

Total No. of Questions : 7]

SEAT No. :

P2762

[Total No. of Pages : 1

[5370]-1001

M.C.A. (Management Faculty)
IT-11 : Fundamentals of Computer
(Semester - I) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q1 & Q7 are compulsory.*
- 2) *Solve any four from remaining*
- 3) *Draw neat & Labeled diagram wherever necessary.*

Q1) a) What is DMA? Explain DMA interfacing with processor. [8]
b) Compare RISC Vs. CISC. [7]

Q2) What is combinational circuit? Explain demultiplexer circuit & its type 1 to 4 DEMUX in detail. [10]

Q3) Solve (Any 5) [5 × 2 = 10]

- a) $(527.12)_8 = (?)_{16}$
- b) $(AC4)_{16} = (?)_{10}$
- c) $(11011.001)_2 = (?)_{10}$
- d) $(3D.5F)_{16} = (?)_2$
- e) $(56.34)_8 = (?)_2$
- f) $(107.125)_{10} = (?)_{16}$

Q4) Explain shift register in detail with its type in detail. [10]

Q5) Explain memory hierarchy in detail. [10]

Q6) Explain pipelining with example, data path & time space diagram. [10]

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

- a) Logic gates
- b) Compiler & Interpreter
- c) De morgan's Theorem
- d) CPU Registers
- e) Hardwired & Microprogrammed Control.



Total No. of Questions : 8]

SEAT No. :

P2763

[Total No. of Pages : 1

[5370]-1002

M.C.A. (Management)

IT-12 : C Programming with Data Structure
(Semester - I) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) Question No.1 & 8 are compulsory.
- 2) Solve any 5 from remaining.

Q1) Write a C program to accept file name from user, read the content of that file & count number of vowels & consonants in that file and display it. [10]

Q2) Write a C program to implement insert and delete operations on priority queue. [10]

Q3) Write a C program to implement selection sort for character elements. [10]

Q4) Write a C function to perform addition of two polynomials. [10]

Q5) Create structure with Book Id, Book Name, Publication, Author Name & price. Write a C program to accept. Calculate the total cost of 10 books and display information of all books. [10]

Q6) Convert the following infix expression to prefix in tabular format.
 $A+(B*C-(D/E-F)*G)*H$ [10]

Q7) Write a C program to reverse integer elements of stack using queue. [10]

Q8) Write short note on the following (Any Two) [10]

- a) Enumerated Data Type
- b) String Library Functions
- c) Dynamic Memory Allocation
- d) Sparse Matrix



Total No. of Questions : 7]

SEAT No. :

P2764

[Total No. of Pages : 2

[5370]-1003

M.C.A. (Management Faculty)

IT-13 : Software Engineering

(Semester - I) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

Q1) An institute would like to conduct annual technical event in month of march. Institute allows the students from various institutes across the state to participate in the event to increase the foot fall, institute has decided to develop a web site for online reastration, event details, solve queries of participants etc. The web site shall consist, of following functionalities. **[20]**

- Online registration of a student
- Online payment of fees to participate in events
- Receipt generation
- Online real time updates of events
- Query processing system.

Draw an user interface design by following principles of user inteface design.

Q2) Elaborate various methods of requirement elicitation. **[10]**

Q3) Design ERD for hospital management system consisting of wards, doctors and patients. Clearly highlight entities, relationships, primary key and meeting constraints. **[10]**

Q4) What are elements of good design? Give features of modern GUI. **[10]**

Q5) What is software maintainance? Explain types of maintainance. **[10]**

Q6) Explain CASE TOOL and elaborate project management tools. **[10]**

P.T.O.

Q7) Write short note on (Any Four)

[20]

- a) Spiral model
- b) Structured and non structured interview.
- c) Decision tree
- d) Reverse engineering
- e) Agile process.



Total No. of Questions : 7]

SEAT No. :

P2765

[Total No. of Pages : 2

[5370]-1004

M.C.A. (Management Faculty)

IT14 : DATA BASE MANAGEMENT SYSTEM

(2015 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 is compulsory.*
- 2) *Solve any 5 from the remaining.*
- 3) *Mention assumption wherever necessary.*

Q1) XYZ hospital is a multi-specialty hospital that includes a number of departments, rooms, doctors, nurses, compounders and other staff working in the hospital. Patients having different kinds of diseases come to the hospital and gets checkup done from the concerned doctors. If required they are admitted in the hospital and discharged after treatment.

The aim of this case study is to design and develop a database for the hospital to maintain records of various departments, rooms and doctors in the hospital. It also maintains records of the regular patients, patients admitted in the hospital, the checkup of patients done by the doctors, the patients that have been operated and patient discharged from the hospital.

Design the E-R model and normalized it upto 3NF

[20]

Q2) Write SQL statement for the following (Any5)

employee (empno, Name, Deptno, Job, Salary) Department(Deptno, Dname, Location)

- a) List department wise maximum salary.
- b) Display department name wise employee information those who are getting salary more than 5000.
- c) Display highest paid employee information
- d) List Empno, Name, Dname and Salary of each employee.
- e) List maximum, minimum and average salary given in each department.
- f) List Empno, Salary for 'ITPRO6' department

[10]

Q3) Explain generalization, aggregation with examples.

[10]

P.T.O.

- Q4)** What are different operations of relational algebra(any 5) [10]
- Q5)** Explain state of transaction with suitable diagram. Explain conflict serializability and view serializability with suitable example. [10]
- Q6)** Explain Log-based recovery technique in details [10]
- Q7)** Write a short notes on (any two) [10]
- a) Database users
 - b) Encryption
 - c) Time Stamp Protocol
 - d) Keys in DBMS



Total No. of Questions : 6]

SEAT No. :

P2766

[Total No. of Pages : 1

[5370]-1005

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

- Q1)** a) "Controlling is most important function of management" Discuss with an examples. **[15]**
b) Explain the seasons for inter group conflicts. What strategies you will apply to avoid these conflicts. **[10]**
- Q2)** "Successful leaders show with an example" Discuss. **[15]**
- Q3)** Explain the concept of organizational behaviour. How it is important for the developement of employees. **[15]**
- Q4)** Explain in details theory of 'X' and theory of "Y". **[15]**
- Q5)** Explain different types of decision making environments in details. **[15]**
- Q6)** Write short notes (any three): **[15]**
- a) Contingency approach
 - b) Democratic leadership
 - c) Line management
 - d) Concept of group dynamics
 - e) Territorial organizational structure



Total No. of Questions : 7]

SEAT No. :

P2767

[Total No. of Pages : 2

[5370]-2001

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

IT-21 : Essentials of Operating System

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

Q1) Define IPC. Explain in detail that how IPC is implemented in client-server system. [10]

OR

Explain directory structure in detail.

Q2) Explain what is preemptive and non-preemptive scheduling. Explain any two non-preemptive CPU scheduling algorithms [10]

Q3) Consider the following system snapshot using data structure in banker's algorithm with resources A, B, C, D and process P_0 to P_4 [10]

Process	Max				Allocation				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	6	0	1	2	4	0	0	1	3	2	1	1
P1	1	7	5	0	1	1	0	0				
P2	2	3	5	6	1	2	5	4				
P3	1	6	5	3	0	6	3	3				
P4	1	6	5	6	0	2	1	2				

- a) Is the system is safe state?
- b) If a request from process P4 arrived for additional resources of (1, 2, 0, 0) can banker's algorithm grant the request immediately. Show new system state.

Q4) Explain non contiguous memory allocation techniques. **[10]**

Q5) What are different issues related to disk performance? Explain any two disk scheduling algorithms with suitable example. **[10]**

Q6) Consider following page reference string in order as given below consider a main memory with the capacity of 4 page frames. **[10]**

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

Which of FIFO or LRU would be better in this case as a page replacement policy? Why?

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

- a) Context switching
- b) Logical versus physical view of OS
- c) Semaphore
- d) Virtual machine
- e) Deadlock detection
- f) PCB



Total No. of Questions : 7]

SEAT No. :

P2768

[Total No. of Pages : 1

[5370]-2002

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 diagrams wherever necessary.*

- Q1)** a) Design HTML form for sports club membership with suitable fields
validate any five fields using javascript [15]
b) Explain table tag with properties [5]
- Q2)** Write CSS code for creating following external style sheet [10]
a) Body background colour = brown
b) Marquee colour = yellow
c) Font size = 12, colour = Maroon, name = arial Italic
d) Anchor active = red, visited = blue, current = green.
e) Table border size = 2, colour = yellow.
- Q3)** Explain DOM in javascript with example. [10]
- Q4)** What is an image mapping? Explain client side and server side image mapping
with example. [10]
- Q5)** Design movie ticket booking form using ASP. Write code to insert ticket
booking record and display datewise booked ticket for a week. [10]
- Q6)** Explain request and response objects in ASP with examples. [10]
- Q7)** Write short notes (any two): [10]
a) <frame> and <DIV> tag
b) Types of CSS
c) Event handling in Javascript



Total No. of Questions : 6]

SEAT No. :

P2770

[Total No. of Pages : 1

[5370]-2004
M.C.A. (Management Faculty)
IT-24 : Essentials of Networking
(2015 Pattern) (Semester - II) (Theory)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 & Q.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) Explain OSI reference model in detail with diagram. **[10]**

b) Explain Ethernet specification and Frame format. **[10]**

Q2) What is switching? Explain types of switching. **[10]**

Q3) Compare IPV4 and IPV6 in details. **[10]**

Q4) What is DNS? Explain Name resolution techniques. **[10]**

Q5) What is HTTP? Explain status codes used in error handling of HTTP. **[10]**

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

- a) FTP
- b) Sliding window
- c) Guided media
- d) ATM
- e) I_p Routing
- f) MIME



Total No. of Questions : 4]

SEAT No. :

P2771

[Total No. of Pages : 2

[5370]-2005
M.C.A. (Faculty of Management)
MT-21 : DISCRETE MATHEMATICS
(2015 Pattern) (Semester - II)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question No..1 is compulsory.*
- 2) *Solve any two questions from question Nos. 2, 3 and 4*
- 3) *Figures to the right indicate full marks.*

Q1) a) Obtain the Principle Disjunctive Normal Form(PDNF)of: **[5]**

$$(\sim P \rightarrow Q) \wedge (Q \rightarrow R)$$

b) Let $F : R \rightarrow R$ be given by $f(x) = x^3 + 2$. Find F^{-1} **[5]**

c) A connected planer graph has g vertices having degrees 2, 2, 2, 3, 3, 3, 4, 4 and 5. How many edges and regions are there? **[5]**

d) Define Abelian Group and Cyclic Group. **[5]**

e) Demonstrate that 'R' is a valid inference from the premises $P \rightarrow Q$, $Q \rightarrow R$ and P. **[5]**

f) Let $A = \{1, 2, 3, 4\}$ and $R = \{(1, 2) (2, 3) (3, 4)\}$ be a relation on A. Find R^* and draw its digraph. **[5]**

Q2) a) Write the following statements in symbolic form: **[5]**

i) Every apple is red

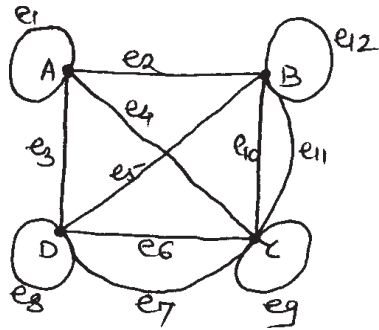
ii) Some men are clever

b) Determine the number of edges in a graph with 6 nodes, 2 of degree 4 and 4 of degree 2. Draw two such graphs. **[5]**

c) Let $A = \{1, 2, 3, 4\}$ and $R = \{(1, 2), (2, 4), (1, 3), (3, 2), (4, 1), (4, 2)\}$. Find the transitive closure of 'R' by Warshall's algorithm. **[5]**

d) Let $A = \{2, 3, 4, 6\}$ and let aRb if a divides b . Draw the Hasse diagram. **[5]**

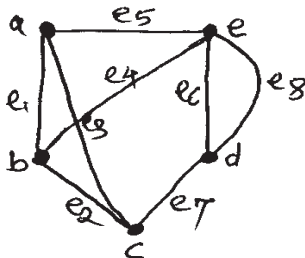
- Q3)** a) Prove that: $(\exists x)(P(x) \wedge Q(x)) \Rightarrow (\exists x)P(x) \wedge (\exists x)Q(x)$ [5]
- b) Show that $R \rightarrow S$ can be derived from the premises $P \rightarrow (Q \rightarrow S)$, $\sim R \vee P$ and Q . [5]
- c) Let $A = \{1, 2, 3, 4\}$ and $R = \{(1, 1), (1, 3), (1, 4), (2, 2), (2, 3), (3, 1), (3, 2), (3, 3), (4, 1), (4, 4)\}$. Determine whether 'R' is equivalence relation on A or not. [5]
- d) Determine the incidence and adjacency matrix of the following graph: [5]



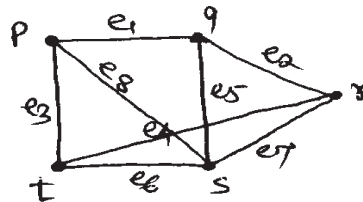
- Q4)** a) Write the code words generated by H: [5]

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

- b) Determine whether the following propositions is either Tautology or Contradiction: $[((P \rightarrow R) \wedge (Q \rightarrow P)) \Leftrightarrow (P \wedge R)]$. [5]
- c) Let $R = \{(1, 2), (1, 3), (1, 4), (2, 1), (3, 1), (3, 4)\}$ and $S = \{(1, 1), (2, 3), (2, 4), (3, 3), (4, 1)\}$ Find: [5]
- $Ro(SoR)$
 - SoS
- d) Verify whether the following graphs are isomorphic or not? [5]



G1:



G2:



Total No. of Questions : 5]

SEAT No. :

P2772

[Total No. of Pages : 2

[5370]-3001

M.C.A. (Management Faculty)

MTC31 : Probability and Combinatorics

(Semester - III) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) Question No.1 is 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 any five

- a) How many ways can 4 couples sit on a table in a row (one couple insists that they must sit together) [5]
- b) Eight envelopes are opened and the letters are removed. How many ways can the letters be replaced (Exactly one letter is put in its envelopes) [5]
- c) The probabilities of X, Y and Z becoming managers are $\frac{4}{9}$, $\frac{2}{9}$ and $\frac{1}{3}$ respectively. The probabilities that the bonus scheme will be introduced if X, Y and Z becomes managers are $\frac{3}{10}$, $\frac{1}{2}$ and $\frac{4}{5}$ respectively. What is the probability that bonus scheme will be introduced? [5]
- d) Let the joint p.m.f. of two discrete random variables (x, y) is as follows.[5]

y	-2	0	2
x			
-1	0.1	0.2	0.1
0	0.2	0.1	0.1
1	0.1	0.1	0

- i) Find marginal distribution X and Y
 - ii) Find conditional probability distribution of X given $Y = 0$
- e) Suppose that the number of claims for missing baggage average 6 per day. Find the probability that on a given day, there will be (Assume poisson distribution) [5]
 - i) No claim
 - ii) Exactly 6 claims
 - f) Find the coefficient at xyz^2 in the expansion of $(x+y+z)^4$ [5]

P.T.O.

- Q2)** a) Find MGF and CGF of binomial distribution. [7]
 b) Prove the following by combinational argument. [4]

$$\binom{m+n}{n} = \binom{m}{0}\binom{n}{0} + \binom{m}{1}\binom{n}{1} + \dots + \binom{m}{n}\binom{n}{n}$$

 c) Determine k and distribution function of x for the following p.m.f. [4]
 $p(x) = kx$; for $x = 1, 2, \dots, 10$
- Q3)** a) Find the number of positive integer solutions of equation with given conditions. [7]
 $x_1 \leq 5, x_2 \leq 6, x_3 \leq 8$
 $x_1 + x_2 + x_3 = 15$
 b) Find mean and variance of poisson distribution. [8]
- Q4)** a) X is a uniform continuous random variable with the following p.d.f. [8]

$$f(x) = \begin{cases} \frac{1}{8} & \text{for } 0 \leq x \leq 8 \\ 0, & \text{otherwise} \end{cases}$$

 Determine
 i) $p(2 \leq x \leq 5)$
 ii) $p(3 \leq x \leq 7)$
 b) Continuous random variable x has following p.d.f. [7]

$$f(x) = \begin{cases} k(1+x) & \text{for } 2 \leq x \leq 5 \\ 0 & \text{otherwise} \end{cases}$$

 find
 i) value of k
 ii) $p(x < 4)$
- Q5)** a) Prove the following using Axioms of probability, for any two evenets A and B, we have. [4]
 $P(\bar{A} \cap B) = P(B) - P(A \cap B)$
 b) Define with illustration [4]
 i) Random experiment
 ii) Probability density function
 c) X is normalty distributed and mean of x is 12 and S.D. is 4 find probability of [7]
 i) $x \leq 20$
 ii) $0 \leq x \leq 12$



Total No. of Questions : 9]

SEAT No. :

P2773

[Total No. of Pages : 2

[5370]-3002

M.C.A. (Management)

T1-IT31 : Advanced Data Structure & C++ Programming
(2015 Pattern) (Semester - III) (Track - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) Q.1 and Q.9 is compulsory.
- 2) Attempt any five from Q.2 to Q.8.

Q1) a) Trace the output (Mention your assumptions clearly) [6]

i) int x=50:

```
main()
```

```
{
```

```
    intx=100
```

```
    cout<<x*::x;
```

```
}
```

ii) const int x =5;

```
int & y=x;
```

```
y=200;
```

```
cout<<"x="<<x<<"y="<<y;
```

iii) void f(...) prototype means

- 1) f is a function with variable number of arguments and which returns nothing
- 2) f is a function with THREE arguments and which returns nothing
- 3) Syntax error in....
- 4) Linker error

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

i) << and >> operators can be overloaded as a member functions in C++

ii) All types of operators can be overloaded using friend function and member functions.

Q2) a) Explain THREE uses of scope resolution operator in C++. [5]

b) Write a C++ program to overload *typecast operator* with suitable example. [5]

Q3) What is polymorphism? Explain with example. [10]

P.T.O.

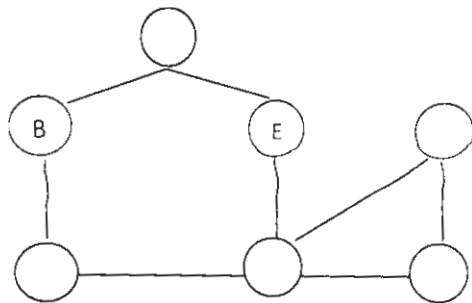
- Q4)** a) Write a function in C++ to reverse a doubly linked list and display its contents. [5]
 b) Explain inbuilt and User defined manipulators. [5]

- Q5)** a) Write a complete Object Oriented Program to check palindrome string (Use Stack) [5]
 b) Write class declaration for Linked List and complete functions for [5]
 i) Delete a node from beginning
 ii) Delete a node of the position.

Q6) Write a program in C++ to remove comments(Single line and multiline) of C program. Accept the input C program file using command line argument.[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) Explain LR and RL Rotations of AVL Height Blanced Tree. [5]

- Q8)** Consider following Graph: Use A as staring vertex. [10]
 a) Generate the output of BFS.
 b) Generate the output of DFS.
 c) Write adjacency matrix
 d) Write adjacency list.



- Q9)** Differentiate:(Any Two) [10]
 a) Structure and Classes in C++
 b) Function overloading and Function overriding
 c) Pointers and Reference in C++
 d) Virtual Base class and Abstract class.



Total No. of Questions : 7]

SEAT No. :

P2774

[Total No. of Pages : 1

[5370]-3003

M.C.A. (Theory Management)
T2-IT31 : IT Infrastructure Architecture
(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

Q1) What is meant by 'IT infrastructure'? Explain Design issues of IT Organization and IT infrastructure in details. **[10]**

Q2) What is disaster recovery? Explain with Cloud disaster recovery. **[10]**

Q3) Explain capacity management with factors affecting network performance. **[10]**

Q4) Explain Problem management and configuration management concepts. Highlight the salient differences between the two. **[10]**

Q5) Discuss in detail 'Internet security concerns for various type of transmission media'. **[10]**

Q6) Explain Strong change management and incident management concepts. Highlight the salient differences between the two. **[10]**

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

- a) IT system management process.
- b) Service continuity management.
- c) Configuration management tools.
- d) Application protection.
- e) Identity management



Total No. of Questions : 8]

SEAT No. :

P2775

[Total No. of Pages : 1

[5370]-3004

M.C.A. (Computer Management)
T3-IT31 : Enterprise Resource Planning
(Semester - III) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 is Compulsory and carries 20 marks.*
- 2) *Answer any 5 from Q. 2 to Q. 8. (Each question carries 10 marks)*

Q1) “MCA Ltd.” is planning for implementation of ERP in their organization which is into manufacturing of readymade garments. 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) Explain the utility of HRM and Quality management modules and explain how it can help to the organization?

Q4) What are the different methodologies of implementing ERP?

Q5) What are the key success factors for the effective implementation of an ERP system?

Q6) Define CRM. Explain CRM in current scenario of Globalisation.

Q7) Discuss various parameters to be used in comparing various ERP packages.

Q8) Write short notes on: (Any TWO)

- a) Data warehouse
- b) DSS
- c) BPR



Total No. of Questions : 7]

SEAT No. :

P2776

[Total No. of Pages : 1

[5370]-3005

M.C.A.(Computer Management)
T4-IT31 : Network Administration - I
(Semester - III) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain Ethernet frame format in detail. **[10]**

Q2) Highlight on LED status of CISCO catalyst switches. **[10]**

Q3) Explain the process to build WAN link in LAB. **[10]**

Q4) Explain IPv4 addressing detail. **[10]**

Q5) How Switches Learn MAC Addresses? **[10]**

Q6) Explain different TCP/IP layers in detail. **[10]**

Q7) Write Short Notes: (Any four) **[4 × 5 = 20]**

- a) **RIPv1 vs. RIPv2**
- b) **LAN Switching**
- c) **IP routing**
- d) **Collision and broadcast domains**
- e) **CLI**



[5370]-3006
M.C.A. (Management Faculty)
T1-IT32 : Design and Analysis of Algorithms
(Semester - III) (2015 Pattern)

Time : 3 Hours]

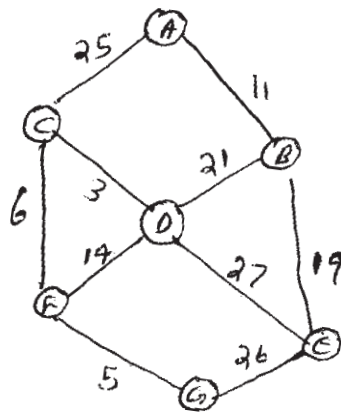
[Max. Marks : 70

Instructions to the candidates:-

- 1) *Questions 1 & 8 are compulsory.*
- 2) *Solve any five from Q.2 to Q.7.*
- 3) *Figures to the right indicates full marks.*

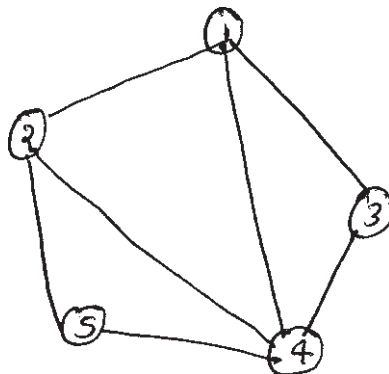
Q1) What is algorithm? Explain time complexity of algorithm with an example. **[10]**

Q2) What is MST? Write & Explain Kruskals algorithm for the following graph. **[10]**



Q3) Find optimal solution for the following Knapsack problem where $n = 4$, $m = 10$ $p(10, 40, 30, 50)$ and $w(5, 4, 6, 3)$. Using dynamic programming. **[10]**

- Q4)** a) What is graph coloring? Draw state space tree for $n = 4$ and $m = 3$. **[5]**
 b) Explain Hamiltonian cycle and generate Hamiltonian path in the following graph. **[5]**



Q5) Explain heapify. Solve the following using Heapsort and state its complexity.
15, 19, 10, 7, 17, 6 **[10]**

Q6) Write an algorithm for quick sort & explain its complexity. **[10]**

Q7) Explain branch & Bound strategy. Solve the following TSP using branch & Bound technique. **[10]**

$$\begin{bmatrix} \infty & 4 & 12 & 7 \\ 5 & \infty & \infty & 18 \\ 11 & \infty & \infty & 6 \\ 10 & 2 & 3 & \infty \end{bmatrix}$$

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

- a) Difference between greedy method & Dynamic programming
- b) P & NP- complete
- c) Union and find algorithms



Total No. of Questions : 6]

SEAT No. :

P2778

[Total No. of Pages : 1

[5370]-3007

M.C.A.

**T2-IT32 : Data Centre Architecture & Storage Management
(Semester - III) (2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Questions 1 & 6 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) Explain Data Center Topology in detail. [10]
b) What are vulnerabilities and common attacks to security in Data Centers? [10]
- Q2)** Explain different types of firewalls based on their packet-processing capabilities and their awareness of application-level information. [10]
- Q3)** What is RAID? Explain software and hardware RAID implementation. Explain RAID Array Components. [10]
- Q4)** Differentiate between business continuity (BC) and disaster recovery (DR)[10]
- Q5)** What is Storage Virtualization? Explain block-level and file-level virtualization in detail. [10]
- Q6)** Write short notes (ANY FOUR) [20]
- a) Data Center Services
 - b) NAS
 - c) Backup/recovery topologies
 - d) Building Automation and Energy Management Systems
 - e) Industry standards for data center monitoring and management.



Total No. of Questions : 6]

SEAT No. :

P2779

[Total No. of Pages : 2

[5370]-3008

M.C.A. (Computer Management)

**T3-IT32 : Data Communication & Computer Networks
(Semester - III) (2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 and Q.6 are compulsory.*
- 2) *Attempt any three from remaining.*
- 3) *Neat diagram must be drawn whenever necessary.*
- 4) *Figures to the right side indicate full marks.*

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

- i) In a peer-to-peer network any client computer can also be a server,
- ii) The standard protocol of the Internet is Ethernet.
- iii) On an Ethernet network, messages sent out go to all computers on the network, and each computer looks at all the messages to see if they're meant for that computer or not.
- iv) Router acts as a smart hub connecting computers into a network, and separates your network from all other networks.
- v) A virtual private network uses software to establish a secure channel on the internet for transmitting data.

b) Generate the hamming code for the data 111011011 with odd parity. [10]

Q2) For the class A IP address 100.140.82.74 on a classful network with the subnet mask 255.255.240.0, 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 switching? Differentiate between Circuit, Message and packet switching techniques. [10]

Q4) What is Resource Record? Enlist different types of Resource Records? Explain SOA record. **[10]**

Q5) Explain HDLC protocol in detail. **[10]**

Q6) Write Short Notes: (Any four) **[4 × 5 = 20]**

- a) OSPF
- b) VPN
- c) Asymmetric cryptography
- d) Cloud Computing
- e) IMAP



Total No. of Questions : 7]

SEAT No. :

P2780

[Total No. of Pages : 1

[5370]-3009
M.C.A.(Management)
T4-IT32 : Windows Server Configuration
Track 4 - Networking
(Semester - III) (2015 Pattern)

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 the steps to configure file and share access for Windows server 2012.[10]

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

Q3) What is Active Directory? Write steps to implement Active Directory in windows server 2012. [10]

Q4) Explain OU? Write steps to configure users and groups in AD. [10]

Q5) Write steps to configure Hyper - V for Windows server 2012. [10]

Q6) Explain group policy. Write steps to create a GPO and link it to an OU? [10]

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

- a) Steps to configure windows firewall
- b) Various Active Directory Objects
- c) Different Server Roles
- d) WinRM
- e) DNS
- f) Virtual Hard Disk (VHD)



Total No. of Questions : 7]

SEAT No. :

P2781

[Total No. of Pages : 2

[5370]-3010

M.C.A. (Management Faculty)

**T1-IT33 : OBJECT ORIENTED ANALYSIS & DESIGN
(2015 Pattern) (Semester - III)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 & Q.7 are compulsory.*
- 2) *Solve any 4 from the remaining.*
- 3) *Mention assumptions made for solving the case studies.*

Q1) A reputed college conducts multiple courses. The college has online faculty feedback system. The feedback can be given only by the students studying in the college for the current academic year. Each course has many faculties teaching various subjects and for various courses. Students can give feedback for faculty who has taught him/her for the current semester. The online faculty feedback system should include the following. **[20]**

- a) Login for faculty
- b) Login for students
- c) Login for HOD
- d) One student can fill the feedback form only once in a semester
- e) According to the points given by the students in the feedback, system calculates grades of faculty.
- f) Faculty can only view the feedback grades given by the students without viewing the name of the student.

Appropriate action will be taken by the HOD, if feedback of a particular faculty is below certain level.

- i) Draw use case diagram for the above case
- ii) Draw class diagram for the above case

Q2) Explain with the help of example OMT methodologies.

[10]

Q3) a) Draw a sequence diagram for change password for your email account. **[5]**

- b) Draw a collaboration diagram for retrieving the forgotten password for your email account. **[5]**

- Q4)** a) Explain aggregation and composition with examples. [5]
b) Draw activity diagram for accepting online order and home delivery of pizza. (Write your own assumptions.) [5]

Q5) What is object persistence? Explain Mapping of object orientation to relational database structure. [10]

Q6) Explain RUP process in detail. [10]

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

- a) Patterns
- b) Reverse engineering
- c) Guidelines for preparing test plan



Total No. of Questions : 7]

SEAT No. :

P2782

[Total No. of Pages : 1

[5370]-3011

M.C.A.(Management Faculty)

T2-IT33 : Introduction to Information Security

(Semester - III) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 & Q.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) Explain policy design life cycle. How PDCA model is used in policy design?[10]

Q2) Define information security. Explain what are the computer security trends and strategy in detail? [10]

Q3) Explain database security challenges in the modern world with example?[10]

Q4) What is access control? How role based access control used in organization? [10]

Q5) Explain digital signature and key management in detail. [10]

Q6) What is malware? Explain how malware spreads and what are the damages of malware? [10]

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

- a) Digital Signature
- b) Laws of IPR
- c) Phishing
- d) Differentiate trusted and un trusted networks
- e) SSE-CMM



Total No. of Questions : 7]

SEAT No. :

P2783

[Total No. of Pages : 2

[5370]-3012

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

**T3-IT33 : Data Warehouse, Mining, BI Tools & Applications
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question 7 is compulsory.*
- 2) *Solve any FIVE questions from Q1 to Q6*
- 3) *Figures to the right indicate full marks*
- 4) *Simple Calculator and log table is allowed.*

Q1) What is OLAP? Explain in brief various OLAP servers [ROLAP, MOLAP and HOLAP] **[10]**

Q2) What is expert system? Explain working and structure of expert system in detail. **[10]**

Q3) What is Clustering/Cluster analysis? Explain K-means algorithm for cluster analysis with example (0.8,1.2,1.4,1.6,2.6,2.9,3.4,3.8,4.7,4.9,5.6,5.8) Consider initial centroid 1.4 and 1.6 and k=2 **[10]**

Q4) What is Classification? Apply Bay's Classification on the following data set **[10]**

Id	Homeowner	Status	Income	Defaulted
1	Yes	Employed	High	No
2	No	Business	Average	No
3	No	Employed	Low	No
4	Yes	Business	High	No
5	No	Unemployed	Average	Yes
6	No	Business	Low	No
7	Yes	Unemployed	High	No
8	No	Employed	Average	Yes
9	No	Business	Low	No
10	No	Employed	Average	Yes

Q5) What is 6 Sigma? Explain the 5 phases (DMAIC) to improve the performance of business. **[10]**

Q6) What is Text Mining? Explain the Text Mining approach in detail. **[10]**

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

- a) Warehouse Schemas
- b) Conventional Vs. Expert System
- c) Dashboard
- d) Data Preprocessing
- e) Density Based Clustering
- f) Neural Networks



Total No. of Questions : 7]

SEAT No. :

P1733

[Total No. of Pages : 1

[5370]-3013

M.C.A. (Management Faculty)

T4-IT-33 : INFARSTRUCTURE MONITORING

Computer Management (Networking)

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

Q1) a) Explain the role of Project Manager in detail in view of project proposal. [10]

b) Explain Data storage with the help of internal & external storage. [10]

Q2) What is Nagios? Explain the Nagios configuration. [10]

Q3) Explain configuration process openNMS? [10]

Q4) Explain Nagios administration General Security guidelines? [10]

Q5) Explain any one of opennms administrative list? [10]

Q6) Explain the process of data retention in storage administration. [10]

Q7) Write short notes on any Four : [4×5=20]

- a) Virtual memory
- b) DMA
- c) Project Schedule
- d) Project Tracking
- e) SNMP Macros
- f) SATA



Total No. of Questions : 7]

SEAT No. :

P2784

[Total No. of Pages : 1

[5370]-3014

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

T1-IT34 : Advanced Internet Technology

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

Q1) a) Write a PHP code for online book shopping using sessions to display list of items added in shopping cart. (Assume suitable table structure)[10]

b) Differentiate between DTD & Schema [5]

Q2) Explain MVC architecture of angular JS. [10]

Q3) Explain chaining, Getters & Setters in JQuery with examples. [10]

Q4) Explain the following with example. [2 × 5 = 10]

- a) Include & require
- b) PHP error handling

Q5) What is parser? Explain XML SAX & DOM parser. [10]

Q6) What are event handlers in JQuery? Explain in detail with example. [10]

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

- a) SOAP
- b) <audio> & <Video> tag
- c) AJAX
- d) Arrays in PHP



Total No. of Questions : 7]

SEAT No. :

P2785

[Total No. of Pages : 1

[5370]-3015
M.C.A. (Management Faculty)
T2-IT34 : OFFICE AUTOMATION TOOLS
(Semester - III) (2015 Pattern)

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 7 rows and 5 columns. Give the name's to column as subject code, subject name, marks out of 100. Grade, Percentage marks.

Fill the sample data in all cells and do the following analysis on it.

- a) Prepare any one charts and one graphs of any type. **[10]**
- b) Set the formula to calculate percentage marks write calculated values in percentage marks column by using formula. **[10]**

Q2) Write the steps for setting up and customizing impress. **[10]**

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

Q4) Explain work station communication and convergence of technologies for office automation. **[10]**

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

Q6) Explain in details slide shows features in impress **[10]**

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

- a) Office equipment
- b) Mail merge
- c) Office automation tools
- d) Data pilot
- e) Calc maclos



Total No. of Questions : 7]

SEAT No. :

P2786

[Total No. of Pages : 1

[5370]-3016
M.C.A. (Management)
Track 3 - INFORMATION MANAGEMENT AND
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 is compulsory.*
- 2) *Solve any four from Q.2 to Q.6*
- 3) *Figures to the right side indicate full marks.*
- 4) *Draw neat diagrams must be whenever necessary.*

Q1) A person want to buy a product from newly launched e-commerce website. During his visit to the website he found that the website is not secured. If user still wish to continue his purchasing activity, you as a IS auditor discuss.[10]

- a) Possible threats and risks.
- b) Provide the security guidelines.

Q2) Explain B57799 in detail. [10]

Q3) What are different types of information security policies? [10]

Q4) Explain need and objective of IS audit in detail. [10]

Q5) What are the cyber-crime and attacks. [10]

Q6) Explain ISMS in detail [10]

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

- a) Digital signature
- b) Logical and physical access control.
- c) BCP and DRP
- d) Ethical hacking
- e) CIA



Total No. of Questions : 7]

SEAT No. :

P2787

[Total No. of Pages : 1

[5370]-3017

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

T4-IT34 : LINUX ADMINISTRATION - I

(2015 Pattern)

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) What is disk quota. Explain hard limit and soft limit. Also explain different commands related to disk quota. **[10]**

Q2) Explain mounting and unmounting of file system with the help of example.**[10]**

Q3) Explain how to configure and manage network printer using cups. **[10]**

Q4) Explain different backup strategies. **[10]**

Q5) Explain steps for configuring name server with BIND. **[10]**

Q6) Explain group management and user management commands. **[10]**

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

- a) DNS
- b) System Rescue
- c) DHCP



Total No. of Questions : 8]

SEAT No. :

P2788

[Total No. of Pages : 3

[5370]-4001

M.C.A. (Faculty of Management)
ITC-41 : Optimization Techniques
(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question No.1 is compulsory.*
- 2) *Attempt any five from remaining.*
- 3) *Use of non-programmable calculator is allowed.*
- 4) *Graph paper will not be provided. Solve the problem in same answer sheet.*
- 5) *Figures to the right side indicate full marks.*

Q1) a) The following tables gives data on normal time, and cost and crash time and cost for a project. **[10]**

Activity	Normal		Crash	
	Time(weeks)	cost(Rs.)	Time(weeks)	Cost(Rs.)
1-2	3	300	2	400
2-3	3	30	3	30
2-4	7	420	5	580
2-5	9	720	7	810
3-5	5	250	4	300
4-5	0	0	0	0
5-6	6	320	4	410
6-7	4	400	3	470
6-8	13	780	10	900
7-8	10	1000	9	1200

Indirect cost is Rs.50 per week.

- i) Draw the network and identify the critical path with a double line.
- ii) Find out normal project duration and associated cost.
- iii) Crash relevant activities and determine the optimal project completion time and cost.

P.T.O.

b) Solve the following LPP graphically. [10]

$$\text{Maximize } Z = 20x + 50y$$

$$\text{Subject to } 2x + 5y \leq 50$$

$$6x + 3y \leq 54$$

$$y \leq 8$$

$$\text{with } x, y \geq 0$$

Q2) A machine operator has to perform two operations turning and threading on a number of different machine jobs. The time required to perform each operator these operations(in mins) for each job is given below. [10]

Jobs	1	2	3	4	5	6
Time for turning	3	12	5	2	9	11
Time for threading	8	10	9	6	3	1

Determine the order in which jobs should be processed in order to minimize. The total time required to twen out all the jobs.

Q3) The following rates have been observed for certain items: [10]

End of month :	1	2	3	4	5
Probability of failure :	0.10	0.30	0.55	0.85	1.00

The cost of replacement of an individual item is Rs.1.25. The decision is made to replace all items simultanesouly at fixed interval and also to replaced individual item as they fail. If the cost of group replacement is 50 paise, What is the best interval of group replacement?

At what group replacement price per item would a policy of strictly individually replacement become preferable to the adopted policy?

Q4) A tailor specializes in ladies dresses. The number of customers approaching the tailor appear to be poisson with a mean of 6 customer per hour. The tailor attends the customer on first come first serve basis and customers wait if the need be. The tailor can attend the customers at an average rate of 10 customers per hour with the service time exponentially distributed. Calculate: [10]

- Utilization parameter
- Probability the queuing system is idle
- Average time a tailor is free on a 10 hrs working day.
- Expected number of customers in the shop
- Average waiting time of customers in queue before service.

Q5) Solve the following problem for maximizing the production output. The data refers to the production of an article for the given operators and machines. **[10]**

1	A	B	C	D
2	11	4	9	10
3	8	4	9	7
4	7	5	6	4
5	8	9	7	5

Q6) The production department of a company requires 3600kg of raw material for manufacturing a particular item per year. It has been estimated that the cost of placing an order is Rs.36 and the cost of carrying inventory is 25% of the investment in the inventories. The price is Rs.10 per kg. Help the purchase manger to determine an order policy for raw material. **[10]**

Q7) Use the dual simplex method to solve the LPP. **[10]**

$$\text{Maximize } Z = 3x_1 - 2x_2$$

Subject to constraints

- a) $x_1 + x_2 \geq 1$
 - b) $x_1 + x_2 \leq 7$
 - c) $x_1 + 2x_2 \geq 10$
 - d) $x_2 \leq 3$
- and $x_1, x_2 \geq 0$

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

- a) Basic elementary queuing system.
- b) Importance of PERT and CPM in project management.
- c) Sequencing models.



Total No. of Questions : 8]

SEAT No. :

P2789

[Total No. of Pages : 2

[5370]-4002
M.C.A. (Management Faculty)
T1-IT41 : ADVANCE JAVA
Software & Application Development
(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 and Q.8 are compulsory.*
- 2) *Solve any four from remaining*

Q1) a) Answer the following **[10]**

- i) What is HQL?
- ii) What is JDBC?
- iii) Explain stub-skeleton.
- iv) Explain <jsp : include>
- v) What is UDP?

b) Explain servlet life cycle **[5]**

Q2) Write a client-server socket program where client will send the file name from user to server and if file exists, server will display content of file in uppercase. **[10]**

Q3) Write a remote method `palindrome(int)` that will take one integer number from client & return whether the number is palindrome or not. **[10]**

Q4) Write JDBC application that will accept author name & list the books of given author. Assume suitable table structure. **[10]**

Q5) Validate the data by using a servlet. **[10]**

Employee Information	
Emp-no :	<input style="width: 80%;" type="text"/>
E-name :	<input style="width: 80%;" type="text"/>
Salary :	<input style="width: 80%;" type="text"/>
<input style="width: 20%; margin-left: auto; margin-right: auto;" type="button" value="validate"/>	

P.T.O.

Validation parameters:

- a) All fields are compulsory.
- b) Emp-no should be numeric
- c) E-name should not contain special characters
- d) Salary should be numeric with two precision.

Q6) Write JSP application to insert record into student table & display record in tabular format assume suitable table structure. [Write HTML, Web.xml] [10]

Q7) What is hibernate? Explain Hibernate architecture and features. [10]

Q8) Write short notes on any three [15]

- a) JDBC drives
- b) Default objects in JSP
- c) Aspect oriented programming(AOP)
- d) Types of Java beans
- e) Threadsafe servlet.



Total No. of Questions : 7]

SEAT No. :

P2790

[Total No. of Pages : 1

[5370]-4003

M.C.A. (Management)

T2-IT41 : IDENTITY & ACCESS MANAGEMENT

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.No.1 is compulsory.*
- 2) *Attempt any five questions from remaining.*
- 3) *Draw figures wherever applicable.*

Q1) a) Explain identity & Access control for an I.T organisation? [10]

b) Write steps for installing & configuring ADRMS server components?[10]

Q2) What do you mean by ADCS? Explain the role of public key certificate in ADCS implementation. [10]

Q3) Explain deploying certificates by using ADCS? [10]

Q4) Explain configuration of ADLDS integration with ADDS? [10]

Q5) Explain the overview & objectives of ADRMS? [10]

Q6) Explain the maintenance of Access mgt solution by using ADFS & ADRMS? [10]

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

- a) Trouble shooting of ADLDS
- b) Identity life cycle
- c) Revoking certificates



Total No. of Questions : 7]

SEAT No. :

P2791

[Total No. of Pages : 1

[5370]-4004

M.C.A. (Management)

**T3-IT-41 : E-Commerce & Knowledge Management
(Semester - IV) (2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question No 1 & 7 are Compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Attempt any Four from remaining.*

Q1) Explain the term E-commerce? Explain the different models of e-commerce with suitable examples? **[10]**

Q2) What are Electronic Payment Systems? Explain different types of Electronic Payment Methods. **[10]**

Q3) Explain the term M- Commerce? Explain the drivers of M- Commerce? **[10]**

Q4) What is Knowledge Management? Explain the Process of Knowledge Management? **[10]**

Q5) What are the different tools and software used to build Knowledge Management? **[10]**

Q6) Explain the impact of KM on Organizational Development with examples?**[10]**

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

- a) Application of E-commerce
- b) Tacit & Explicit Knowledge
- c) Digital Signature
- d) VPN
- e) WAP



Total No. of Questions : 7]

SEAT No. :

P2792

[Total No. of Pages : 1

[5370]-4005
M.C.A. (Computer Management)
T4-IT41 : Network Administration - II
(Semester - IV) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain EIGRP configuration and verification in detail. **[10]**

Q2) What is OSPF? Explain the operations of OSPF. **[10]**

Q3) What is VLAN trunking? Explain with suitable diagram. **[10]**

Q4) Explain IP addressing and subnetting in detail. **[10]**

Q5) Explain root cause analysis process in LAN switching. **[10]**

Q6) Explain the troubleshooting of IP forwarding process in detail. **[10]**

Q7) Write Short Notes: (Any four) **[4 × 5 = 20]**

- a) General TroubleShooting Methodologies.
- b) VLSM
- c) Native VLAN
- d) Ping and extended ping command
- e) CHAP and PAP



Total No. of Questions : 7]

SEAT No. :

P2793

[Total No. of Pages : 1

[5370]-4006

M.C.A. (Management Faculty)

PYTHON PROGRAMMING

T1-IT42 : Software and Application Development
(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

- Q1)** a) What is lists? Explain insert, append, extend, remove functions related to list along with example. [10]
b) Explain the concept of user defined exceptions with suitable example.[5]
- Q2)** Write python code to convert the last character of each word in the string to uppercase [10]
- Q3)** a) Write a user defined python function to check whether the given number is prime or not? [5]
b) Write a python code to print fibonacci sequence upto first 'n' terms. [5]
- Q4)** a) Write a python code to create dictionary perform add, remove, pop and update operations on it. [5]
b) What is set? Explain union, intersection, difference and symmetric difference operations on set with suitable example. [5]
- Q5)** a) What is file? Explain different modes in which the file can be opened.[4]
b) Write python code to create a file; and perform read and write operation on it. [6]
- Q6)** What is Inheritance? Explain multiple inheritance and multilevel inheritance with example. [10]
- Q7)** Write short note on following (any three): [3 × 5 = 15]
a) The dir() function
b) Features of python
c) Scope of variables
d) Tuples



Total No. of Questions : 8]

SEAT No. :

P3967

[Total No. of Pages : 2

[5370]-4007
M.C.A. - II (Semester - IV)
TRACK II : INFRASTRUCTURE AND SECURITY
MANAGEMENT
T2 - IT42 : IT Advisory Services
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Q. 1 is Compulsory.*
- 2) Attempt any six from the remaining.*
- 3) Figures to the right indicate full marks.*

Q1) Explain the Four-tier system for professional services. **[10]**

Q2) Explain the various IT Consulting skills required for an enterprise. **[10]**

Q3) What are the Pre-requisites of contracts and explain the various types of IT consulting required. **[10]**

Q4) What are the various Transactional and Operational issues in global trending?**[10]**

Q5) Explain the various factors for Minimizing Costs and achieving competitive advantage. **[10]**

Q6) Explain the various Pre-requisites of an Advisory Services Organization. **[10]**

P.T.O.

Q7) Explain the various limitations of global trending. **[10]**

Q8) Write Short Notes (Any two) : **[10]**

- a) Independent Consultants.
- b) Advisory skills & Technical language skills.
- c) Feasibility and its Types.



Total No. of Questions : 7]

SEAT No. :

P2794

[Total No. of Pages : 2

[5370]-4008

M.C.A. (Computer Management)

**T3-IT42 : Cyber Laws & Intellectual Property Rights
(2015 Pattern) (Semester - IV)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q1 and Q7 is compulsory*
- 2) *Attempt any Four from remaining.*

Q1) The city police arrested a 27-year-old man for allegedly cheating a Mumbai based software engineer through the internet by posing as a women and stealing money from his bank account. After this scam is explored police arrived to more shocking scenario. The arrested person provide the information in his statement that, he and his friends had not only cheated through credit cards but they used to make a phone calls to a family members of the different victims to get the their personal information by changing their voice using voice converter. They also involve in the business of exchanging stolen computer resources and communication devices. You are requested to: **[15]**

- a) Identify all the offences made by them.
- b) What are the sections/subsections associated with the offences you identified.
- c) What are the provisions for the punishments as per IT-Act 2000 and 2008 amendments?

Q2) Explain classes and categories of cybercrime in detail. **[10]**

Q3) Explain positive aspects and weak areas of Indian IT act. **[10]**

Q4) What is IPR? Explain different types of IPR. **[10]**

Q5) Explain the importance of Electronic Signature w.r.t. security. **[10]**

Q6) What do you mean by Online Software Piracy? What are the legal issues involved with it? **[10]**

P.T.O.

Q7) Write Short Notes: (Any three)

[3 × 5 = 15]

- a) Cyber squatting
- b) Cybercrimes with mobile device
- c) Digital Signature
- d) Secure electronic transactions



Total No. of Questions : 7]

SEAT No. :

P2795

[Total No. of Pages : 1

[5370]-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 & 7 are compulsory*
- 2) *Solve any four from remaining*

Q1) Explain IoT technology and categories; Acquire, process and privacy. [15]

Q2) Explain user centric cloud based services in IoT. [10]

Q3) Explain in detail autonomy of IoT system. [10]

Q4) Explain IPv4 and IPv6 in IoT [10]

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

Q6) Give the overview of privacy and security issues in IoT. [10]

Q7) Short notes (any three): [15]

- a) LTE
- b) GSM
- c) Sensors in IoT
- d) CDMA



Total No. of Questions : 7]

SEAT No. :

P2796

[Total No. of Pages : 2

[5370]-4010
M.C.A. (Management)
T1-IT43 : ADVANCE DBMS
(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 1 to 6.*
- 3) Figures to the right indicate full marks.*

Q1) What do you mean by dimension modeling? Explain various dimension modeling techniques with example **[10]**

Q2) Explain Various Data Partitioning Techniques in parallel database system. **[10]**

Q3) What are Mobile databases? Explain the architecture of mobile database in detail. **[10]**

Q4) Apply k-Means Clustering Algorithm to divide following data-set into two cluster. **[10]**

ID	X	Y
11	1	1
12	1.5	2
13	3	4
14	5	7
15	3.5	5
16	4.5	5
17	3.5	4.5

Assuming initial centroids $C1 = \{1, 1\}$ and $C2 = \{5, 7\}$

Q5) Explain Lock manager in distributed database system. **[10]**

Q6) What are Web Services? Explain SOAP structure in detail with example **[10]**

Q7) Write Short Notes on (Any Four)

[20]

- a) Features of OODBMS
- b) Multimedia Database
- c) OLAP
- d) Knowledge Discovery process
- e) Indexing of documents
- f) Web Search Engines



Total No. of Questions : 7]

SEAT No. :

P2797

[Total No. of Pages : 1

[5370]-4011
M.C.A. (Management)
T2-IT43 : Infrastructure Security and Audit
(Infrastructure and Security Management)
(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.7 is compulsory*
- 2) *Solve any 5 from Q.1 to Q.6*

Q1) Explain the functions of network hardening in brief? **[10]**

Q2) Discuss the concept of VLAN in brief? **[10]**

Q3) Explain VPN and IDS in detail? **[10]**

Q4) Define cloud. Explain infrastructure as a service (IaaS) in detail? **[10]**

Q5) What is security audit? Explain Need for security audit in organization. Also explain Auditors responsibility in security audits. **[10]**

Q6) What is IT infrastructure? Explain application integration building blocks?**[10]**

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

- a) Honey Pots.
- b) Evidence collection
- c) Smartcard
- d) DNS Servers
- e) NAT
- f) ITIL



Total No. of Questions : 7]

SEAT No. :

P2798

[Total No. of Pages : 2

[5370]-4012

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

**T3-BM-43 : Customer Relationship Management & Supply
Chain Management
(2015 Pattern) (Track - 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 remaining.*
- 3) Figures to right indicate full marks.*

Q1) Case Study

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: **[10]**

- 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

- Q2)** Define CRM. Explain the architecture of e-CRM in detail [10]
- Q3)** What are the advantages and disadvantages of E-Procurement? How E-Procurement helps in e-Supply Chain Management. [10]
- Q4)** Define SCM. Explain why there is a need of e-SCM in detail [10]
- Q5)** Differentiate between CRM and e-CRM. [10]
- Q6)** Define Inventory Management. Explain how Inventory Control helps 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



Total No. of Questions : 7]

SEAT No. :

P2799

[Total No. of Pages : 1

[5370]-4013
M.C.A. (Management)
Track 4 - Networking
T4-IT43 : Linux Administration - II
(Semester - IV) (2015 Pattern)

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 the right indicate full marks.*
- 5) *Draw neat diagrams wherever necessary.*

Q1) Explain WU - FTPD server, types of user & steps to configure WU FTPD 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) Grant all privileges to "Parth" for "PROJECT" db. **[2]**
- b) Create table "trainee" with proper columns and constraints. **[2]**
- c) Take back up of PROJECT database. **[2]**
- d) Show list of trainees who are working on "GST" project. **[2]**
- e) Recover PROJECT database. **[2]**

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

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

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

- a) PostgreSQL Datatypes
- b) Types of Internet connections
- c) PPP server
- d) FTP server
- e) Sendmail
- f) Burning CD in Linux



Total No. of Questions : 8]

SEAT No. :

P2800

[Total No. of Pages : 1

[5370]-4014
M.C.A. (Management)
T1-IT44 CLOUD COMPUTING
Track - I : Software & Application Development
(Semester - IV) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) Q1 is Compulsory.*
- 2) Attempt any six from the remaining.*
- 3) Figures to the right Indicate full marks.*

Q1) What is Cloud Computing? Differentiate between Cluster computing and Grid computing with suitable example. **[10]**

Q2) What is VMware? Explain the various benefits and objectives of Virtualization. **[10]**

Q3) What is SOA? Differentiate between Utility Computing and Distributed Computing. **[10]**

Q4) What are Web services? Explain the different types of web services with suitable example. **[10]**

Q5) What is Cloud Security and why is it required? Explain the various access control mechanism used for Cloud Security. **[10]**

Q6) What is Data Migration? Explain the various Issues in Inter Cloud Computing. **[10]**

Q7) Explain the various service models of Cloud. **[10]**

Q8) Write Short Notes (ANY TWO) **[10]**

- a) Hypervisors.
- b) Web OS.
- c) Virtual Machine.



Total No. of Questions : 7]

SEAT No. :

P2801

[Total No. of Pages : 1

[5370]-4015

M.C.A. (Management Faculty)

T2-IT44 : Enterprise & Solution Architecture
(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.7 is Compulsory.*
- 2) *Solve any Five questions from Q.1 to Q.6*
- 3) *Figures to the right Indicate full marks.*

Q1) What is the need of data architecture? Discuss the components of data architecture. **[10]**

Q2) Discuss the components of business plan. **[10]**

Q3) What is the process to address the request for architecture work and stakeholder concerns. **[10]**

Q4) What tools and techniques have you used (or would you use) to manage enterprise data and data architecture. **[10]**

Q5) Describe the design used for data security. **[10]**

Q6) Explain the process of architecture change management. **[10]**

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

- a) Network Topology
- b) Data Quality
- c) Application platform
- d) architecture implementation
- e) Layered architecture.



Total No. of Questions : 7]

SEAT No. :

P2802

[Total No. of Pages : 1

[5370]-4016

M.C.A. (Management Faculty)

T3-IT44 : Software Quality Assurance & Control
(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 & Q. 7 are compulsory.*
- 2) *Solve any Four-from remaining.*

- Q1)** a) Write software inspection checklist for online shopping website. [10]
b) What is SQA? Explain SQA planning & standards in detail. [10]

Q2) Explain various metrics for software maintenance with suitable example. [10]

Q3) Explain importance of documentation & quality record controls in software quality infrastructure. [10]

Q4) Explain ISO 9000 & its companion standards in detail. [10]

Q5) Explain verification & validation model in detail. [10]

Q6) What is software reliability? Explain how reliability is measured. [10]

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

- a) McCall's quality factor model.
- b) Software maintenance.
- c) Automated static analysis.
- d) Supporting quality devices.



Total No. of Questions : 7]

SEAT No. :

P2803

[Total No. of Pages : 1

[5370]-4017
M.C.A. (Management)
T4-IT-44 : Wireless Networks
(Semester - IV) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Questions -1 & 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) Explain the basic details of WLAN FHSS and DSSS physical layers. **[10]**
b) Discuss loose coupling architecture between the IEEE 802.11 WLAN and GPRS. **[10]**
- Q2)** Discuss the basic evolutionary path from GSM to UMTS. Explain Air Interfaces of UMTS. **[10]**
- Q3)** What are classifications of Wireless Sensor Network. Explain any one routing protocol for Wireless Sensor Network. **[10]**
- Q4)** Discuss briefly local multipoint distribution system (LMDS). **[10]**
- Q5)** What were the key challenges of 4G networks and how it was overcome? Explain 4G applications. **[10]**
- Q6)** What is TD-SCDMA? Explain generic TD-SCDMA architecture. **[10]**
- Q7)** Write Short Notes(Any Fours) **[20]**
- a) TD-CDMA,
 - b) MAC Management sub-layer
 - c) Wi-Max
 - d) Hybrid routing protocol (MANETs).
 - e) MVNO (Mobile Virtual Network Operator)
 - f) Gateway approach -to Connect WLANs and 3G Networks



Total No. of Questions : 7]

SEAT No. :

P2804

[Total No. of Pages : 2

[5370]-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.1 & Q.7 is compulsory.
- 2) Answer any four questions from (Q.2 to Q.6.)
- 3) Figures to the right indicate full marks.

Q1) a) Softtech industry has computerised 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 risks involved in it
- ii) Propose suitable solutions for the same [10]

b) Consider project with following functional units

- i) Number of user INPUTS = 55
- ii) Number of user OUTPUTS = 25
- iii) Number of user ENQUIRIES = 30
- iv) Number of user FILES = 05
- v) Number of EXTERNAL INTERFACES = 02

in addition to above, system requires

- A) Critical level of data communication (5)
- B) Designed code should be highly reusable (4)
- C) Performance is significant (4)
- D) System is not designed for multiple installations (0)

Other complexity factors are treated as average, compute function point for this project. [10]

Q2) Explain project management and the various stages of project management life cycle [10]

Q3) What is software configuration management? Explain the various stages of software configuration management. [10]

P.T.O.

Q4) Define quality. Discuss all the levels of capability maturity model (cmm).[10]

Q5) Discuss cocomo and all models of cocomo in detail. [10]

Q6) Explain the characteristics of performance management. Differentiate between directive and collaborative leadership. [10]

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

- a) GANTT chart
- b) SQA Activities
- c) MS Project Tool
- d) Change Management



Total No. of Questions : 7]

SEAT No. :

P2805

[Total No. of Pages : 1

[5370]-5002

M.C.A. (Management Faculty)
T1-IT51 : ASP .NET USING C#
(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

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

- a) Add record of customer 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 ADO .NET architecture in detail. [10]

Q3) What is web service? Write steps to create and use web service. Write a web service to perform subtraction of 2 numbers. [10]

Q4) Explain any five validation controls. [10]

Q5) Explain ASP .NET page life cycle in detail. [10]

Q6) What is exception? Explain page level and application level errors in exception handling. [10]

Q7) Write short note on (any three) [15]

- a) MVC
- b) Ajax
- c) Authentication and Authorization.
- d) Development of Web application



Total No. of Questions : 7]

SEAT No. :

P2806

[Total No. of Pages : 1

[5370]-5003
M.C.A. (Management)
T2-IT51 : Quality Verification
(2015 Pattern) (Semester - V)

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 Testing Maturity Model. **[15]**
- Q2)** Write a detailed note on Trademarks. **[10]**
- Q3)** Explain in detail Coupling CMMI with Six Sigma. **[10]**
- Q4)** Discuss in detail Continuous Quality Verification (CQV). **[10]**
- Q5)** Explain in detail quality standard ISO 9001 & ISO 27001. **[10]**
- Q6)** Explain in detail quality standard TQM. **[10]**
- Q7)** An Ambulance Service software was introduced with Computer Aided Ambulance Call System to automate human-intensive processes of manual scheduling ambulance when call receives. It has Automatic Call Taking - Receive calls, record incident details, pinpoint location and instruct ambulance to go. The System went live on 26th October 1995 and Taken offline next day and reverted to semi-manual dispatching on 28th October 1995 because of increased incident errors, increased number of exceptions in system, increased incorrect information resulted into 20-30 people speculated to have died as a result of ambulances arriving too late. All happens because of software failure. State various causes of failures and justify the causes of failure of this system. **[15]**



Total No. of Questions : 6]

SEAT No. :

P2807

[Total No. of Pages : 2

[5370]-5004

M.C.A. (Management Faculty)
T3-IT-51 : Software Testing & Tools
(Semester - V) (2015 Pattern)

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 shopping application, 'Igniter Galleria'. Customers can keep accounts with the application in order to make frequent ordering convenient. Customers can sign-in and order for products listed. The application generates bill for the order and the customer can pay either in card (cashless)/cash-on-delivery mode. The application has provision for customers to review the products and can share their experience related to the services provided. **[12]**
- b) Design suitable test cases for testing the above application. **[8]**
- Q2)** a) Explain W Model. **[5]**
- b) What are the important factors to be considered while selecting a testing tool for an organization. **[5]**
- Q3)** Define Functional testing. Explain Equivalence partitioning & BVA techniques with suitable examples. **[10]**
- Q4)** How Inspection differs from Walk through? Explain inspection process in detail **[10]**
- Q5)** What is Web Application Testing? Explain Web based Application Testing Techniques. **[10]**

P.T.O.

Q6) Write short notes on (any 4)

[4 × 5 = 20]

- a) Cyclomatic complexity
- b) Testers workbench
- c) User Acceptance Testing (UAT)
- d) Differentiate between Static Testing & Dynamic Testing
- e) CAST



Total No. of Questions : 6]

SEAT No. :

P2808

[Total No. of Pages : 1

[5370]-5005
M.C.A. (Management)
T4-IT51 : Network Routing Algorithms
(Semester - V) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Questions 1 & 6 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) How Dynamic Non-Hierarchical Routing method works in Telephone Networks? What are its disadvantages? **[10]**
b) What is Multicast routing? Explain with example Open Shortest Path First for Multicast Routing. **[10]**
- Q2)** What are different types of Routing algorithms used in Optical Networks and what are with their pros and cons? Explain Fixed Routing algorithm. **[10]**
- Q3)** Conceptualize the meaning of Interior and Exterior routing with example. Explain Bellman Ford Distance Vector routing. **[10]**
- Q4)** What are drawbacks of Mobile IP? How macro/micro-mobility architecture overcomes this problems, explain. **[10]**
- Q5)** What is proactive routing? Explain Dynamic Source Routing (DSR) method with example. **[10]**
- Q6)** Write short notes(ANY FOUR) **[20]**
- a) Distance vector routing in Telephone Networks
 - b) Differentiate DSDV v/s AODV
 - c) Open shortest Path First
 - d) Minimum Weighted-count Path-preserving Graph Algorithm in optical networks
 - e) Classification of routing



Total No. of Questions : 8]

SEAT No. :

P2809

[Total No. of Pages : 1

[5370]-5006

M.C.A. (Management Faculty)

T1-IT52 : SERVICE ORIENTED ARCHITECTURE

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 & Q.8 are compulsory.*
- 2) *Solve any five questions from remaining.*
- 3) *Each question carries 10 marks.*

Q1) Define service & explain common tangible benefits of SOA.

Q2) Explain the concept of orchestration & choreography in SOA

Q3) Describe common principles of service orientation in detail.

Q4) Explain SOA delivery lifecycle along with bottom-up strategy.

Q5) Describe WSDL-related XML schema's with suitable example.

Q6) Describe task-centric business service design in detail.

Q7) Explain SOA framework with suitable diagram.

Q8) Write a short note on (any two):

- a) Messaging with SOAP
- b) Business centric SOA
- c) SOA Extensions
- d) WS-BPEL language



Total No. of Questions : 7]

SEAT No. :

P2810

[Total No. of Pages : 1

[5370]-5007

M.C.A. (Theory Management)

T2-IT52 : IT Infrastructure Auditing and Implementation
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

Q1) What is meant by 'infrastructure Audit'? Give the overview of infrastructure in details. **[10]**

Q2) Define risk assessment? Explain different strategies and policies used to assess the risk. **[10]**

Q3) IT Audit is key factor in alignment with business strategies' Explain **[10]**

Q4) Explain Acquisition and Implementation process of packaged software. **[10]**

Q5) How to. take a live network change review? **[10]**

Q6) Explain COBITconcept in detail. **[10]**

Q7) Write short notes(ANY FOUR) **[20]**

- a) Information System Audit Guidelines.
- b) Annual maintenance Contract.
- c) On-Demand historical reports
- d) Vendor selection process.
- e) Strong change management.



Total No. of Questions : 7]

SEAT No. :

P2811

[Total No. of Pages : 2

[5370]-5008

M.C.A. (Management Faculty)

**T3-BM52 : ENTREPRENEURSHIP DEVELOPMENT
(2015 Pattern) (Semester - V)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question No.1 and 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]

After retirement many pensioners are settling down in self-contained apartment in many cases, their children are working in far away (in most of the cases out of the country). Through technology has bridged gap for interaction, transferring funds. But in case of medical emergencies elders face crisis.

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

Prepare a detailed project report for your business plan.

Q2) What are the causes of formation of MSME policy in India? How are government organizations supporting them? **[10]**

Q3) a) Explain the steps in setting up a small unit.

b) Types of entrepreneurs

[10]

Q4) Explain the process of identification and selection of projects. Add a note on contents and formulation of a project report. **[10]**

Q5) What is entrepreneurial mobility? Support your answer with motivation theories. **[10]**

Q6) Explain "Importance and significance of growth of entrepreneurial activities". Add a note on characteristics and qualities of entrepreneur. **[10]**

P.T.O.

Q7) Write short notes on the following (any four)

[4 × 5 = 20]

- a) Job analysis
- b) Recruitment and selection
- c) Women entrepreneurship
- d) Venture capital and Angel capital
- e) Make in India
- f) Market segmentation



Total No. of Questions : 7]

SEAT No. :

P2812

[Total No. of Pages : 1

[5370]-5009
M.C.A. (Management)
T4-IT52 : COMPUTER AND NETWORK SECURITY
Track 4 - Networking
(2015 Pattern) (Semester - V)

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) Explain Information Security Regulations in detail. **[10]**

Q2) Explain Principles of Application Security. **[10]**

Q3) Explain Lollipop and Onion defense models in detail. **[10]**

Q4) Explain Data Security Architecture in detail. **[10]**

Q5) Explain Network Hardening. Explain different techniques of Network Hardening **10]**

Q6) Explain how secure network design can be designed for an organization. **[10]**

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

- a) Security Methodology
- b) Switches & Routers
- c) Security Methodology
- d) Web Application Security
- e) Good Security Practices
- f) Security Operations Management



Total No. of Questions : 7]

SEAT No. :

P2813

[Total No. of Pages : 1

[5370]-5010

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

T1-IT53 : BIG DATA ANALYTICS

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question No. 7 is compulsory.*
- 2) *Answer any 5 questions form (Q1-Q6)*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side, indicate full marks.*

Q1) Explain big data analytics methodology with the help of example. [10]

Q2) What is big data? Explain big data analytics for health care. [10]

Q3) Differentiate between BDW and EDW design principles. [10]

Q4) What is database workload? Explain it's characteristics. [10]

Q5) What is map-reduce? Explain with the help of example. [10]

Q6) Explain NOSQL databases. Provide comparative analysis of following NOSQL database [10]

- a) Cassandra
- b) Mongo DB
- c) Couch DB
- d) H base

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

- a) Design for Big data scale
- b) Hadoop framework
- c) Scale out architecture
- d) HDFS
- e) In-memory database grids.



Total No. of Questions : 8]

SEAT No. :

P2814

[Total No. of Pages : 1

[5370]-5011
M.C.A. (Semester - V)
T2-IT53 : IT SERVICE MANAGEMENT
(2015 Pattern)

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)* Discuss in detail Configuration Items and their relationships. **[10]**
- Q3)* Explain different Problem solving techniques. **[10]**
- Q4)* Write a note on implementation of changes. **[10]**
- Q5)* Explain Business Capacity Management & Service Capacity Management in detail. **[10]**
- Q6)* Write a short note on (5 marks each) **[10]**
- a) Investment appraisal.
 - b) Risk analysis and management.
- 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. :

P2815

[Total No. of Pages : 1

[5370]-5012
M.C.A. (Management Faculty)
T3-IT53 : DECISION SUPPORT SYSTEM
(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

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

- Q1)** Define DSS. Explain various components of DSS in detail. **[10]**
- Q2)** Explain intelligent DSS & intelligent modelling. **[10]**
- Q3)** Explain concept of data warehousing. Discuss the needs of data mining in modern business. **[10]**
- Q4)** Discuss the classification of DSS development tools. Elaborate DSS development platforms in detail. **[10]**
- Q5)** Define & explain organizational DSS in detail. **[10]**
- Q6)** Discuss the models of ES & DSS integration. **[10]**
- Q7)** Write short notes (any four) **[20]**
- a) DSS characteristics
 - b) EIS vs DSS
 - c) OLAP
 - d) Data mining
 - e) Artificial Intelligence



Total No. of Questions : 7]

SEAT No. :

P2816

[Total No. of Pages : 1

[5370]-5013

M.C.A. (Computer Management)
T4-IT53 : Cloud Architectures and Security
(Semester - V) (2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.1 is compulsory.*
- 2) *Attempt any five from remaining.*
- 3) *Neat diagram must be drawn whenever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) Explain virtualization system security issues in detail. **[20]**

Q2) Discuss “Standards VS cloud services and virtualization” in cloud computing. **[10]**

Q3) Explain following terms w.r.t. cloud storage security. **[10]**
a) Log management
b) Data Loss Prevention.

Q4) Explain the following terminologies w.r.t. cloud computing. **[10]**
a) Privacy
b) Integrity
c) Authentication
d) Non-repudiation
e) Defense in depth.

Q5) Define cloud computing. Explain in brief its advantages, benefits, Challenges and Disadvantages. **[10]**

Q6) Explain Guest hopping and Hyperjacking in Virtualization system- specific attacks. **[10]**

Q7) Write short notes (any two). **[2 × 5 = 10]**
a) Location of the Perimeter
b) X.509 certificates
c) Attack on the control of VM



Total No. of Questions : 7]

SEAT No. :

P2817

[Total No. of Pages : 1

[5370]-5014

M.C.A. (Management Faculty)

T1-IT54 : MOBILE APPLICATION DEVELOPMENT

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) Question No.1 & Q.No.7 are compulsory.
- 2) Solve any four questions from Q.2 to Q.6.
- 3) Make suitable assumptions wherever required.

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

b) Write an android code to play video using video view. [10]

Q2) Explain following widgets (any two) [10]

- a) Ediftext
- b) Button
- c) List view

Q3) What is Intent. Explain explicit Intent with one example. [10]

Q4) Design android application for login activity. Write android code to check login credentials with username = "mca" and password = "android". Display appropriate toast message to the user. [10]

Q5) Explain CRUD operations on product table using SQ lite database. [10]

Q6) Write an android code to turn ON & OFF the Wi-Fi of android device. [10]

Q7) Write short note on any two [2 × 5 = 10]

- a) Cursors in SQ Lite
- b) Publishing Android Application to Market
- c) Map View & its methods
- d) Android layouts



Total No. of Questions : 9]

SEAT No. :

P2820

[Total No. of Pages : 1

[5370]-5015

M.C.A. (Management Faculty)

Track - II : INFRASTRUCTURE & SECURITY MANAGEMENT

T2-IT54 : 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 question carry equal marks.*

Q1) Elaborate on current threats facing organization that conduct business online.
How to mitigate these challenges? [10]

Q2) Explain secure credential services and how it is used in windows. [10]

Q3) Explain various categories of mobile code security. [10]

Q4) Explain common steps for designing networks infrastructure security. [10]

Q5) Explain security of agent-based systems in digital payments. [10]

Q6) Explain coding issues and its relevance to intellectual property. [10]

Q7) Explain auditing and network monitoring techniques. [10]

Q8) Explain web browser security methods. [10]

Q9) Write short notes (any two) [2 × 5 = 10]

- a) Secure boundaries
- b) Digital identification
- c) Digital payments
- d) Accidental threats.



Total No. of Questions : 7]

SEAT No. :

P2818

[Total No. of Pages : 1

[5370]-5016

M.C.A. (Management Faculty)

T3-IT54 : BUSINESS ARCHITECTURE

(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Question 7 is compulsory.*
- 2) *Answer anr Five questions from “Q1-Q6,.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

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

Q2) a) What is Business process decomposition? **[5]**

b) Differentiate between loosely coupled and tightly coupled. **[5]**

Q3) Explain concept of federated transaction across a distributed database. **[10]**

Q4) What is virtualization? Explain the concept of server consolidation **[10]**

Q5) Explain Integrated Information Infrastructure Reference Model (IIIRM). **[10]**

Q6) What is agile development? Explain its advantages over other development models. **[10]**

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

- a) Master data management
- b) Model &-Driven Architecture (MDA)
- c) Firewall
- d) Portfolio management
- e) Content Management



Total No. of Questions : 7]

SEAT No. :

P2819

[Total No. of Pages : 1

[5370]-5017

M.C.A. (Computer Management)
T4-IT54 : UNIFIED COMMUNICATION
(2015 Pattern) (Semester - V)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) *Q.7 is compulsory.*
- 2) *Attempt any five from remaining.*
- 3) *Neat diagram must be drawn whenever necessary.*
- 4) *Figures to the right side indicate full marks.*

Q1) Explain Electronic Number Mapping. State issues associated with it. [10]

Q2) Explain STUN and TURN in the context of VoIP. [10]

Q3) Briefly describe Troubleshooting and repair of VoIP. [10]

Q4) Explain following terms w.r.t. VoIP and UC. [10]

- a) Toll Scam
- b) Pay-per-Call Scams
- c) SIP Scanning

Q5) What is SIP? Explain SIP architecture in detail. [10]

Q6) Explain phone features added with VoIP/UC. [10]

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

- a) ISDN
- b) Hosted VoIP/UC Service
- c) SDP
- d) Video Conferencing in VoIP
- e) Sub packet multiplexing

