android code to turn ON and OFF bluetooth. [10]

Q7) Write short note (Any two) [10]

a) Shared Preferences.

b) Map View.

c) Menus.

d) Features of Android.



Total No. of Questions : 9]

SEAT No. :

P3662

[Total No. of Pages : 1

[5270] - 5015

M.C.A. (Management Faculty)

INFRASTRUCTURE AND SECURITY MANAGEMENT

**T2-IT-54 : Digital and E-Business Infrastructure and Security
Mechanism**

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Solve any seven questions.*
- 2) Each questions carries equal marks.*

Q1) Explain DOS (Denial of Service) and Distributed Denial of Service (DDOS). **[10]**

Q2) Explain authentication and authorization certificates and their use. **[10]**

Q3) Explain common threats to mobile devices. **[10]**

Q4) What is digital infrastructure and its benefits? **[10]**

Q5) What are different e-commerce payment systems? **[10]**

Q6) Explain copyrights and object of Trademark law. **[10]**

Q7) Write down methods of securing network infrastructure. **[10]**

Q8) Explain in detail Web security problems. **[10]**

Q9) Write short notes (Any two) **[10]**

- a) Environmental Threats.
- b) Network Monitoring.
- c) Cryptography.
- d) Intellectual property protection.



Total No. of Questions : 7]

SEAT No. :

P3663

[Total No. of Pages : 1

[5270] - 5016

M.C.A. (Management Faculty)

T3-IT-54 : BUSINESS ARCHITECTURE

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Question No. 7 is compulsory.*
- 2) *Answer any five questions from (Q1-Q6).*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

Q1) What is Business Architecture? Explain roles and responsibilities played by business architect. **[10]**

Q2) What is TOGAF? Explain TOGAF concept of Boundary less Information Flow. **[10]**

Q3) a) What is Portfolio management? **[5]**
b) What is Content Management? **[5]**

Q4) Explain concept of federated transaction across a distributed database. **[10]**

Q5) Explain Integrated Information Infrastructure Reference Model (III-RM). **[10]**

Q6) What is Agile development? Explain its phases in detail. **[10]**

Q7) Write short notes on (Any 4) **[20]**

- a) Master data management.
- b) Firewall.
- c) SDLC.
- d) Server consolidation.
- e) Virtualization.



Total No. of Questions : 7]

SEAT No. :

P3664

[Total No. of Pages : 1

[5270] - 5017

M.C.A. (Computer Management)

T4-IT-54 : UNIFIED COMMUNICATION

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Question 7 is compulsory.*
- 2) *Answer any five from remaining.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) Give the importance of media gateway control protocol. Explain media gateway control protocol in detail. **[10]**

Q2) Explain all SIP methods types w.r.t. their RFC standards. **[10]**

Q3) What is Facsimile transmission? Explain Facsimile on the PSTN. **[10]**

Q4) Explain security issues in VOIP. **[10]**

Q5) Explain Configuration Management and Governance, Acceptance Testing and Privilege Setting in VoIP and UC. **[10]**

Q6) Explain SCTP protocol in detail. **[10]**

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

- a) Latency Budget.
- b) Session Border Controllers.
- c) ENUM.
- d) Silence Suppression.
- e) TDM and Packet Telephony.

