

Total No. of Questions : 7]

SEAT No. :

P4148

[Total No. of Pages : 2

[5570]-1001

M.C.A. (Mgmt. Faculty)

**IT-11 : FUNDAMENTALS OF COMPUTER
(2015 Pattern) (Semester - I)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

- Q1)** a) Explain various interrupt types in detail. [8]
b) Explain memory hierarchy in detail. [7]

Q2) What is DMA? Explain DMA components & DMA controller in detail. [10]

Q3) Solve : [5 × 2 = 10]

- a) $(376.22)_{10} = (?)_8$
- b) $(11AB)_{16} = (?)_{10}$
- c) $(11111 + 01100)_2 = (?)_2$
- d) $(ADE)_{16} = (?)_2$
- e) $(101101 - 1100)_2 = (?)_2$

Q4) Explain instruction pipelining in detail. [10]

Q5) What is counter? Explain ripple counter in detail. [10]

Q6) Explain - compiler, interpreter, assembler, linker & loader in detail. [10]

P.T.O.

Q7) Write shorts on (any three)

[3 × 5 = 15]

- a) RS flip flop
- b) K - map
- c) Types of software
- d) Half adder
- e) Microprogrammed control



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Total No. of Questions : 8]

SEAT No. :

P4149

[Total No. of Pages : 2

[5570]-1002

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

Q1) Write a C program to accept 10 numbers from user, check each number is even or odd. If it is even, write it into "even . txt" file. If it is odd, write it into "odd . txt" file. Display both files. [10]

Q2) Write a C program to implement insert & remove operations on circular Queue. [10]

Q3) Write a C program to search an element from an integer array of 15 integers using binary search. [10]

Q4) Write a C program to perform multiplication of two 3×3 matrix. [10]

Q5) Create a structure with product Id, Name, Quantity, and price per product. Write a C program to accept & display detail of 20 products along with total cost. [10]

Q6) Convert the following Infix Expression to postfix in tabular format.

$(A + B) * C - [D / (J + E)]$ [10]

P.T.O.

Q7) Write a C program to accept a string from user & check whether it is palindrome or not without using string library functions. **[10]**

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

- a) Dynamic Memory Allocation.
- b) C - Preprocessor
- c) Structure Vs Union
- d) Double Ended Queue



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Total No. of Questions : 7]

SEAT No. :

P4150

[Total No. of Pages : 2

[5570]-1003

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

IT 13 : SOFTWARE ENGINEERING

(2015 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q. 1 & Q.7 are compulsory.
- 2) Attempt any three from Q. 2 to Q. 6.
- 3) Figures to right indicate full marks.

Q1) A RTO has laid down following procedure for obtaining permanent driving license for various non - commercial vehicles. A candidate for valid learning license can submit his form & license test fees of his own or through motor driving school. The data on form is entered and exact date & time of driving test will be allocated to the candidate. On the days of test, candidate can bring his/her own vehicle or can use vehicle of motor driving school. The available inspector will conduct test and ask questions related to traffic sign to the candidate on the basis of test and answer, the concerned inspector puts his remarks on the form and makes signature along with his name & designation. If the remark is PASSING, the candidate has to pay license fees at the cash counter and a cash receipt will be given to candidate. Candidate can collect license after 3 days. The clerk at cash counter adds the test data, fees data details to the form record. The form test data then is compiled by EDP officer & generates license for the day and hands it over to counter clerk. A license will be given to candidate after the cash receipt.

- i) Draw first level DFD
- ii) Prepare software requirement specification (SRS) in detail as per IEEE format.

[20]

Q2) ABC Co. Ltd. decides to give Diwali bonus to all its employees for which the management has divided the employees into three categories, namely, Administrative Staff (AS), Office Staff (OS), Workers (W) by using following rules –

- i) If the employee is permanent and in the OS category, the bonus amount is two month's salary.

P.T.O.

- ii) If the employee is permanent and in the AS category, the bonus amount is three month's salary.
- iii) If the employee is permanent & in the W category, the bonus amount is one month's salary.
- iv) If the employees are temporary then half of the amount is given to them as per the permanent employee's bonus amount.

Draw Decision table, Decision tree & write structured English.

[10]

Q3) Explain CASE Tools with its components and also state its advantages & disadvantages. **[10]**

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

Q5) In a university campus, people are coming for various work related to various department of university. It is decided to install a computer terminal at each entry point security gate, so that record of each and every person entering into university campus is maintained for vigilance purpose. A record containing person's identity, nature of work, department to visit, time - in and time - out is to maintain.

Design data entry screen & state validations.

[10]

Q6) Explain SDLC with its limitations. **[10]**

Q7) Write Short Notes (Any four) **[20]**

- a) Reverse Engineering
- b) Web Engineering
- c) Data Dictionary
- d) Spiral model
- e) Agile process



Total No. of Questions : 7]

SEAT No. :

P4151

[Total No. of Pages : 2

[5570]-1004

MCA (Management Faculty) (Semester - I)
IT14: DATABASE MANAGEMENT SYSTEM
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any 5 from the remaining.*
- 3) *Mention assumption wherever necessary.*

Q1) UPS prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, UPS relies on a company-wide information system. Shipped items are the heart of the UPS product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail center. Retail centers are characterized by their type, unique ID, and address. Shipped items make their way to their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique schedule number, a type (e.g, flight, truck), and a delivery route. Design the E-R model and normalized it up to 3NF. **[20]**

Q2) What is log based recovery? Explain deferred update and immediate update with example. **[10]**

Q3) What is 'Relational Algebra'? Explain any five operations of relational algebra with example. **[10]**

Q4) What is lock in DBMS? Explain two phase locking protocol for concurrency control. **[10]**

P.T.O.

Q5) Explain mandatory and role based access control. **[10]**

Q6) What is decomposition? Explain Loss less join and dependency preserving decomposition. **[10]**

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

- a) Database users.
- b) No SQL Databases.
- c) Aggregation.



Total No. of Questions : 6]

SEAT No. :

P4152

[Total No. of Pages : 1

[5570]-1005
MCA (Management) (Semester - I)
PRINCIPLES & PRACTICES OF MANAGEMENT &
ORGANIZATIONAL BEHAVIOUR
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

- Q1)** a) 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 reasons for intra group conflict. What strategies you will apply to avoid these conflicts. **[10]**
- Q2)** Explain types of decision making tools you will suggest to small scale industries. Why? **[15]**
- Q3)** Discuss F.W. Taylor's four principles of scientific management and related management activity with examples. **[15]**
- Q4)** Define the term 'organization'. Explain the need for organization. Briefly explain its types. **[15]**
- Q5)** Define and explain Group & Group dynamics with examples. **[15]**
- Q6)** Write short notes (Attempt any three) **[15]**
a) Team Building.
b) Staffing.
c) Theory X & Theory Y.
d) Leadership.
e) Ego states.



Total No. of Questions : 7]

SEAT No. :

P4757

[Total No. of Pages : 2

[5570]-2001

MCA (Management Faculty)

IT-21 : ESSENTIALS OF OPERATING SYSTEM

(2015 Pattern) (Semester - II)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Attempt any four questions from remaining questions.*
- 3) *Figure to right indicates full marks.*
- 4) *Draw the neat diagram whenever necessary.*

Q1) Under what circumstances do page fault occur? Describe the action taken by the operating system when page fault occurs. **[10]**

OR

Define IPC. Explain in detail that how IPC is implemented in client-server system.

Q2) Explain difference between internal and external fragmentation properly. **[10]**

Q3) Suppose the R/W head is at track 63, moving towards track number 175. The disk queue contains request for 100,175,51,133,8,140,73,77. Find the total number of head movements to satisfy the request using algorithms : **[10]**

- a) SSTF
- b) C-look

Q4) What is deadlock? Explain how deadlock can be avoided. **[10]**

Q5) Explain various CPU scheduling algorithms in detail. **[10]**

Q6) Explain file allocation methods. **[10]**

P.T.O.

Q7) Write short note (Any four) :

[20]

- a) RTOS
- b) RAID
- c) Demand paging
- d) Virtual machine
- e) System call
- f) Simulations



Total No. of Questions : 7]

SEAT No. :

P4153

[Total No. of Pages : 2

[5570]-2002
M.C.A. (Management Faculty) (Smester - II)
IT:22: WEB TECHNOLOGIES
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any five from Q.2 to Q.7.*
- 3) *Draw neat diagrams wherever necessary.*

- Q1)** a) Design customer registration form for Hotel. with suitable fields. Validate any five fields. with Java script. **[15]**
b) Explain HTML < table > tag with properties. **[5]**
- Q2)** Write an external css for including following states. Apply styles on any HTML page. **[10]**
a) Marquee color = green.
b) Text having font size = 13, name = arial Italic color = navy.
c) Set Margin 30 pixels, padding 30 pixels.
d) Three types of hyperlinks with mentioned color - visited - blue, active - red, current: green.
- Q3)** Write ASP objects with its properties & methods. **[10]**
- Q4)** How to use array in Javascript? Also explain types of array with suitable example. **[10]**
- Q5)** Explain following tags with suitable example and attributies. **[10]**
a) < SPAN >
b) < FRAME >
c) < Li>
d) < IMAGE >

P.T.O.

Q6) Design on-line shopping form using ASP. Write code to insert order and display datewise orders. **[10]**

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

- a) Image mapping.
- b) Multiple column in CSS3
- c) DOM object in Java script.



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Total No. of Questions : 5]

SEAT No. :

P4157

[Total No. of Pages : 3

[5570]-3001

MCA (Management Faculty) (Semester - III)

MTC - 31 : Probability & Combinatorics (Theory)

(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) A chess tournament has 10 competitors of which 4 are Russian, 3 are Indian, 2 are from United State and 1 from Brazil. If the tournament result lists just the nationalities of the players in the order in which they placed, how many outcomes are possible? How many if first position is secured by Indians? **[5]**
- b) Among 100 students 32 studying Mathematics, 20 studying physics, 45 studying Biology, 15 studying Mathematics and Bio, 7 studying Mathematics and Physics, 10 studying Physics and Bio, 30 do not study any of 3 subject find the number of students studying all 3 subjects. **[5]**
- c) A factory produces a certain type of outputs by three types of machines. The respective daily production figures are: Machine I- 3000 units, Machine II- 2500 units. Machine III- 4500 units. Past experience shows that 1% of the output produced by machine I is defective and corresponding fraction of defectives for the other two machines are 1.2% and 2% respectively. An item is drawn at random from the day's production run and is found to be defective. What is probability that it comes from the output of machine I. **[5]**

P.T.O.

- d) For the joint probability distribution of two random variables X & Y given below. [5]

X \ Y	-2	0	2
1	k	3k	2k
2	2k	3k	k
3	3k	2k	0
4	k	0	0

Find k, marginal distributions of X and Y and conditional distribution of Y given X=3

- e) A random experiment with probability of getting success 'p' is performed once. If X represents number of successes find probability distribution and distribution function of X. [5]
- f) Find the coefficient of $x^6y^6z^4$ in the expansion of $(x^3-2y^2+5z^2)^7$ [5]

- Q2)** a) Find Mean and Variance of Poisson distribution. [7]
- b) Prove the following by combinatorial argument. [4]

$$\binom{2n}{n} = \binom{n}{0}^2 + \binom{n}{1}^2 + \binom{n}{2}^2 + \dots + \binom{n}{n}^2$$

- c) A.d.r.v X has following probability distribution: [4]

x_i	1	2	3	4	5	6
P_i	C	2C	4C	6C	3C	C

- Find i) C
ii) $P(2 < X < 5)$

- Q3)** a) Mean and variance of Uniform Distribution. [8]
- b) State and prove poisson is a limiting case of binomial random variable. [7]

- Q4)** a) Find the number of non negative integer valued solutions of the following equation with given conditions: [7]

$$x_1 + x_2 + x_3 = 31 \quad x_1 \leq 16, x_2 \leq 15, x_3 \leq 15$$

- b) In a continuous distribution pdf is given by [8]

$$f(x) = kx(2-x) \quad 0 < x < 2$$

- Find i) k ii) $P(x < 1/2)$

Q5) a) If A and B are any two events defined on a sample space Ω , then **[4]**

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

b) Define with illustration: **[4]**

- i) Discrete random variable.
 - ii) Cumulative distribution function.
- c)** In an intelligence test given to 1500 candidates appearing in an examination carrying a maximum of 100 marks, it was found that marks were normally distributed with mean 39.5 and S.D.= 12.5. Determine the number of candidates who secured a first class for which a minimum of 60 marks is necessary. Also determine the number of candidates who failed to get distinction for which a minimum of 75% of marks is necessary. **[7]**



Total No. of Questions : 8]

SEAT No. :

P2507

[Total No. of Pages : 3

[5570]-3002

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

**T1-IT31 : Advanced Data Structure and C++ Programming
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Q.1 and 8 are compulsory.*
- 2) *Attempt any four from Q.2 to Q.7.*

Q1) Answer the following questions and justify your answer :

[20]

- a) Consider the following linked list

$I \rightarrow I \rightarrow T \rightarrow K \rightarrow G \rightarrow P$

What is the O/P of following fun? When it is called with the head of the list.

```
Void fun (struct node * start) {  
    if (start == NULL) return;  
    printf("%c", start → data);  
    if(start → next! = NULL)  
        fun(start → next → next);  
    printf("%c", start → data);  
}
```

- b) Trace the o/p

```
int Add(int a, int b) {return a + b;}  
double Add (double a, double b) {return a + b;}  
void main( ) {  
    int a = 10, b = 20;  
    int c = Add (a, b);  
    double d = Add(a, 30.2);  
    cout << c << " " << d << endl;  
}
```

- | | |
|----------------|-----------------------|
| i) 30,30 | ii) 30,30.2, |
| iii) 30.0,30.2 | iv) compilation error |

P.T.O.

Q6) a) Construct expression tree for [5]

$$(a+b)*(c-d)-(a*b)/(c-d)$$

b) Draw AVL tree for the following.

Marathi, Hindi, English, Arabic, Gujarati, Telugu, Kannada, Tamil,
Gurumukhi, Nepali. [5]

Write in-order traversal of the above tree.

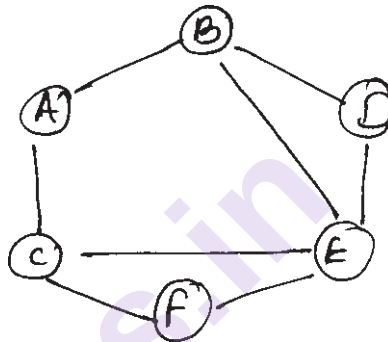
Q7) Consider the following graph (use C as a starting vertex) [10]

a) Adjacency matrix

b) Adjacency list

c) Complete trace of DFS

d) Complete trace of BFS



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

a) Comment on “Friend functions could not inherit”.

b) B and B⁺ trees.

c) Use of(ellipsis) in exception handling.

d) Memory management in C++.



Total No. of Questions : 7]

SEAT No. :

P4158

[Total No. of Pages : 1

[5570]-3003

M.C.A. (Management) (Smester - III)

**TRACK II: INFRASTRUCTURE & SECURITY
MANAGEMENT**

**T2-IT31:IT Infrastructure Architecture
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. 1 & 7 are compulsory.
- 2) Answer any four From Question No. 2 to 6.
- 3) Draw neat diagrams and illustrations supportive to your answer.

- Q1)** a) Explain Disaster Recovery techniques. [7]
b) Explain Space Management methods of Storage. [8]
- Q2)** What is Security Management? Discuss challenges in Access Control System. [10]
- Q3)** Explain Change Management and Release Management in detail. [10]
- Q4)** How do you manage Capacity and Availability in Service Delivery Process?[10]
- Q5)** Explain how Identity Management tools and Intrusion Detection tools are helpful in Security Management. [10]
- Q6)** Describe various challenges and issues in IT Organization and IT Infrastructure Management. [10]
- Q7)** Write short notes on any three. [3×5=15]
a) Incident Management
b) Service Continuity Management
c) Problem Management
d) Storage and Backup Management
e) Database and Application Protection



Total No. of Questions : 7]

SEAT No. :

P4159

[Total No. of Pages : 1

[5570]-3004

M.C.A. (Management Faculty) (Semester - III)
IT31: ENTERPRISE RESOURCE PLANNING
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 is compulsory.*
- 2) *Solve any 5 from remaining.*
- 3) *Draw suitable diagram when needed.*
- 4) *Give suitable examples if required.*
- 5) *Whenever necessary state assumptions.*

- Q1)** MaxNew York PVT. LTD. is a manufacturing company providing services to various big companies in India and Abroad. However currently the company is facing lots of problems due to huge competition in manufacturing sector. You as a ERP consultant suggest how ERP implementation can prove as better tool to improve companies overall functioning. List all modules and sub-modules and discuss any three modules of ERP which will be suitable for MaxNew York PVT. Ltd. company. **[20]**
- Q2)** What is ERP? Explain the advantages of using an ERP and disadvantages of not using ERP in an organization? **[10]**
- Q3)** Explain the Inventory Control system module and how it helps ERP how it helps to an organization. **[10]**
- Q4)** Explain the Sales and Distribution Module in ERP how it help organization to improve sales of a product? **[10]**
- Q5)** Explain the different ERP implementations Methodologies? **[10]**
- Q6)** What are the different Evaluation and selection of ERP package in an organization. **[10]**
- Q7)** Which are the key factors for Measuring the performance of ERP System. **[10]**



Total No. of Questions : 8]

SEAT No. :

P4160

[Total No. of Pages : 1

[5570]-3005

M.C.A. (Computer Management)

T4-IT31: NETWORK ADMINISTRATION-I

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q. 7 is compulsory.
- 2) Attempt any five from remaining.
- 3) Draw neat and labeled diagram wherever required.

Q1) Write a difference between OSI and TCP/IP Layer Network Model? [10

Q2) What is optical system? Explain the component in details. [10]

Q3) Explain the point to point protocol with example. [10]

Q4) Explain the IP addressing and subnetting in details. [10]

Q5) Explain the properties of Hubs, Bridges, and switches? Which one is best to use and why? [10]

Q6) Highlight on LED status of CISCO catalyst switches? [10]

Q7) Explain the Interior and Exterior Routing Protocols with suitable example.[10]

Q8) Short note (any four) [4 × 5 = 20]

- a) Cabling standards for WAN
- b) IP Packet.
- c) Broadcast domain.
- d) CLI access.
- e) Dynamic routing.
- f) Switch.



Total No. of Questions : 8]

SEAT No. :

P4161

[Total No. of Pages : 2

[5570]-3006

MCA (Management Faculty)

DESIGN AND ANALYSIS OF ALGORITHMS

(2015 Pattern) (Semester-III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Define algorithm. Explain time and space complexity with example. [10]

Q2) a) Explain union and find algorithm with example. [5]

b) Graph Coloring. [5]

Q3) Find optimal solution for fractional Knapsack 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]

Q4) Explain Travelling Sales-man Problem and write TSP algorithm using dynamic programming approach. [10]

Q5) Discuss N-queen problem and solve 8-queen with all possible solutions.[10]

Q6) Discuss TSP problem using Branch and Bound. [10]

$$\begin{bmatrix} 0 & 0 & 1 & 3 \\ 4 & 4 & 2 & 1 \\ 3 & 2 & 0 & 5 \\ 1 & 1 & 5 & 0 \end{bmatrix}$$

P.T.O.

Q7) a) Discuss Binary search algorithm. **[5]**

b) Obtain the optimal job sequence for following data of
 $N=6$, $P[] = \{13, 5, 12, 20, 18, 17\}$ $D[] = \{3, 2, 1, 4, 2, 1\}$. **[5]**

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

- a) OBST.
- b) Divide and Conquer Strategy.
- c) P and NP - Problems.



Total No. of Questions : 6]

SEAT No. :

P4162

[Total No. of Pages : 2

[5570]-3007

MCA (Management)

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

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q1 and Q6 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 hardware (physical) and software (logical) components of Host Environment of Data Center. **[10]**

b) What are key areas for monitoring the storage infrastructure, explain.**[10]**

Q2) What is SAN? What are the components of storage area network (SAN)? Explain any four in detail. **[10]**

Q3) What is Network-Attached Storage (NAS)? What factors are affecting NAS Performance? Explain. **[10]**

Q4) List reasons for planned/unplanned outages. What is the impact of downtime on Data Center? Explain. **[10]**

Q5) Explain importance of backup/recovery for ensuring information availability and business continuity. What are different backup technologies for managing data center? **[10]**

P.T.O.

Q6) Write short notes (Any four)

[20]

- a) Layered Architecture of Data Center
- b) Storage Systems Architecture
- c) IP-SAN
- d) Storage Virtualization: Block-Level and File-Level.
- e) RAID
- f) Differentiate between RTO and RPO



Total No. of Questions : 6]

SEAT No. :

P4163

[Total No. of Pages : 2

[5570]-3008

MCA (Management Faculty)

T3 IT-32:DATA COMMUNICATION & COMPUTER NETWORKS

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q1 & Q6 are compulsory.*
- 2) *Attempt any three from remaining.*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*

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

- i) HTTP is stateless protocol.
 - ii) Loopback address is to test LAN.
 - iii) The subnetting is used to expand the network.
 - iv) TCP segments are fixed length.
 - v) FTP uses single connection between the client & server computers.
- b) Detect & correct the error in the received hamming codeword 1011001011 using even parity. [10]

Q2) Draw & explain IP address format for class A , Class B, Class C, Calss D with exampels. [10]

Q3) Explain TCP/IP model. [10]

Q4) What is HTTP? What are different types of HTTP request? Explain five of them. [10]

Q5) Define & explain symmetric key & asymmetric key in cryptography? Explain different types of network threats. [10]

P.T.O.

Q6) Write short notes (Any 4)

[20]

- a) Categories of network
- b) IEEE 802.4
- c) SMTP
- d) IPV6
- e) DNS protocol



Total No. of Questions : 6]

SEAT No. :

P4164

[Total No. of Pages : 1

[5570]-3009

MCA (Computer Management)

T4 IT-32: Windows Server Configurations

(2015 Pattern) (Semester - III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) ***Q1 & Q6 are compulsory.***
- 2) ***Attempt any three from remaining.***

Q1) a) Give installation steps to Install Hyper-V and creating a virtual machine in Windows Server 2012. **[10]**

b) Provide all steps to configure a static IP address on a computer running Windows Server 2012. **[10]**

Q2) How to manage Windows Firewall settings using Group Policy? Explain. **[10]**

Q3) Explain the process to convert Server Core to/from full GUI. **[10]**

Q4) Explain the process to manage Permissions for Shared Folders. **[10]**

Q5) Explain how to create a New User Account in AD DS along with additional considerations. **[10]**

Q6) Write short notes (Any 4) **[20]**

- a) MBR & GPT [Master Boot Record, GUID Partition Table]
- b) Volume Shadow Copy Service [VSS]
- c) WinRM
- d) NIC Teaming
- e) Group Policies



Total No. of Questions : 7]

SEAT No. :

P4165

[Total No. of Pages : 2

[5570]-3010

MCA (Management) (Semester - III)
SOFTWARE & APPLICATION DEVELOPMENT
T1 IT-33: Object Oriented Analysis and Design
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q1 & Q7 are compulsory.*
- 2) *Attempt any four from the remaining.*
- 3) *Mention assumptions made for solving the case studies.*

Q1) The government is going to implement passport Automation system. The passport automation system is used in the effective dispatch of passport to all of the applicants. This system adopts a comprehensive approach to minimize the manual work and save the resources and time. The core of the system is to get the online registration form filled by the applicant whose testimony is verified by the passport automation system with respect to the already existing information in the database. This forms the first and foremost step in the processing of passport application. After the first round of verification done by the system the information is then forwarded to the regional Administrator's office. The application is then processed manually based on the report given by the system and any forfeiting identified can make the applicant liable to penalty as per law. The system also provides its applicant the list of available date for appointment so that document verification is done in the office. The applicant can select the date as per his availability. The system provides the details to the police for its separate verification whose report is then presented to the administrator. The administrator will be provided with an option to display the current status of application to the applicant, which they can view in their online status. After all the necessary criteria have been met, the original information is added to the database and the passport is sent to the applicant.

- a) Draw use case diagram for above. **[10]**
- b) Draw class diagram for above. **[10]**

Q2) Explain OMT in detail. **[10]**

Q3) Draw activity diagram for airport check-in and security screening. **[10]**

P.T.O.

- Q4)** Explain Rational unified Process in detail. **[10]**
- Q5)** a) Draw sequence diagram for bank token system. **[5]**
b) Draw collaboration diagram for Hotel Reservation System. **[5]**
- Q6)** Draw state transition diagram for vacuum cleaner. **[10]**
- Q7)** Write notes on (any 2) **[2×5=10]**
- a) Benefit of patterns.
 - b) Aggregation and Composition.
 - c) Component and Deployment Diagram.



Total No. of Questions : 7]

SEAT No. :

P4166

[Total No. of Pages : 1

[5570]-3011

MCA (Management) (Semester - III)

**T2: IT:33: INTRODUCTION TO INFORMATION SECURITY
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the are candidates:

- 1) Q. 1 and Q.7 compulsory.
- 2) Attempt any four from Q. 2 To Q.6.

Q1) Explain PDCA model in detail. **[10]**

Q2) Define malicious software? Explain types of malicious software. **[10]**

Q3) What is Ethical Hacking? Explain role of cryptography in information security? **[10]**

Q4) Explain Message Authentication & Hash function in detail. **[10]**

Q5) Explain public key encryption in detail. **[10]**

Q6) What is information security? Explain concept of computer security. **[10]**

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

- a) Attacks.
- b) Law of IPR.
- c) Phising.
- d) IA-CMM.
- e) Indian Copyright Act.



Total No. of Questions : 7]

SEAT No. :

P4167

[Total No. of Pages : 2

[5570]-3012

MCA (Management) (Semester - III)

**T3-IT33: DATA WAREHOUSE, MINING, BI TOOLS &
APPLICATIONS
(2015 Pattern)**

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 the various Dimension Modeling Techniques with example. **[10]**

Q2) Explain the components of Expert System and its characteristics. **[10]**

Q3) Write Apriori Algorithm and apply it for the following data-set to find the List of Frequent Item-sets, if the Minimum Support Count is 30%. **[10]**

TID	List of Items
1	a,b,c
2	b,c,d
3	c,d
4	b,d
5	a,c
6	a,c,d

Q4) What is Cluster analysis? Explain K-means algorithm for cluster analysis with example. **[10]**

Q5) What is Web Mining? Explain different areas where Web Mining is used. **[10]**

Q6) What is BI? Explain any two Business Performance Measuring Systems in detail. **[10]**

P.T.O.

Q7) Write short notes on any four

[20]

- a) Regression Analysis
- b) Applications of BI
- c) Text Mining
- d) ETL Process
- e) Outlier Analysis
- f) KDD

○○○

Total No. of Questions : 7]

SEAT No. :

P4168

[Total No. of Pages : 1

[5570]-3013

MCA (Management Faculty) (Semester - III)

COMPUTER MANAGEMENT

**T4-IT33: IT Infrastructure Monitoring (Networking)
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 and Q.7 are compulsory.*
- 2) *Attempt any three from remaining.*
- 3) *Neat diagram must be drawn wherever necessary.*

Q1) a) Explain project plan in detail and write detail schedule of project. [10]
b) What is storage? Write difference between internal and external storage. [10]

Q2) What is Nagios? Explain the Nagios administration tools in details? [10]

Q3) Write Open NMS steps of Innallation? [10]

Q4) Explain the process of monitoring host and process in Nagios. [10]

Q5) Explain any one of Open NMS administrative tool. [10]

Q6) Explain the process of Hierarchical Space Management in storage administration? [10]

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

- a) Cache Memory.
- b) DMA.
- c) Project Estimation.
- d) Project Schedule.
- e) SNMP Macros.
- f) IDE



Total No. of Questions : 7]

SEAT No. :

P4169

[Total No. of Pages : 1

[5570]-3014

MCA (Management Faculty) (Semester - III)

**T1-IT34: ADVANCE INTERNET TECHNOLOGY
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q.1 & Q.7 are compulsory question.
- 2) Solve any four questions from Q2. to Q.6.

- Q1)** a) Write PHP scripts for Retrieving top 10 records from the database, assume suitable data. [7]
b) Explain following JQuery methods with example. [8]
i) Show ()
ii) Fade ()
- Q2)** Write an XML file to record employee details like emp-no employee-name, address, designation & salary. Apply XSLT to this XML file. [10]
- Q3)** Explain PHP cookies with suitable program. [10]
- Q4)** Explain MVC architecture of angular JS. [10]
- Q5)** Write a program using <SVG> to draw triangle shape. [10]
- Q6)** Explain JQuery Getter methods with example. [10]
- Q7)** Write a short note on any three: [3×5=15]
a) AJAX
b) XML DTD
c) Object oriented PHP
d) JQuery Interaction.



Total No. of Questions : 7]

SEAT No. :

P4170

[Total No. of Pages : 2

[5570]-3015
MCA II (Management) (Semester - III)
T2-IT34: OFFICE AUTOMATION TOOLS
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q. 1 is compulsory; solve any FIVE from remaining questions.*
- 2) *Numbers written at right indicates full marks of that question.*

- Q1)** a) Mr. Inamdar has borrowed home loan of Rs. 45 Lakh from ABC bank for period of 180 months. He was offered a fixed interest rate of 9.5%. Prepare a spread sheet for EMI to be paid by Mr. Inamdar. Write and explain all formulas used in. Also write the steps to draw bar chart of EMI showing clearly interest and principal amount. **[15]**
- b) Explain importance of open source software in office automation. **[5]**
- Q2)** a) State and explain steps and tools involved in office automation. **[5]**
- b) Explain features of Writer, Calc and impress. **[5]**
- Q3)** a) Write steps to create a line chart of hourly temperature measurement of any day of Pune city with OpenOffice and illustrate Data range, series and legends with suitable example. **[5]**
- b) Explain use and write syntax of sort, sum and average calc functions with the help of a spread sheet for salary calculation of a small business organization having 20 employees on roll. **[5]**
- Q4)** a) Explain the procedure for adding animation effect and slide transition effect in an Impress presentation. **[5]**
- b) How to publish Writer text as a Blog? **[5]**
- Q5)** a) What do you mean by 'loop until escape' function in impress? How to achieve it? **[5]**
- b) Explain the procedure to add Citations in a document. **[5]**

P.T.O.

- Q6)** a) What do you mean by Macros? Explain its use in Open office. [5]
b) Explain steps to create HTML,XML and Master documents in OpenOffice Impress. [5]
- Q7)** a) What is mail merge? Explain all the steps with suitable example. [5]
b) Write the correct syntax and use for following calc functions. [5]
i) MINVERSE
ii) TRUNC



munotes.in

Total No. of Questions : 7]

SEAT No. :

P4171

[Total No. of Pages : 1

[5570]-3016

MCA (Management) (Semester - III)

TRACK 3 : INFORMATION MANAGEMENT & QUALITY CONTROL

T3-IT34: INFORMATION SECURITY & AUDIT

(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) Figures to the right indicates full marks.
- 4) Draw neat diagram wherever necessary.

Q1) You have been appointed as a lead auditor for auditing an online educational management system. Discuss.

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

Q2) Explain difference between BCP & DRP? [10]

Q3) Explain the development step of ISMS in details. [10]

Q4) What do you understand by mobile database? Explain how are they used and secured? [10]

Q5) Explain the laws of IPR and Indian Copyright Act. [10]

Q6) Explain the Policy design life cycle in details. [10]

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

- a) Auditors roles & responsibility.
- b) Digital signature.
- c) PDCA model.
- d) ISO 27001 ISMS Tools kit.
- e) Outsourcing.



Total No. of Questions : 7]

SEAT No. :

P4172

[Total No. of Pages : 1

[5570]-3017
MCA (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 7 are compulsory.
- 2) Answer any four from question No. 2 to 6.

- Q1)** Explain the user creation in Linux. **[10]**
- Q2)** Explain different directories in Linux. **[10]**
- Q3)** Explain user login process in Linux. **[10]**
- Q4)** How to create and configure local printer on Linux. **[10]**
- Q5)** What is DNS? How to configure it on Linux? **[10]**
- Q6)** Explain mount command with options. **[10]**
- Q7)** Write short notes (any four) **[20]**
- a) DHCP
 - b) Ext3
 - c) SAMBA
 - d) Name server
 - e) System Rescue



[5570]-4001

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

ITC-41: OPTIMIZATION TECHNIQUES

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question 1 is compulsory.
- 2) Attempt any five from remaining.
- 3) Figure on right side indicate full marks.

Q1) a) The data on normal time and cost along with crashed time and cost associated with a project are shown below: [10]

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

The indirect cost is Rs. 400 per day.

- i) Draw the network diagram.
 - ii) Find the project duration and associated cost.
 - iii) Find the optimum project duration and optimum cost of project by crashing the relevant activities.
- b) Solve the given LPP graphically. [10]

Maximize $Z = 50x_1 + 30x_2$

Subject to constraints

$$2x_1 + x_2 \geq 18$$

$$x_1 + x_2 \geq 12$$

$$3x_1 + 2x_2 \leq 34 \text{ \&}$$

$$x_1, x_2 \geq 0$$

P.T.O.

- Q2)** A decorative series lamp set circuit contains 10,000 bulbs; when any bulb fails, it is replaced. The cost of replacing a bulb individually is Rs. 1 only. If all bulbs are replaced at the same time, the cost of per bulb would be reduced to 35 paise. The percentage of surviving (Say $s(t)$) at the end of month 't' are given below: **[10]**

Month (t)	0	1	2	3	4	5	6
S(t)	100	97	90	70	30	15	0

What is optimal replacement plan?

- Q3)** A readymade garments manufacturer has to process 7 items through two stages of production viz. cutting and sewing. The time taken for each of these items at the different stages are given below: **[10]**

Item	1	2	3	4	5	6	7
Cutting	5	7	3	4	6	7	12
Sewing	2	6	7	5	9	5	8

Find :

- Optimum order.
- Total elapsed time.
- Idle time for cutting and sewing.

- Q4)** Solve the following problem for maximizing the production output (profit). **[10]**

Zones

Managers	I	II	III	IV	V	VI
A	73	91	87	82	78	80
B	81	85	69	76	74	85
C	75	72	83	84	78	91
D	93	96	86	91	83	82
E	90	91	79	89	69	76

- Q5)** In a bank cheques are cashed at a single teller counter. Customers arrive at a average rate of 30 per hour. The teller takes on an average a minute and half to cash a cheque. Calculate: **[10]**

- The percentage of time the teller is busy.
- The average time a customer is expected to wait.
- The expected number of customers in bank waiting for teller.
- The probability that there will be exactly 4 customers in bank.
- Length of system.

Q6) The production company requires 9600 kg of raw material for manufacturing a particular item per year. It has been estimated that cost of placing an order is Rs. 480 and the carrying cost is 25% of investment in inventories. The price of raw material is Rs. 40 per kg. **[10]**

Find:

- a) EOQ.
- b) Number of order.
- c) The time between two orders.
- d) Total variable cost.
- e) Total Inventory cost.

Q7) Use two-phase method to solve the LPP. **[10]**

Minimize $Z = x_1 + x_2$.

Subject to constraints.

$$2x_1 + x_2 \geq 4$$

$$x_1 + 7x_2 \geq 7 \text{ \&}$$

$$x_1, x_2 \geq 0$$

Q8) Write short notes on: **[10]**

- a) Characteristics of queuing system with diagram.
- b) Various time estimates and floats in project scheduling.



Total No. of Questions : 8]

SEAT No. :

P4174

[Total No. of Pages : 2

[5570]-4002

MCA (Management Faculty) (Semester - IV)
SOFTWARE AND APPLICATION DEVELOPMENT
T1-IT41: Advance Java
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q. no. 1 and Q. 8 are compulsory.
- 2) Solve any four from remaining.

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

- i) What is Hibernate?
- ii) Explain Java Bean.
- iii) What is RMI Exceptions?
- iv) Explain Callable statement.
- v) Explain InetAddress

B) Explain Types of JDBC drivers. **[5]**

Q2) Write a Java socket program for client - server chatting application. **[10]**

Q3) Write RMI application to invoke "Count" method that counts total number of vowels from string. **[10]**

Q4) Write JDBC application to display department wise list of employees. Accept department name from user. Assume suitable table structure. **[10]**

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

Student Information	
Roll No:	
Name:	
Percentage:	
Validate:	

Validation parameters:

- i) All fields are compulsory.
- ii) Roll No. Should be numeric.
- iii) Name should not contain special characters.
- iv) Percentage should be numeric with two precision.

P.T.O.

Q6) Write JSP program for Hostel admission registration. Assume suitable table structure. **[10]**

Q7) Explain spring MVC architecture. **[10]**

Q8) Write short notes on any 3. **[15]**

- a) Marshalling and unmarshalling.
- b) Servlet Vs JSP.
- c) Datagrams.
- d) Connection pooling.
- e) Aspect oriented programming. (AOP)



Total No. of Questions : 7]

SEAT No. :

P4175

[Total No. of Pages : 1

[5570]-4003

M.C.A. (Management Faculty) (Smester - IV)
T2-IT41: IDENTITY AND ACCESS MANAGEMENT
(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question No. 1 and 7 are compulsory.
- 2) Answer any four questions from remaining questions.

Q1) Explain overview of PKI and Identity Life Cycle Manager 2007. **[10]**

Q2) How to Deploy and Revoke Certificates? **[10]**

Q3) Explain how to Configure Active Directory Lightweight Directory Services Instances. **[10]**

Q4) Explain Overview of Active Directory Federation Services. **[10]**

Q5) How to Install and Configure Active Directory Rights Management Services Server Components. **[10]**

Q6) How to maintain ADLDS and ADFS? **[10]**

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

- a) IDA
- b) Implementing ADFS Claims
- c) Troubleshooting ADLDS
- d) Installing ADCS
- e) Resolving ADFS Issues



Total No. of Questions : 7]

SEAT No. :

P4176

[Total No. of Pages : 1

[5570]-4004

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

T3-IT-41 : E-COMMERCE & KNOWLEDGE MANAGEMENT

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Define knowledge management along with its components and explain knowledge management processes in details. **[10]**

Q2) Explain types of E-Payment along with concept of Secure payment transactions. **[10]**

Q3) Explain roles and responsibilities of knowledge management within organizations. **[10]**

Q4) Explain any two E-commerce models. **[10]**

Q5) Discuss in detail concept of M-Commerce and Mobile Banking. **[10]**

Q6) Explain how to protect E-commerce assets and Intellectual Property. **[10]**

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

- a) Traditional commerce Vs E-commerce
- b) Knowledge Application system
- c) Digital identification and signature
- d) Order fulfillment of E-Commerce
- e) Future challenges of KM



Total No. of Questions : 7]

SEAT No. :

P4205

[Total No. of Pages : 1

[5570]-4005

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

T4 - IT 41 : NETWORK ADMINISTRATION - II

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Discuss OSPF configuration process in detail. **[10]**

Q2) Explain PPP link control protocol in detail. **[10]**

Q3) Explain the concept of virtual LAN with suitable diagram. Also, Explain reasons behind using VLAN. **[10]**

Q4) Compare different IGPs in detail. **[10]**

Q5) Discuss host troubleshooting in brief. **[10]**

Q6) Explain fragmentation and MTU in IP routing. **[10]**

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

- a) VTP Trunking
- b) PPP LCP features
- c) EIGRP Authentication
- d) Distance vector loop prevention
- e) DHCP



Total No. of Questions : 7]

SEAT No. :

P4184

[Total No. of Pages : 1

[5570]-4013

M.C.A. (Management)

T4 - IT 43 : LINUX ADMINISTRATION - II

Track - 4 - Networking

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Write about MYSQL and PostgreSQL Database and their SQL commands.[10]

Q2) Write the steps to install and configure FTP server in Linux [10]

Q3) Explain how email is send and received and few email related protocols.[10]

Q4) Write about obtaining, patching and compiling the kernel in Linux. [10]

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

Q6) Explain how internet connection can be set in Linux. [10]

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

- a) Linux Kernel
- b) Sendmail
- c) Fetchmail
- d) WU – FTPD server
- e) Configuring PPP server
- f) Configuring Sound & Music in Linux



Total No. of Questions : 8]

SEAT No. :

P4185

[Total No. of Pages : 2

[5570]-4014

M.C.A. - II (Management)

SOFTWARE & APPLICATION DEVELOPMENT

T1-IT 44 : Cloud Computing

(2015 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q1 is compulsory.
- 2) Attend any six from the remaining.
- 3) Figures to right indicate full marks.

Q1) What do you mean by Web Services? Discuss SOAP and REST Web services in detail. [10]

Q2) What is the key difference between Virtualization and Cloud computing? Explain any two types of Virtualization with their benefits. [10]

Q3) Define Machine Image and Virtual Machine. Explain any two applications which are used as Storage as a Service. [10]

Q4) What do you mean by Service Models? Differentiate between three Cloud service models. [10]

Q5) What do you mean by utility computing? Explain its advantages and disadvantages. [10]

Q6) Explain Cloud Security Architecture in detail. [10]

P.T.O.

Q7) Define Cloud Streaming. Discuss the working of cloud streaming and its key features. **[10]**

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

- a) Microsoft Azure
- b) Principles of REST
- c) Vulnerability Assessment Tool



Total No. of Questions : 7]

SEAT No. :

P4186

[Total No. of Pages : 1

[5570]-4015

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

T2 - IT-44 : ENTERPRISE AND SOLUTION ARCHITECTURE

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Solve any four questions from Q2 to Q6.*

Q1) a) Explain Hierarchical or layered architecture. **[8]**

b) Briefly explain architect role goals and skills. **[7]**

Q2) Describe architecture process frameworks **[10]**

Q3) Explain business process decomposition and automation **[10]**

Q4) Describe content management **[10]**

Q5) Briefly explain component structure and patterns. **[10]**

Q6) Explain application platform. **[10]**

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

- a) Architecture in operations
- b) Topologies and protocol
- c) Component interfaces.
- d) Design for data security.



Total No. of Questions : 7]

SEAT No. :

P4187

[Total No. of Pages : 1

[5570]-4016

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

**T3 - IT 44 : SOFTWARE QUALITY ASSURANCE & CONTROL
(2015 Pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Q1 & Q8 are compulsory.*
- 2) *Solve any four from remaining.*

Q1) Prepare software inspection checklist for "medical store management system" website. **[15]**

Q2) Discuss how software quality assurance is ensured in a software development system. **[10]**

Q3) Discuss the need for SQA standardization. Explain the various levels of CMM. **[10]**

Q4) Define Reliability. Briefly discuss the different types of reliability models. **[10]**

Q5) In quality infrastructure component, preventative and corrective actions play important role. Justify your answer. **[10]**

Q6) Discuss in detail software configuration management. **[10]**

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

- a) Product Quality Metrics
- b) Software Maintenance
- c) Clean room S/W development
- d) Six Sigma



Total No. of Questions : 7]

SEAT No. :

P4188

[Total No. of Pages : 2

[5570]-4017

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

T4 - IT 44 : WIRELESS NETWORKS

(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) What are MAC frame types? Explain purpose and operation of control fields in MAC frame. ***[10]***

b) Discuss tight coupling architecture between the IEEE 802.11 WLAN and GPRS. ***[10]***

Q2) Explain radio and network components in CDMA-2000. ***[10]***

Q3) Explain characteristics of a MANET. Differentiate Table-driven and Source-initiated On Demand routing protocols. ***[10]***

Q4) What is the multichannel multipoint distribution system (MMDS)? Compare it with LMDS. ***[10]***

Q5) What are features of 4G network. Explain 4G technologies. ***[10]***

Q6) Explain with diagram the UMTS core network architecture and operation. ***[10]***

P.T.O.

Q7) Write Short Notes(Any Fours)

[20]

- a) Mobile IP approach-to Connect WLANs and 3G Networks
- b) TD-SCDMA
- c) Characteristics of WLAN
- d) Session Mobility
- e) Classification of WSN.
- f) Wireless ATM



Total No. of Questions : 8]

SEAT No. :

P4189

[Total No. of Pages : 2

[5570]-5001

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

SOFTWARE PROJECT MANAGEMENT

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Questions - 1 & Question 8 is compulsory.
- 2) All questions carry equal marks. [10 Marks]
- 3) Use of non-programmable calculator is allowed.
- 4) Solve any 5 questions from remaining.

Q1) Draw a network diagram from the given information.

[10]

- a) Find start time, End time, total float and critical path.
- b) If activity o crashed by 2 weeks, draw network diagram and find out critical path and shortest path.

[10]

Activity	Predessors	Duration (week)
J	-	4
K	-	5
L	J	6
M	K	4
N	M,L	5
O	K	8
P	K	2
Q	N,O	5
R	P	4

P.T.O.

Q2) What is use of COCOMO in SPM? You as a Project Manager are required to give efforts Estimation for the project of size 240kloc for all classes of project. In addition project also requires: **[10]**

- a) Storage constraint is High (1.06)
- b) Programmer capability is low (1.17)
- c) Database size is low (0.94)
- d) Remaining all driver are treated as Nominal

Q3) The manufacturing organisation wants to develop software application to manage inventories in order to schedule jobs. Right from receipts of material upto the MIS report generation. You as a project manager:

- a) Identify various risks and propose the suitable solutions to mitigate those risks.
- b) Do you agree that role of Risk manager is important in SPLC. Justify. **[10]**

Q4) Explain software project management process in detail. **[10]**

Q5) Is there difference between change management and configuration management? Justify. **[10]**

Q6) Explain software quality assurance (SQA) activities in detail. **[10]**

Q7) Success of software project development is depends on effective team management. Justify this statement and explain importance of team communication.

Q8) Short note (any 2) **[10]**

- a) Function point analysis (FPA)
- b) MS-Project
- c) CMM
- d) SPLC



Total No. of Questions : 7]

SEAT No. :

P4190

[Total No. of Pages : 1

[5570]-5002

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

IT - 51 ASP.NET USING C#

(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 remaining.***

Q1) Write a ASP.NET program to create a student admission form and perform all the validation. (Note : Use minimum ten parameters) ***[15]***

Q2) Explain ASP.NET architecture. ***[10]***

Q3) Explain the following controls with small example. ***[10]***

- a) Dropdown List control b) Bulletedlist control
- c) Calendar control d) Textbox control
- e) Check box control

Q4) Explain the concept of error page and error login with the help of suitable example. ***[10]***

Q5) Explain any five ajax control with example. ***[10]***

Q6) Explain ADO.NET components in details. ***[10]***

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

- a) Master page
- b) Name spaces
- c) Event Driven Programming
- d) ASP.NET architecture



Total No. of Questions : 7]

SEAT No. :

P4191

[Total No. of Pages : 1

[5570]-5003

M.C.A. (Semester - V)

T2 - IT 51 : 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) Discuss TMMI in detail. [15]

Q2) Explain in detail Elements of Continuous Quality Verification. [10]

Q3) Explain in detail Coupling CMMI with Six Sigma. [10]

Q4) Explain in detail quality standard TQM. [10]

Q5) Write a detailed note on Patents. [10]

Q6) Explain in detail quality standard Six Sigma. [10]

Q7) Switzerland Railways has implemented successfully Passenger Reservation System since 1976. The system adhere to better quality and there are minimum failures. A team of engineers 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. :

P4192

[Total No. of Pages : 2

[5570]-5004

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

T3 - IT51 : SOFTWARE TESTING & TOOLS

(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 e-commerce application, Pragati Online Publication. The functionality of the application is as follows- Registered customer can login; and search book(s) either by author or by entering the title of the book. After viewing the list of books, if desired the customer selects the books and places in the cart. If searched book(s) is not available, customer can add the searched book in wishlist. The system has provision to remove the books from the cart before final bill is generated. Once the bill is generated customer has to pay using debit or credit card. **[12]**
- b) Design suitable test cases (positive & negative) for testing the above application. **[8]**

Q2) Define testing & debugging. With a neat diagram, explain bug life cycle. **[10]**

Q3) Define Structural testing. Explain coverage techniques used in structural testing with suitable examples. **[10]**

Q4) What do you mean by review? Explain different types of reviews. **[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) Test Metrics
- c) Define Test Scenario, Test Case, Test Suite with example
- d) Differentiate between Retesting & Regression Testing
- e) CAST



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Total No. of Questions : 6]

SEAT No. :

P4193

[Total No. of Pages : 2

[5570]-5005

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

T4 - IT 51 : NETWORK ROUTING ALGORITHMS

(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 Real Time Network Routing method works in Telephone Networks, explain with example? What are its advantages? [10]

b) What are pros and cons of Multicast and Multiple Unicast Routing? Explain Core based Tree Routing method with example. [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) What are key characteristics of RIP? Explain RIP timers that support its operation. Explain RIP instability problem. [10]

Q4) What are drawbacks of Mobile IP? How macro/micro-mobility architecture overcomes this problems, explain. [10]

Q5) What is proactive routing? Explain Ad hoc On-demand Distance Vector routing (AODV) 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



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Total No. of Questions : 8]

SEAT No. :

P4194

[Total No. of Pages : 1

[5570]-5006

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

T1 - IT 52 : SERVICE ORIENTED ARCHITECTURE

(2015 Pattern)

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 questions carries 10 marks.*

Q1) Define SOA and explain common pitfalls of adopting SOA.

Q2) Explain web service framework with suitable diagram.

Q3) Differentiate orchestration and choreography with suitable example.

Q4) Explain three primary service layers.

Q5) Explain SOA delivery lifecycle along with Agile strategy.

Q6) Explain service oriented analysis with suitable diagram.

Q7) Explain service oriented design and explain task-centric business service.

Q8) Write a short note on (any two)

- a) Atomic transactions
- b) Service modeling guidelines
- c) SOA standards



Total No. of Questions : 7]

SEAT No. :

P5559

[Total No. of Pages : 2

[5570] - 5007

M.C.A. (Semester - V)

COMPUTER MANAGEMENT

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

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) What do you mean by Infrastructure Audit? Give the overview of Infrastructure Audit. **[10]**

Q2) Discuss Risk assessment w.r.t. Infrastructure Audit in detail. **[10]**

Q3) Highlight following terms w.r.t. Infrastructure Audit. **[10]**

- a) Long Term IT Strategy.
- b) Short range IT Plans.

Q4) Give the importance of “Live-network change review” in the requirement identification and analysis of Infrastructure Audit. **[10]**

Q5) “Vendor Selection Criteria” is one of the crucial factor in infrastructure auditing. Elaborate. **[10]**

P.T.O.

Q6) Explain the role and importance of Visa's Cardholder Information Security Program in Infrastructure Auditing. **[10]**

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

- a) Change management process.
- b) Audit Guidelines.
- c) Issues of site licenses.
- d) ISO 17799
- e) Acquisition and implementation of packaged software.



Total No. of Questions : 7]

SEAT No. :

P4195

[Total No. of Pages : 2

[5570]-5008

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

T3 - BM 52 : ENTREPRENEURSHIP DEVELOPMENT

(2015 Pattern)

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 quote examples wherever necessary.*

Q1) Case Study

[10]

The incidence of non availability of Marathi food items in a long air travel motivated Ms. Jayanti Kathale to start her own innovative food chain in the form of "Purnbhrasma". She in her one of the long distance air travel was striving for her regional food items and was very upset on the fact that if South Indian food can be made available universally then why can't Maharashtrian food be made available in air travelling? She even realized that many of Marathi food lovers must be facing the same problem.

- a. As an aspiring entrepreneur, identify an opportunity for a startup in the existing ticket booking system. Prepare a detailed project report for your business plan.
- b. List the major entrepreneurial competencies in Ms. Jayanti Kathale
- c. What factors, in your opinion, helped Ms. Jayanti Kathale make her brand successful?

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

[10]

Q3) What is Entrepreneurial mobility? Support your answer with motivation theories.

[10]

P.T.O.

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]

Q6) Explain the role of DIC to promote Entrepreneurship development. [10]

Q7) Write short notes on the following (Any 4) [4 × 5 = 20]

- a) Venture Capital and Angel Capital
- b) Social Entrepreneurship.
- c) Franchising
- d) Sole Proprietorship
- e) Make in India



Total No. of Questions : 7]

SEAT No. :

P4196

[Total No. of Pages : 1

[5570]-5009

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

T4 - IT 52 : COMPUTER AND NETWORK SECURITY

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain the benefits of good security practices. **[10]**

Q2) Explain the Onion and Lollipop defense models. **[10]**

Q3) What are the roles and responsibilities of a security organization? **[10]**

Q4) Explain the principles of Application Security. **[10]**

Q5) Explain how Kerberos authentication system works in embedded application security. **[10]**

Q6) Explain Network Hardening in detail. **[10]**

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

- a) Access Control List
- b) Risk Analysis
- c) Security Life Cycle Management
- d) Database Security
- e) HIPPA privacy and security rules
- f) Switches and Routers



Total No. of Questions : 7]

SEAT No. :

P4197

[Total No. of Pages : 1

[5570]-5010

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

T1 - IT 53 : BIG DATA ANALYTICS

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain evolution of Big data and implication of big data analytics for Insurance [10]

Q2) Explain big data analytics methodology The Loan Repayment Delinquency Problem [10]

Q3) What is data base workload? Explain its characteristics [10]

Q4) Differentiate between BDW and EDW design principles. [10]

Q5) Explain framework of Hadoop with all components description in detail.[10]

Q6) Explain NOSQL Databases. Provide comparative analysis between Cassandra and HBase [10]

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

- a) Map reduce
- b) Design for Big Data Scale
- c) Sentiment Analysis
- d) HDFS
- e) In-Memory Database Grids



Total No. of Questions : 8]

SEAT No. :

P4198

[Total No. of Pages : 1

[5570]-5011

M.C.A. (Semester - V)

T2 - IT 53 : 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) Discuss in detail Definitive Software Library (DSL), Definitive Hardware Store (DHS) and Software License Management. [10]

Q2) Discuss Configuration Management Plan in detail. [10]

Q3) Explain Vital Business Functions (VBF) in detail. [10]

Q4) Explain different Problem solving techniques. [10]

Q5) Discuss culture of IBM from the perspectives of IT Service Management. [10]

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

- a) Investment appraisal.
- b) Risk analysis and management.

Q7) Discuss in detail charging policy & pricing methods for IT Services. [10]

Q8) Explain in detail RFID wireless network along with business continuity with IT services on storage management. [10]



Total No. of Questions : 8]

SEAT No. :

P4199

[Total No. of Pages : 1

[5570]-5012

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

T3 - IT 53 : DECISION SUPPORT SYSTEM

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q1 & Q8 are compulsory.*
- 2) Attempt any five from remaining.*
- 3) Figures to the right indicate full marks.*

Q1) Define DSS. Explain characteristics and capabilities of DSS in detail. **[10]**

Q2) DSS development platform - Explain. **[10]**

Q3) Explain knowledge based expert system in detail. **[10]**

Q4) Explain models of ES & DSS integration. **[10]**

Q5) Explain DSS technology tools & levels. **[10]**

Q6) What is intelligent DSS & intelligent modeling? **[10]**

Q7) What is Enterprise DSS? Explain evolution of executive & enterprise information system. **[10]**

Q8) Write short notes on - **[10]**

- a) Data Warehouse
- b) Business Intelligence



Total No. of Questions : 7]

SEAT No. :

P4200

[Total No. of Pages : 1

[5570]-5013

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

T4 - IT 53 : CLOUD ARCHITECTURE AND SECURITY

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Q. 1 and Q. 7 are compulsory..
- 2) Attrmpt any four from remaining.
- 3) Neat diagram must be drawn whenever necessary.
- 4) Figures to the right side indicate full marks.

Q1) Enlist and explain virtualization system-specific attacks in brief [15]

Q2) What are the benefits and challenges of cloud computing? Explain. [10]

Q3) Legal and compliance issues in cloud security. [10]

Q4) Enlist and explain cryptographic systems in cloud security. [10]

Q5) Explain Log Management and Data Loss Prevention w.r.t. virtualization based security. [10]

Q6) What is vulnerability? Highlight upon hypervisor vulnerabilities and hypervisor escape vulnerabilities. [10]

Q7) Write short notes (an three) [3 × 5 = 15]

- a) Hybrid Cloud
- b) VM migration attack
- c) Digital signatures
- d) Guest Hoping



Total No. of Questions : 7]

SEAT No. :

P4201

[Total No. of Pages : 1

[5570]-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) Explain the architecture of android in detail. [10]
b) Write an application in android to calculate the percentage of marks in Main Activity and display it in Second Activity. [10]
- Q2)** What is Layout? Explain one layout in detail with the help of example. [10]
- Q3)** Explain different ways to store data in android application. [10]
- Q4)** Explain CRUD operations on Item table with the help of example. [10]
- Q5)** What is Dialog Box? Explain alert dialog with the help of example. [10]
- Q6)** Write an application in android to turn on and turn off wifi with the help of example. [10]
- Q7)** Write short notes (any two) [10]
a) View and viewgroup
b) Intent
c) Telephony Manager



Total No. of Questions : 9]

SEAT No. :

P4202

[Total No. of Pages : 1

[5570]-5015

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

INFRASTRUCTURE AND SECURITY MANAGEMENT

T2 - IT - 54 : Digital and E-business Infrastructure and Security

Mechanism

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Explain an importance of E-commerce security to the Business Enterprise. **[10]**

Q2) Explain secure credential services and role-based authorization. **[10]**

Q3) Explain web server security in detail. **[10]**

Q4) Explain the processes to design network infrastructure security. **[10]**

Q5) Explain server security technologies and user security technologies. **[10]**

Q6) Explain secure electronic transactions for Digital payments. **[10]**

Q7) Explain intellectual property protection in detail. **[10]**

Q8) Explain common steps for designing network infrastructure security. **[10]**

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

- a) Digital signature
- b) Mobile code security
- c) Bio metrics
- d) Cryptography



Total No. of Questions : 7]

SEAT No. :

P4203

[Total No. of Pages : 1

[5570]-5016

M.C.A. (Management Faculty)

T3 - IT 54 : BUSINESS ARCHITECTURE

(2015 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Question 7 is compulsory.
- 2) Answer any 5 questions from (Q1 to Q6)
- 3) Neat diagram should be drawn wherever necessary.

Q1) Explain method of architecture development model (ADM) in detail with example. [10]

Q2) a) What is Business process decomposition? [5]
b) Differentiate between loosely coupled and tightly coupled. [5]

Q3) What is virtualization? Explain the concept of server consolidation. [10]

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

Q5) Explain point-to-point, hub and spoke application integration in detail. [10]

Q6) Explain Integrated Information Infrastructure Reference Model(III-RM). [10]

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

- a) ETL
- b) Master Data Management
- c) Firewall
- d) Content Management
- e) Model-Driven Architecture (MDA)



Total No. of Questions : 7]

SEAT No. :

P4204

[Total No. of Pages : 1

[5570]-5017

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

T4 - IT 54 : UNIFIED COMMUNICATION

(2015 Pattern)

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) Briefly describe continuous monitoring and management of VOIP and UC.[10]

Q2) Explain in detail SIP trunking. [10]

Q3) How priority for Voice, Video and fax packets is decided? Explain. [10]

Q4) What are the benefits of unified communication to a business? Also discuss various applications of unified communication. [10]

Q5) Explain phone features added with VOIP/UC. [10]

Q6) Explain SCTP protocol in detail. [10]

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

- a) Latency Budget
- b) ISDN
- c) ENUM
- d) SDP
- e) Sub packet multiplexing

