[5075] - 1001

M.C.A. (Management Faculty)
IT - 11 : FUNDAMENTAL OF COMPUTER
(2015 Pattern) (Semester - I)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

1)   *Q. 1 and Q. 7 are compulsory.*

2)   *Solve any four from remaining.*

3)   *Draw neat and labeled diagram wherever necessary.*

Q1) a)   Define digital computer? Explain block diagram of digital computer?**[8]**

     b)   Explain CPU registers indetails.   **[7]**

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

     a) $(A68)_{16} = (?)_8$

     b) $(12365)_{10} = (?)_2$

     c) $(731)_8 = (?)_2$

     d) $(11010101011)_2 = (?)_{10}$

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

Q3) Explain decoder and encoder indetails.   **[10]**

Q4) Explain FF indetail? Explain any one FF indetail?   **[10]**

Q5) Explain memory hierarchy indetail? [10]

Q6) What is interrupt? Explain concept with the help of types? [10]

Q7) Short note (Any three) [3 × 5 = 15]

a) Basic logic gate

b) System software

c) Shift Register

d) Primary memory

e) RISC Vs CISC

❋ ❋ ❋

[5075] - 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) *Que.1 is compulsory.*
2) *Solve any five from remaining.*

Q1) a) Write a program in C to accept a file and count the no. of words no. of lines & no. of spaces in that file and display it. **[10]**

b) Write a program in C to implement bubble sort for integer array element. **[10]**

Q2) Write a program in C, to accept two strings and concatenate them without using string functions. **[10]**

Q3) Write a functions in 'C' to perform the transpose of sparse matrix. **[10]**

Q4) Create a structure with Item-code, Item-name, quantity and price/unit. Generate Invoice & Display It. **[10]**

Q5) Convert the following Infix expression to prefix expression in a tabular format a % (c - d) + b * e + (p/q) **[10]**

Q6) Write a program in c using stack recursion for display the reversal of string.**[10]**

Q7) Write a short notes on (Any two) [10]

   a)   Formatted I/O

   b)   Priority queue

   c)   Features & characteristics of 'C'

   d)   Advantages & Disadvantages of pointer.

❀ ❀ ❀

[5075] - 1003

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

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

1) *Q.1 and Q. 7 are compulsory.*

2) *Attempt any three from Q.2 to Q.6.*

3) *Figures to right indicate marks.*

4) *Write assumptions whenever necessary*

Q1) Maharaja Institute is going to implement the library management system in the library. Following activities are taken into consideration.

a) Issue of Books.

b) Returning of Books.

c) Purchase and maintenance of the books.

d) Availability of Books.

e) Fine Management.

    You are required to study the system and.

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

    ii)   Software Requirement specification (SRS)   **[10]**

Q2) Draw the decision table and decision tree for the ABC sports club organizes the silver zubli function and wants to give the awards for their various achievements as follows:

- district level ranker will get an award of Rs.1500

- state level sport player will get an award of Rs.2000

- National level player will get an award of Rs.2500

- Best out going player will get an award of Rs.1000   **[10]**

Q3) Explain importance of good GUI design. **[10]**

Q4) Explain reverse engineering and its importance. **[10]**

Q5) Explain types of CASE tools. **[10]**

Q6) Explain requirement analysis and fact finding methods. **[10]**

Q7) Write short notes. **[20]**
   a) Types of maintenance
   b) Prototype model
   c) Objectives of output
   d) Web Engineering

❀ ❀ ❀

[5075] - 1004
MCA (Management Faculty)
IT - 14 - DATABASE MANAGEMENT SYSTEM
(2015 Pattern) (Semester - I)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.1 is compulsory.*

    2)   *Solve any five from the remaining.*

    3)   *Mention assumptions wherever necessary.*

Q1) Kohinoor hotel is in process of computerization of room , hall and venue booking and invoicing payment tracking sysetm. This helps to minimise the ability to rent out empty rooms, hall and venue and prevents duplicate reservation. They have to indicate the period for which they need number of rooms, halls and venue.The reservation can be cancelled or the dates or number of rooms, hall can be changed. For reservation , cancellation or modification of rooms, hall and venue customer receives an acknowledgment from hotel. For the above case, draw the E - R diagram and normalized (3 NF) file layout.

                                                                   [20]

Q2) Explain concurrency control technique.   **[10]**

Q3) Explain various recovery techniques.   **[10]**

Q4) Explain mandatory and role based access control.   **[10]**

Q5) Explain 3- tier architecture of DBMS.   **[10]**

Q6) Consider below schema and solve following queries. (any 5 queries)　　**[10]**

Patient (PID, P Name, P contact, P Birth Date)

Admission (adId, a Date, PID, P Diseases, dId)

Doctor (dId, d Name, d Contact, d type)

a) Display list of all patients admited from 1ˢᵗ Jan 2016 to 31ˢᵗ Jan 2016.

b) Display details of all doctors who have given treatment to patients suffering from "Swin flue"

c) Display number of patients admitted during year 2016 for various diseases.

d) Display details of all patients treated by visiting doctors.

e) Display list of all patients having age below 30

f) Display all patients treated by 'Dr. Suhas Kulkarni'.

Q7) Write short notes (Any 2)　　**[10]**

a) Serializibility

b) No SQL database

c) Encryption

❁ ❁ ❁

[5075] - 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) *Question No. 1 is compulsory.*

2) *Attempt any three questions from the remaining.*

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

4) *Draw diagrams whenever necessary.*

5) *Handwriting must be neat and clean.*

Q1) a) Explain the roles & responsibilities of functional managers, specialized managers & general managers with examples. **[15]**

b) Explain the difference between the HR approach and behavioural science approaches to management with examples. **[10]**

Q2) Explain Herbert Simon's model of the principle of rationality / bounded rationality with examples. **[15]**

Q3) Explain the organizational structure for a multiproduct & multilocational industrial organization in India. **[15]**

Q4) Explain individual behaviour, group behaviour and organizational behaviour and it's co-relation with examples. **[15]**

Q5) Explain leadership and followership with examples. **[15]**

Q6) Write short notes (any three)   **[15]**

    a)   Life positions

    b)   Stages of group formation.

    c)   Different types of teams

    d)   Inter group conflict Vs Intra group conflict

    e)   Maslow's need hierarchy theory of motivation.

❈ ❈ ❈

[5075] - 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)   Questions 1 is compulsory.

2)   Solve any 5 from remaining.

3)   Figures to the right indicate full marks.

4)   Draw neat diagrams whenever necessary

Q1) a)   Explain bankers algorithm with suitable example.   **[10]**

   b)   Explain free space management method in detail.   **[10]**

Q2) What is deadlock? Explain deadlock avoidance.   **[10]**

Q3) Explain RAID structure in detail.   **[10]**

Q4) How many page faults occur for optimal page replacement algorithm for following string with 4 page frames & 3 page frames, also find page faults.

   1, 2, 3, 4, 5, 3, 4 ,1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2.   **[10]**

Q5) Explain different mechanisms used by operating system for interprocess communication.   **[10]**

Q6) Five jobs arrived in a computer system at the same time 0 as below.   **[10]**

Process	Burst Time (milliseconds)	Priority
P_1	10	3
P_2	6	5
P_3	2	2
P_4	4	1(high)
P_5	8	4

Determine average turnaround time and average waiting time for FCFS & non-preemptive priority scheduling algorithm.

Q7) Write short note (any 2)   **[10]**

    a)   Context switching

    b)   RTOS

    c)   Directory structure

    d)   Monitor

❈ ❈ ❈

[5075] - 2002
M.C.A. (Management Faculty)
IT - 22 : WEB TECHNOLOGIES
(2015 Pattern) (Semester - II)

Time :3 Hours]   *[Max. Marks :70*

Instruction 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 patient admission form for Hospital having fields like patient ID, patient Name, Address , city contact No, Date of Birth and admission Date, validate any five fields with java script.   **[15]**

     b)   What is image mapping? Explain client side image mapping with example.   **[5]**

Q2) Write an external CSS for including following styles Apply styles on any HTML page.   **[10]**

     a)   Paragraph with Background image.

     b)   Align H_1 text in center of web page.

     c) H_2 with right indent 10Px.

     d)   Table with blue border at TOP & Bottom.

Q3) Explain Global. asa with suitable examples.   **[10]**

Q4) Explain event handling in Javascript with example.   **[10]**

Q5) a) Explain tag with attributes <form> & <morquee> **[5]**

b) Date object in Javascript. **[5]**

Q6) Write ASP program to fill on - line form for university exam with suitable fields and insert into database. **[10]**

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

a) Ordered List & unordered list

b) CSS3

c) String object in Javascript

d) How to Install IIS server

❈ ❈ ❈

[5075] - 2003
MCA (Management)
IT - 23 : CORE JAVA
(2015 Pattern) (Semester - II)

Time :3 Hours] *[Max. Marks :70*

Instructions to the candidates:-

  1) *Q.1 and Q.8 are compulsory.*

  2) *Solve any 5 from remaining.*

  3) *All questions carry equal marks.*

Q1) Answer the following. **[5 × 2 = 10]**

   a) Garbage collection

   b) MVC Design pattern

   c) Deamon Thread

   d) Method overriding

   e) 'Super' keyword

Q2) Display text on label " Core Java Programming" in larger size, with bold and "Times New Roman" font, take three buttons with captions RED, GREEN & BLUE. on the click event of each button respective colour should change for the background of label. Use swings. **[10]**

Q3) Design an applet to move coloured ball from left to right and right to left contineously using thread. **[10]**

Q4) Write a Java program to copy the content of two files into one file, read the file names from the users. **[10]**

Q5) Write a program to read a number from user, if the number is not prime through NOT_ PRIME _ Exception otherwise display "Number is prime". **[10]**

Q6) Create two user defined packages containing separate classes MCA & MCM. another class should import both packages & display details from MCA & MCM class. **[10]**

Q7) Write a program to demonstrate the Linked List class. **[10]**

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

    a)   Applet life cycle

    b)   Checked and Unchecked Exception

    c)   Serialization and Deserialization.

❁ ❁ ❁

[5075] - 2004

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

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

     1)   *Q.1 and Q.6 are compulsory.*

     2)   *Solve any three from remaining.*

     3)   *Figures at right indicate marks.*

     4)   *Draw neat diagrams wherever necessary.*

Q1) a)   Explain IP Routing Concepts. State role of IP tables in Routing.   **[10]**

     b)   Explain Synchronous and Asynchronous transmission.   **[10]**

Q2) Compare connection oriented networks Vs connectionless networks with example.   **[10]**

Q3) Compare layers of OSI model with TCP / IP model.   **[10]**

Q4) Explain ATM and ATM traffic management.   **[10]**

Q5) Explain file transfer protocol with FTP operation.   **[10]**

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

     a)   Static and dynamic web page

     b)   IP addresses

     c)   CSMA/CD

     d)   Switch

     e)   MIME

     f)   Wireless LAN

❀ ❀ ❀

[5075] - 2005
M.C.A. (Management Faculty)
MI - 21 : DISCRETE MATHEMATICS
(2015 Pattern) (Semester - II)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Question No. 1 is compulsory.*

    2)   *Attempt any two questions from Q No. 2 , 3 & 4.*

    3)   *Figures to the right side indicate full marks.*

    4)   *Use of scientific calculator is allowed.*

Q1) a)   Obtain the PDNF of $(\sim p \wedge q) \vee (p \wedge q) \vee q$ **[5]**
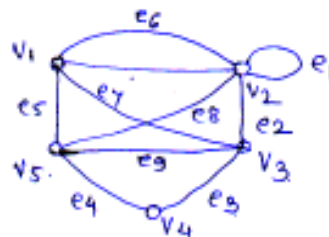
    b)   Write the statements into symbolic form.   **[5]**

       P: This book is good.

       Q: This book is costly.

       i)   This book is not good but costly.

       ii)   This book is good but costly.

       iii) This book is cheap but good.

       iv) This book is neither good nor costly.

       v)   If this book is good then it is costly.

    c)   Write adjacency and incidence matrix of the graph G.   **[5]**

    d)   Prove that total degree of a graph G is twice the number of edges in G.**[5]**

    e)   Define : Bijective and Injective with example.   **[5]**

    f)   Determine whether the binary operation * is commutative and associative

       on set R. Where $X*Y = \dfrac{xy}{3}$ **[5]**

Q2) a) Define semigroup and monoid with example. **[5]**

b) Determine whether the following proposition is either tautology or contradiction. **[5]**

$$[(P \lor Q) \land (P \lor R)] \to (Q \lor R)$$

c) A relation $R = \{(1,1),(1,2),(1,3),(1,4),(2,1),(2,2),$

$$(2,3),(3,1),(3,2),(3,3),(4,4),(4,1)\}$$

Define on a set $A = \{1,2,3,4\}$ is R. an equivalence relation on A. **[5]**

d) Draw the graphs **[5]**

i) $K_{2,2}$, $K_{3,2}$

ii) $K_{3,3}$, K_5

Q3) a) Show that the following sets of premises are inconsistent. [Without using truthtable] $P \to Q, P \to R, Q \to \sim R, P$. **[5]**

b) Let $A = \{1,2,3\}$ and $R = \{(1,1),(1,2),(2,3),(3,1),(3,2)\}$ find the transitive closure **[5]**

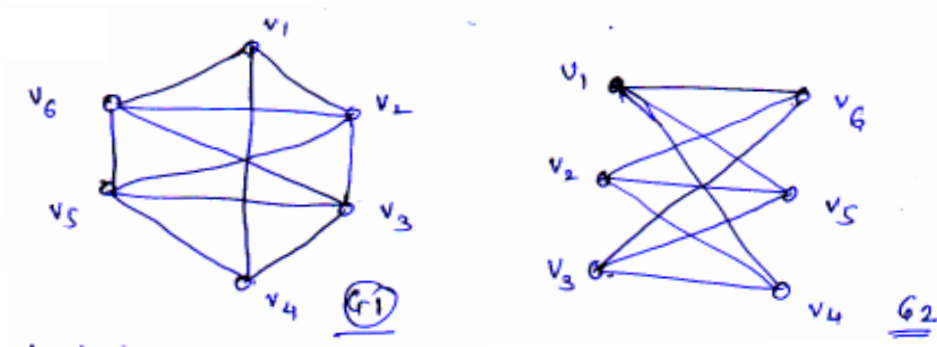R* using Warshall's algorithm also draw the digraph of R*.

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

d) Show that $(x)(P(x) \to Q(x)) \land (x)(Q(x) \to R(x)) \Rightarrow (x)(P(x) \to R(x))$. **[5]**

Q4) a) Find the code words generated by H, **[8]**

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

Also find weight of each nonzero code words.

b) Define Isomorphism of graph. Also determine whether the following graph are isomorphic or not. **[6]**

G1

G2

c) Let A be a given finite set and P (A) its power set. Let $\subseteq$ be the inclusion relation on the elements of P (A). Draw Hasse diagrams of $(P(A), \subseteq)$ for

(i)   A = {P,Q}

(ii)   A = {P,Q,R}

(iii) A = {P,Q,R,S}   [6]

❀ ❀ ❀

[5075] - 3001
MCA (Management Faculty)
PROBABILITY & COMBINATORICS
(2015 Pattern) (Semester - III)

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 different letter arrangement can be formed using the letters of the word 'MALYALAM'? How many if two L's are together?   **[5]**

  b)   State and porve principle of Inclusion and Exclusion for n sets.   **[5]**

  c)   In a bolt factory machines A,B and C manufacture 25%, 35% and 40% bolts of the total respectively. Of their output 4, 4 and 2 % respectively are defective. A bolt is drawn at random and is found defective.What is the probability that it was manufactured by machine B?   **[5]**

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

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

Find marginal distributions of X and Y and conditional distribution of X given $Y = 1$

e) Number of accidents on a highway during a month follows a poisson distribution with mean 5. Find probability that in a certain month number of accidents on the highway : **[5]**

   a) less than 3

   b) between 3 and 5

f) Find the coefficient of $x^4 y^9 z^3$ in the expansion of $(4x^2 + 3y^3 - 2z)^8$ **[5]**

Q2) a) Find mean and variance of Bernoulli distribution. **[7]**

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

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

c) A d.r.v. x has following probability distribution. **[4]**

x_j	0	1	2	3	4	5	6
p_i	K	3k	5k	7k	4k	3k	2k

Find a) k b) Distribution function of X.

Q3) a) Mean and variance of Laplace Distribution. $x_1 + x_2 + x_3 = 34$ $\dfrac{x}{15}$ $x_1 > 4, x_2 \geq 3, x_3 \leq 15$ $x = 1,2,3,4,5$ $P(X = x)$ otherwise **[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]

b) Let X be a discrete random variable with p.m.f.

Find E (X), Var (X) and S.D. (X). **[8]**

Q5) a) Given that A and B are independent events. Prove that A' and B' are independent. **[4]**

 b) Define with illustration: **[4]**
    i) Discrete random variable.
    ii) Probability density function.

 c) A workshop produced 2000 units of an item per day. The average weight of units is 130 kg with a standard deviation of 10 kg. Assuming normal distribution how many units are expected to: **[7]**
    i) Weigh less than 142kg
    ii) Weigh between 130 kg and 150 kg.

❁ ❁ ❁

[5075] - 3002
M.C.A. (Management Faculty)
T1 - IT 31 : ADVANCED DATA STRUCTURE & C++ PROGRAMMING
(2015 Pattern) (Semester - III) (Track - I)

Time :3 Hours]

[Max. Marks :70

Instructions to the candidates:-

1) *Q.1 and Q.9 is compulsory.*

2) *Answer any five questions from remaining questions.*

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

Q1) a) Trace the output

[5]

```
a)
#include<iostream.h>
#include<conio.h
class Base
{
public:
 Base()
 {
   fun();
 }
 virtual void fun()
 {
  cout<<"\nBase Function";
 }
};

class Derived: public Base
{
public:
 Derived(){}
 void fun()
 {
  cout<<"\nDerived Function";
 }
};

int main()
{
 Base* pBase;
Base b;
Derived D;
pBase = & D
 pBase->fun();
getch();
 return 0;
}
```

```
b)
#include<iostream.h>
#include<conio.h>
class A
{
 int id;
 static int count;
 public:
  A()
  {
    count++;
    id = count;
    cout << "constructor called " << id << endl;
  }
  ~A()
  {
    cout << "destructor called " <<id << endl;
  }
};

int A::count = 0;

int main()
{
  A a[2];
getch();
  return 0;
}
```
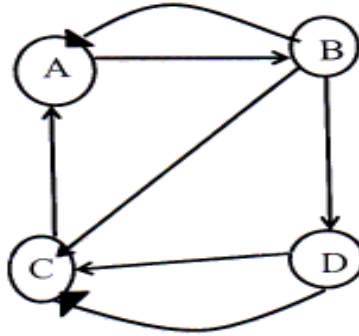
b) Write a C++ code for linked list implementation of stack with PUSH, POP & Display Function. **[5]**

Q2) a) What is virtual function. Explain with example. **[5]**

b) Write a C++ program to overload binary operator. **[5]**

Q3) a) What is Inheritance? Write a C++ program for multiple inheritance. **[5]**

b) What is constructor? Explain with Example. **[5]**

Q4) Write a program in C++ to merge contents of two files in third file and display its contents in reverse order. **[10]**

Q5 a) Draw a Binary search tree for the following data **[5]**

70, 80, 50, 90, 10, 20, 65, 100

Write Inorder preorder and postorder traversals for the above tree.

b) Write a C++ code for circular queue with insert, delete & display function **[5]**

Q6) a) Draw AVL tree for following **[5]**

50, 40, 35, 58, 48, 42, 60, 30, 33, 25

b) Write a program to reverse a string using stack. **[5]**

Q7) Write a programme using function create(),insert(),delete(),display() for doubly Linear Linked List. **[10]**

Q8) a) Consider Following Graph [5]

       i)   Generate the output of BFS.

      ii)   Generate the output of DFS.

     iii) Write adjacency matrix.

    iv) Write adjacency list.

  b) What is static member & static function? Explain with example. [5]

Q9) Write short note on: (Any Two) [10]

  a) Binary Tree

  b) Virtual Base class

  c) DEqueue

  d) Exception handling.

❀ ❀ ❀

[5075]-3003

M.C.A. (Semester - III)

TRACK II : INFRASTRUCTURE & SECURITY MANAGEMENT

T2-IT31 : IT Infrastruture 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) "Is an organization maintain physical, software and user access security, isn't Information security address by default." Justify it.   **[15]**

Q2) Explain Change Management and Configuration Management with difference.   **[10]**

Q3) Explain design issues of IT Organizations & IT Infrastructure.   **[10]**

Q4) Elaborate Disaster Recovery methods in IT Infrastructure Architecture.   **[10]**

Q5) Explain Capacity management with factors affecting on network performance.   **[10]**

Q6) What is disaster recovery explain with cloud disaster recovery.   **[10]**

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

    a) Data Retention

    b) IT Service Management

    c) Incident Management

    d) Access Control System

    e) Financial Management

❀ ❀ ❀

[5075]-3004

M.C.A. (Management Faculty) (Semester - III)
IT - 31 : ENTERPRISE RESOURCE PLANNING
(2015 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:
    1)   Q. 1 is compulsory. Solve any 5 from remaining.
    2)   Draw suitable diagram when needed.
    3)   Give suitable examples if required.
    4)   Whenever necessary state assumptions.

Q1) XYZ 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 XYZ PVT. Ltd. Company.   **[20]**

Q2) What is ERP and explain the Success & failure factors of an ERP system.**[10]**

Q3) Explain the lnventory Control System module and how it helps ERP how it helps to an organization .   **[10]**

Q4) Explain the ERP Implementation Life Cycle in an organization.   **[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]**

❀ ❀ ❀

[5075]-3005

M.C.A. (Management) (Semester - III)
T4 - IT- 31 : NETWORK ADMINISTRATION - I
(2015 Pattern) (Track - IV)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:
  1) Question No. 1 & 7 are compulsory.
  2) Solve any four from remaining.
  3) Figure to the right indicate marks.

Q1) Explain TCP/IP Network Access Layer functions.   **[10]**

Q2) Explain Optical system components for networking.   **[10]**

Q3) Explain setup for building Wireless Access Network in a Lab.   **[10]**

Q4) Explain IP Addressing with address classes.   **[10]**

Q5) Explain LAN switching concept and switching logic.   **[10]**

Q6) Explain various ways to access CLI of switch.   **[10]**

Q7) a) Explain RIP - 2 basic concepts and RIP - 2 advertising route. **[10]**

b) Write short notes on any two. **[2 × 5 = 10]**

    i) Data Encapsulation Terminology

    ii) WAN cabeling standards

    iii) CLI Help features.

❈ ❈ ❈

[5075] - 3006

MCA (Management Faculty)
(T1 - IT32) DESIGN AND ANALYSIS OF ALGORITHMS
(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Question No.1 and Question No.7 are compulsory.*

    2)   *Solve any four questions from remaining questions.*

    3)   *Use of non-programmable calculator is allowed.*

    4)   *Figures to the right indicate full marks.*

Q1) a)   What is an algorithm? State the characteristics of good algorithm with example. **[8]**

    b)   Discuss merge sort algorithm with example. **[7]**
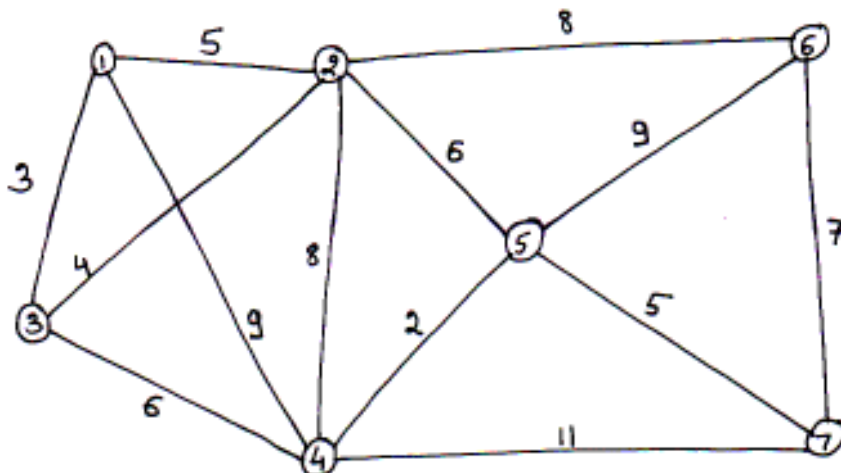
Q2) a)   Sort the following data by using heap sort 8,73,17,23,68,60,5,101, **[5]**

    b)   Obtain the optimal Job Sequence for the following data of jobs.

        N = 9, $(P_1, P_2, P_3, P_4, P_5, P_6, P_7, P_8, P_9)$ = (15,20,30,18,18,10,23,16,25)

        $(D_1, D_2, D_3, D_4, D_5, D_6, D_7, D_8, D_9)$ = (7,2,5,3,4,5,2,7,3) **[5]**

Q3) Explain Kruskal's Algorithm and find MST for the following graph. **[10]**

Q4) Discuss N-Queen problem and find out possible solution set for 4-Queen problem. **[10]**

Q5 Explain the concept of Dynamic Programming and find the optimal solution for following 0/1 Knapsack Problem using Dynamic Programming approach. Knapsack Capacity = 11, P [5] = {1,9,19,25,33,}, W[5] = {1,3,6,7,8} **[10]**

Q6) Discuss travelling salesman algorithm using branch and bound technique.**[10]**

Q7) Write short note on any three of the following. **[15]**
   a)   Heap sort
   b)   OBST
   c)   Hamiltonian Cycle
   d)   NP Hard and NP - Complete

❀ ❀ ❀

[5075] - 3007

MCA (Management Faculty)
DATA CENTRE ARCHITECTURE & STORAGE MANAGEMENT
(2015 Pattern)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.1and Q.7 is compulsory.*

    2)   *Solve any four questions from remaining questions.*

Q1) a)   What is Storage Virtualization? Explain the types of Storage Virtualization.
                                                    [10]

    b)   What are the three Storage security domains? Explain in brief   **[10]**

Q2) Discuss SAN and NAS along with FC-SAN and IP-SAN.   **[10]**

Q3) a)   Differentiate between Business Continuity (BC) and Disaster Recovery (DR)   **[5]**

    b)   Differentiate between RTO and RPO.   **[5]**

Q4) Explain in brief RAID and its levels.   **[10]**

Q5) Describe the Backup/Recovery topologies.   **[10]**

Q6) Explain Data Center Architecture with diagram   **[10]**

Q7) Write short notes on any two: **[10]**
    a) Data Center Monitoring
    b) Storage Virtualization Challenges
    c) Impact of downtime in Data Center
    d) Reasons for planned/unplanned outages

❀ ❀ ❀

[5075] - 3008

MCA (Management Faculty)

T3-IT32: DATA COMMUNICATION AND COMPUTER NETWORKS

(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.1and Q.6 are compulsory.*

    2)   *Attempt any three from remaining.*

    3)   *Neat diagram must be drawn whenerer necessary.*

    4)   *Figures to the right side indicate full maks.*

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

    i)   Error detection and correction is controlled by physical layer of network.

    ii)   HTTP uses TCP connection to transfer files.

    iii)   Firewall operates in one of two filtering modes. Deny all or pass all.

    iv)   RIP is dynamic distance vector method based on hop count.

    v)   If parity setting is even then the sum of all the characters bit plus the parit bit should be equal to an even number.

    b)   Find the transmitted frame if a series of 8 - bit message blocks 11100110 is to be transmitted across a data link layer using CRC for error detection. The generator polynomial 11001 is to be used.   **[10]**

Q2) What is the purpose of HTTP? How does web browser work for request & response in HTTP?   **[10]**

Q3) a)   Find the maximum number of hosts available on class - B address with a subnet mask of 255.255.255.192.   **[5]**

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

Q4) a) Why DHCP? What are the options for DHCP? Explain address discovery
process. **[5]**

b) Explain MIME. **[5]**

Q5) Explain the defferent types of switching techniques. **[10]**

Q6) Write short notes (Any four) **[20]**
a) Cloud computing
b) Categories of Network
c) Limitations of IPV6
d) VPN
e) Type of attacks

�֍ �֍ ✖

[5075] - 3009

M.C.A. (Computer Management)

T4 - IT 32 : WINDOWS SERVER CONFIGURATIONS

(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

　　1)　　*Q.1and Q.6 are compulsory.*

　　2)　　*Attempt any three from remaining.*

Q1) a)　Explain the concepts GPT & MBR in Windows Server 2012 also provide necessary steps to configure GPT to MBR.　　　　　　**[20]**

　　b)　Explain the process to install & configure print and document services.

Q2) What are the Integration Services? Explain all integration services in Windows Server 2012.　　　　　　**[10]**

Q3) Explain process to configure a DNS Server to Use Forwarders.　　**[10]**

Q4) Explain the process to create a new organizational unit using the Windows interface along with additional considerations.　　　　　　**[10]**

Q5) Explain how to create and Edit a Group Policy Object in windows server 2012.　　　　　　**[10]**

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

　　a)　Storage spaces

　　b)　ISATAP

　　c)　NTFS

　　d)　DNS Server role

　　e)　VHD

❈❈❈

[5075] - 3010

MCA (Management Faculty) (Semester - III)
T1 - IT 33 : OBJECT ORIENTED ANALYSIS & DESIGN
(2015 Pattern)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.1and Q.7 are compulsory.*

    2)   *Solve any four from the remaining.*

    3)   *Mention assumption made for solving the case studies.*

Q1) 'Adeeshri' company is developing clinic management system for a clinic, having the following details. Patient gets the information about the clinic from the website. The receptionist search the patient details when the patient calls for an appointment of a doctor .When the patient registers for the first time, he gets an unique Id. number. The receptionist checks for the availability of the doctor at the time of appointment request, if the doctor is available, the receptionist fills the appointment - time sheet and informs the patient by SMS. If required, the patient can cancel the appointment. The patient visits the doctor. After the treatment bill and receipt is given then by the clinic or the above scenario, draw.

    i)   Usecase diagram   **[10]**

    ii)   Class diagram   **[10]**

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

Q3) Draw sequence and collaboration diagram for taking online appointment of a doctor of a clinic.   **[10]**

Q4) What is object persistance? Explain Mapping of object orientation to a relational database structure.   **[10]**

Q5) Draw activity diagram for online movie ticket booking system for a multiplex theatre (The payment is done by credit / dibit card) **[10]**

Q6) Draw state transition diagram for microwave oven. **[10]**

Q7) Write short notes on (Any two) **[2 × 5 = 10]**
   a) OMT methodologies
   b) Testing strategies
   c) Pattern
   d) Inheritance

❈ ❈ ❈

[5075] - 3011
M.C.A. (Management Faculty)
T2 - IT 33 : INTRODUCTION TO INFORMATION SECURITY
(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.1and Q.7 are compulsory.*

    2)   *From remaining solve any faur.*

Q1) The health management service system maintains the information of multiple customer & accordingly provide them the services. The medical information of the customer need to be kept confidential. Discuss the security issues & access rights. **[10]**

Q2) Explain the framework for security policy. **[10]**

Q3) Define the term Information security. Describe the ISMS. **[10]**

Q4) What are trojans? Explain their categories. **[10]**

Q5) What is Hash function? Explain it in detail. **[10]**

Q6) State the access control principles. What is role based access control. **[10]**

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

    a)   Key management.

    b)   Legislative & contractual solutions.

    c)   ITIL

    d)   Trusted & untrusted networks.

    e)   Security at mobile databases.

    f)   Counter measures for virus.

❀ ❀ ❀

[5075] - 3012
M.C.A. (Management)
T3 - IT 33 : DATA WAREHOUSE, MINING, BI TOOLS & APPLICATIONS
(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Question No. 7 is compulsory.*

    2)   *Solve any five questions from 1 to 6.*

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

    4)   *Simple Calculators are allowed.*

Q1) Explain the Architecture of Data Warehouse with diagram.   **[10]**

Q2) Compare the Conventional System and Expert System.   **[10]**

Q3) Apply FP-Growth Tree Algorithm to construct FP-Tree and find the frequent item set for the following dataset given below. (Given Minimum Support Count =20%)   **[10]**

TID	List of Items
T101	I1, I2, I3
T102	I2, I3,I4
T103	I3, I4
T104	I2, I4
T105	I1, I3
T106	I2, I3,I4

Q4) Write K-means Algorithm. Apply the same to group the visitors to a website into two groups using just their age (a one-dimensional space) as follows: 15, 16, 19, 20, 21, 28, 35, 40, 42, 44, 60, and 65 (Consider initial Centroid 16 and 28 of the two groups.)   **[10]**

Q5) What is Web Mining? Explain the following briefly: **[10]**
    a)   Web Usage Mining
    b)   Web Content Mining
    c)   Web Structure Mining

Q6) What is PDSA cycle? Explain DMAIC process improvement model in detail.
[10]

Q7) Write Short Notes on (Any Four) **[20]**
    a)   Association Rule
    b)   Dashboard
    c)   Applications of Data Mining
    d)   Data preprocessing
    e)   KPI
    f)   OLAP Data Cube

❇ ❇ ❇

[5075] - 3013

M.C.A. (Computer Management)
T4-IT33: IT INFRASTRUCTURE MONITORING
(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

   1)   Q.1and No. 8 are compulsory.

   2)   Attempt any FIVE from remaining.

Q1) Give prerequisites & detail installation steps of NAGIOS Log Server **[10]**

Q2) Explain the concepts I/O devices, DMA & polling. **[10]**

Q3) Explain features and advantages of using Nagios server **[10]**

Q4) What is NMS? Enlist different NMS tools. Explain OPENNMS in Brief. **[10]**

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

Q6) Explain Disaster recovery management in detail. **[10]**

Q7) Explain the role & responsibilities of project manager. **[10]**

Q8) Write Short Notes: (Any two)   **[2 × 5 =10]**
   a)   Buses
   b)   NRPE
   c)   RAID
   d)   Project plan

❈ ❈ ❈

[5075] - 3014

MCA (Management Faculty)
T1-IT34: ADVANCE INTERNET TECHNOLOGY
(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q. 1 and Q. 7 are compulsory.*

    2)   *Solve any four questions from Q.2 to Q.6.*

Q1) a)   Write a php script to insert record into database.Assume suitable data.**[7]**

    b)   Explain following jquery methods with example.   **[8]**

         i)   Hide ()

         ii)   Slide ()

Q2)   Write an XML file to record student details like roll-no, name, address. Apply XSLT to this XML file.   **[10]**

Q3)   Explain PHP session with suitable program.   **[10]**

Q4)   Explain MVC architecture of angular JS   **[10]**

Q5)   Explain <audio> & <Video> tag of HTML 5 with example.   **[10]**

Q6)   Explain jquery setler methods with example.   **[10]**

Q7)   Write short note on : (Any 3)   **[3 × 5 = 15]**

    a)   AJAX

    b)   XML DTD

    c)   PHP Error Handling

    d)   Jquery chaining

❀ ❀ ❀

[5075] - 3015

M.C.A. (Management)
T2 - IT 34 : OFFICE AUTOMATION TOOLS
(2015 Pattern) (Semester - III)

Time :3 Hours]   *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.7 is compulsory, solve any FIVE from remaining questions.*

    2)   *Numbers written at right indicates full marks of that question.*

Q1) a)   State and explain steps and tools involved in office automation.   **[5]**

     b)   Explain features of Writer, Calc and Impress.   **[5]**

Q2) 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)   DCOUNTA

         ii)   IMPOWER

Q3) a)   Write steps to create an organizational chart of an higher educational institution 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 10 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]**

Q6) a) What do you mean by Macros? Explain its use in OpenOffice. **[5]**

b) Explain steps to create HTML,XML and Master documents in OpenOffice Impress. **[5]**

Q7) a) Mr. Raj has borrowed home loan of Rs. 40 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. Raj. 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]**

❀ ❀ ❀

[5075] - 3016
MCA (Management Faculty)
T3 - IT 34 : INFORMATION SECURITY AND AUDIT
(2015 Pattern) (Semester - III)

Time :3 Hours] *[Max. Marks :70*

Instructions to the candidates:-

    1)   *Q.1and Q.8 are compulsory.*

    2)   *Attempt any 4 out of remaining.*

    3)   *Draw neat and labelled diagram wherever necessary.*

    4)   *Figures to right indicate marks.*

Q1) A city - based NGO which works for orphans and senior citizens to provide funding and related support has filed a complaint suggesting theft of critical and sensitive data. The NGO rcceives donations from abroad as well as from within the country. Details of donors such as their names, bank details are stored in a database, Donations are received through an on-line applications developed by NGO. As a member of cyber forensic expert team you are expected to identify evidence collection process, physical and logical controls. to prevent such incidences in future . Also suggest the reporting procedure to be followed for the top management of the N.G.O. **[15]**

Q2) Explain in details, how ISMS can help in preventing and handling information security related incidences. **[10]**

Q3) What is BCP and DRP? Explain the need for both in IT enabled organizations. **[10]**

Q4) Elaborate with suitable examples, any 5 threats to information security. **[10]**

Q5) What is an IT policy? Explain its importance with reference to policy for internet access. **[10]**

Q6) Explain IT Audit standards in details. **[10]**

Q7) Mention any 3 risks to information security. Explain risk Assessment process for handling such risks. **[10]**

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

    a)   PDCA

    b)   IT crimes

    c)   Ethical hacking

    d)   IT governance

    e)   Managerial controls

❈ ❈ ❈