[5421]-101

M.C.A (Commerce Faculty) (Semester - I)

101 : Fundamental of Information Technology

(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) *All questions are compulsory.*

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

Q1) Define and explain in brief any seven of following : **[7 × 2 = 14]**

a) Analog Transmission.

b) AND logic Gate

c) System software

d) Joystick

e) Explain following Dos commands.

   i) Copy con

   ii) Ren

f) Machine language.

g) Hexadecimal Number System.

h) Elements of communication system.

Q2) Attempt any three : **[3 × 4 = 12]**

a) Write an algorithm to display multiplication table of a given number. Also draw flowchart.

b) Explain physical structure of co-axial cable with its application.

c) Differentiate between compiler and interpreter

d) Convert the following :

   i) $(1101011)_2$ to Decimal

   ii) $(2AC)_{16}$ to Decimal

P.T.O.

Q3) Write short note on (any three) :   [3 × 4 = 12]

   a)   System Bus

   b)   Decision Table

   c)   Plotters

   d)   Scheduling

Q4) Attempt any three :   [3 × 4 = 12]

   a)   Explain the working of Batch processing system.

   b)   What is operating system. Explain functions of operating system.

   c)   List inter networking tools. Explain any one in detail.

   d)   List input devices. Explain any one.

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[5421]-102

M.C.A (Commerce) (Semester - I)
102 : PROGRAMMING IN 'C'
(2013 Pattern) (Credit System)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

   1)   *All questions are compulsory.*

   2)   *Assume suitable data, if necessary.*

Q1) Attempt any seven from following :   **[7 × 2 = 14]**

   i)   What is keywords?

   ii)   Write syntax of scanf statement.

   iii)   What is conditional operator?

   iv)   List all storage classes.

   v)   What is string?

   vi)   Define Structure.

   vii)   What is preprocessor?

   viii)   Write any two character I/O functions of files.

Q2) Attempt any three from following :   **[3 × 4 = 12]**

   i)   Write a short note on Bitwise operator.

   ii)   Explain while loop with suitable example.

   iii)   What is recursion? Explain with suitable example.

   iv)   Trace the output of the following:

```
main()
{
    static int a[5];
    int i;
    for(i=0;i<=4;i++)
    printf("%d\n", a[i]);
}
```

Q3) Attempt any three from following :   [3 × 4 = 12]

i)   Write a program to calculate x^y using recursion.

ii) Write a program to accept the string and find out its length.

iii) Write a 'C' program for accepting two numbers as command line argument and find sum and difference of these numbers.

iv) Trace the output.

```
#include<stdio.h>                                    .
main()
{
    char s[]="welcome";
    int i;
    for(i=0;s[i];i++)
    printf("\n %c ", s[i]);
}
```

Q4) Attempt any three from following :   [3 × 4 = 12]

i)   What is an Array? How to represent 2-D array in memory?

ii) What do you mean by nested structures? How do we access a member of inner structure declaration? Explain with example.

iii) Write syntax and explain use of following functions:
   a) getc()
   b) fgetc()
   c) getw()
   d) fscanf()

iv) Trace the output of the following:

```
#include<stdio.h>
main()
{
    int n=10;
    while(n>0)
    {
        if(n%2==0)
        {
        printf("%d is even",n);
        }
        n--;
    }
}
```

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[5421]-103

M.C.A (Commerce Faculty) (Semester - I)
ELEMENTS OF STATISTICS
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:
  1)   All Questions are compulsory.
  2)   Figures to the right indicate full marks.
  3)   Use of calculator and statistical table is allowed.
  4)   Symbols and abbreviations have their usual meanings.

Q1) Attempt any two of the following :   **[14]**

  a)   i)   Calculate the Karl Pearsons correlation coefficient for the following
             data:

X	23	27	28	29	30	31	33	35	36	39
Y	18	22	23	24	25	26	28	29	30	32

       ii)   State the properties of regression coefficients.

  b)   Calculate mean and median for the following frequency distribution:

Marks	0-20	20-40	40-60	60-80	80-100
No.of students	8	12	20	10	6

  c)   Calculate the Quartile Deviation and its Coefficient for the following data:

Income (In Rs)	Less than 50	50-70	70-90	90-110	110-130	130-150	Above 150
No. of Persons	8	26	30	45	20	17	4

Q2) Attempt any two of the following :   **[12]**

  a)   Explain the following terms:

       i)   Test of Significance

       ii)   Level of Significance

       iii) Critical Region

                                                                        P.T.O.

b) If the correlation coefficient X and Y is 0.5, find the correlation between
    i)   X and -Y
    ii)   2X and 3Y
    iii) X-10 and Y+15
    iv) X/2 and Y/5
    v)   (X-10)/3 and (10-Y)/5
    vi) 3Xand-Y/5

c) Let X be a discrete random variable with probability mass function (p.m.f)

$$P(X=x) = \frac{1}{n+1} \qquad , X = 0,1,2,...n$$
$$= 0 \qquad\qquad , \text{otherwise}$$

Calculate mean and variance of X.

Q3) Attempt any three of the following :   **[12]**

a) What do you mean by "Binomial Distribution"? What are its features?

b) A car hire firm has two cars which it hires out day by day. The number of demands for a car on each day is distributed as a Poisson variate with mean 1.5. Calculate the proportion of days on which
    i)   Neither car is used
    ii)   Some demand is refused

c) Explain the procedure of small sample test.

d) The following 2X2 contingency table:

	Smoker	Non-Smoker
Literate	83	57
Illiterate	45	68

Test whether there is any relation between literacy and the smoking at 5 % level of significance.

e) The mean values of birth weight with standard deviations and sample sizes are given below by socio-economic status. Is the mean difference in birth weight significant between socio-economic groups?

	High- Economic group	Low-Socio Economic group
Sample Size	n1=15	n1=10
Birth Weight(kg)	$\bar{x} = 2.91$	$\bar{y} = 2.26$
Standard Deviation	S1=0.27	S2=0.22

(Given $t_{23,0.05} = 1.71$)

Q4) Attempt any three of the following : [12]

 a) Explain the test procedure of Chi-square test to test independence of attributes.

 b) A random sample of size 400 members has a mean 99. Can it be reasonably regarded as a sample from a large population with mean 100 and standard deviation 8 at 5% level of significance?

 c) Let X→N (3, 2²) Find P(X< 2) and P(2<X< 5).

 d) Calculate coefficient of variation for the following observations:

 5, 16, 12, 10,22,13,8

 e) What are the applications of normal distribution?

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[5421]-105

M.C.A (Commerce) (Semester - I)

105 : PRINCIPLES OF MANAGEMENT

(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:
1) *Question 6 is compulsory.*
2) *Attempt any 3 from questions 1 to 5.*
3) *Figures to the right indicate full marks.*

Q1) a) Define the term Management. Explain in brief the nature of Management.**[7]**

   b) Explain in detail about managerial skills needed in carrying out the business operation. **[7]**

Q2) a) Explain in brief McKinsey's Framework in evaluation of management thought. **[7]**

   b) Explain in brief Decision Theory Approach in management thought. **[7]**

Q3) a) Define Forecasting. Explain in brief the need of forecasting. **[7]**

   b) What do you mean by decision making? Discuss in brief the techniques of decision making. **[7]**

Q4) a) What is controlling? Explain process of Controlling. **[7]**

   b) What is Motivation? Explain Herzberg's Two Factor Theory of Motivation. **[7]**

Q5) Write a note on :

   a) "TOWS Matrix is a variant of classical business tool of SWOT Analysis, used in management of present business in strategic way." Comment on the statement. **[7]**

   b) Explain the role of strategic management in today's competitive IT business world. **[7]**

Q6) Short Notes (Any Two) :   [8]

    a)   F W Taylor's Contribution

    b)   Decentralization

    c)   Need of Hierarchy Theory

    d)   Stress

    e)   Event Management

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[5421]-106

M.C.A (Commerce) (Semester - I)
BUSINESS COMMUNICATION
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*
Instructions to the candidates:
  1)   *All questions are compulsory.*
  2)   *Figures to the right indicate full marks.*

Q1) What is communication? State the importance of communication.   **[14]**
                              OR
   State the difference between verbal and non-verbal communication.

Q2) What is listening skills? Explain the importance of listening skills. **[14]**
                              OR
   What is video conferencing? Describe the advantages and disadvantages of video conferencing.

Q3) a)   What is an interview skills? Explain the types of interview.   **[7]**
                              OR
      Draft a reply letter to Rameh Dying, Pune on behalf of Swastik Rubber Works, New Delhi about the price and time of delivery of Raincoats, Overcoats and Gumboots.
   b)   Write a job application letter to Telco Company Limited, Pune in response to an advertisement for the post of an accountant.   **[7]**
                              OR
      List out the reasons of complaint letters.

Q4) Write short notes. (Any two)   **[8]**
   a)   Semantic barriers to communication.
   b)   Layout of business letter.
   c)   Parts of speech.
   d)   Social media.

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[5421]-201

M.C.A. (Commerce) (Semester - II)

201 : DATA STRUCTURE USING C

(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) Attempt all questions.

2) Draw neat diagram wherever necessary.

3) Figures to the right indicate full marks.

Q1) a) Answer any three of the following : **[12]**

   i) Explain in detail push and pop operation on the stack with example.

   ii) Explain various types of binary tree with example.

   iii) Write an algorithm for insection sort.

   iv) Write 'C' function to delete node from singly linked list.

   b) Answer any one of the following : **[2]**

   i) Adjacency matrix.

   ii) Complete binary tree

Q2) Answer any three of the following : **[12]**

   a) Write short note on priority queue.

   b) Explain the concept of hashing and hash table.

   c) Explain different terminologies used in tree.

   d) Explain the concept of sparse matrix.

Q3) Answer any three of the following : **[12]**

   a) Explain graph traversal method with one example of each.

   b) Write an algorithm for DFS.

   c) What is binary tree. Draw binary search tree for following data
      7, 2, 0, 9, 5, 8, 6, 1

   d) Explain the concept of Abstract data type with example.

P.T.O.

Q4) Answer any three of the following :   **[12]**

a)   Explain the terms big O, omega and theta.

b)   Convert the following expression to prefix and postfix form. Show the stack contents at each step.

Expression $((A / (B - C + D)) \times (F - A) \times C)$

c)   Write a recursive function in C for binary search.

d)   What do you mean by complexity? Explain time complexity and space complexity with example.

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[5421] - 202
MCA (Commerce) (Semester - II)
202 : OOP's USING C++
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   *All questions are compulsory.*

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

Q1) Attempt any two: **[2 × 7 = 14]**

    a)   Write a C++ program to accept records of 'n' players and store it in an array. Consider class player with player_id, player_name, total_score as data members.
Write member functions for
    i)   Accepting data of 'n' players
    ii)   Display records
    iii)   Search player record with total_score >1000.

    b)   Write a C++ program to calculate simple interest, amount. Using constructor and destructor. Use default value for rate.

    c)   Write a C++ program to swap the content of one file into another.

Q2) Attempt any three: **[3 × 4 = 12]**

    a)   What is the output of this program?

```
# include <iostream>
using namespace std;
int main ( )
{
    randomize ( );
        int Arr  [ ] = {9,6}, n;
        int chance = random (2) +10;
    For (int i = 0; i < 2 ; i++)
    {
        n = random (2);
        cout << Arr [n] + chance << "#";
    }
}
```

b) Trace the output for
```cpp
# include <iostream>
using namespace std;
class A
{    A ( )
        {    func ( ) ;}
        ~ A( )
        {    func ( ) ;}
        void func ( )
        {
            cout <<3;
            cout <<endl;
        }
        void fun ( )
        {    func ( );}
};
class B: public A
{
        void func ( )
        {
            cout <<2;
            cout << endl;
        }
};
int main ( )
{
        B b;
        b. fun( );
        return 0;
}
```

c) Trace the output for
```cpp
# include <iostream>
using namespace std;
int fun (int x, int y)
{
        return x+y;
}
double fun (int x, int y)
{
        return x * y;
```

```
        }
        int main ( )
        {

                cout << fun (5,10);
                return 0;
        }
```
d) Trace the ouput for

```
# include <iostream>
using namespace std;
int main ( )
{
        char * str = "SHAKTI";
        int * p, value [ ]  = {10,15,70,19};
        p = value;
        cout << * p << str << endl;
        str + +;
        p ++;
        cout <<* p << string << endl;
}
```

Q3) Attempt any three: **[3 × 4 = 12]**
   a) Explain difference between function overloading and operator overloading with example.
   b) Explain need of scope resolution operator.
   c) Explain static class members with suitable example.
   d) Differentiate between virtual base class and abstract base class.

Q4) Write short notes on (Any three)   **[3 × 4 = 12]**
   a) Access specifier
   b) String manipulation
   c) Template class
   d) Name spaces

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[5421] - 203

MCA (Commerce) (Semester - II)
203: ELEMENTS OF MATHEMATICS
(2013 Pattern) (Credit System)
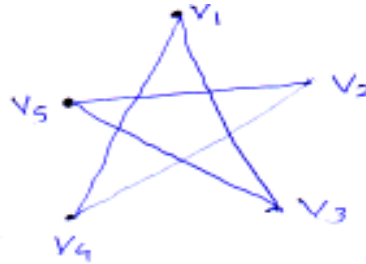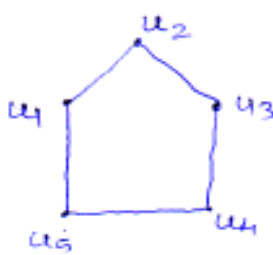
Time :3 hours]   *[Max. Marks : 50*

Instructions to the candidates:
1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*

Q1) Attempt any two from the following.   **[2 × 7 = 14]**

a) What is equivalence relation? Explain its various properties with suitable example.

b) Verify that the following graphs are isomorphic or not.

c) In a class of 60 students, 35 students like to play cricket and 30 students like to play football. 10 students does not like any game. Find students like both game and how many like only cricket?

Q2) Attempt any three from the following   **[3 × 4 = 12]**

a) Draw complete graph for K_3, K_5.

b) If U = { x/x is a natural number less than 15} is a universal set.

A = {1, 3, 4, 5, 9}   B = {3, 5, 7, 9, 12}

verify that, $(A \cup B)' = A' \cap B'$

c) Define and explain the transpose of a matrix with suitable example.

d) Define and explain
   i) Void relation
   ii) Domain

Q3) Attempt any three from the following. **[3 × 4 = 12]**

   a)   Find the value of x

$$\text{If} \begin{vmatrix} 3+x & 4+x & 5+x \\ 1 & -1 & 2 \\ 1 & 4 & 2 \end{vmatrix} = 0$$

   b)   Explain the step-wise Warshall's algorithm to find the transitive closure.

   c)   State which of the following are singleton or empty set

      i)   B = $\{y/y$ is an even prime number greater than2$\}$

      ii)   C = $\{x/x - 5 = 0\}$.

   d)   Explain the term.

      i)   Rooted tree

      ii)   Siblings.

Q4) Attempt any three from the following. **[3 × 4 = 12]**

   a)   Explain Hamilton graph with Hamilton circuit and path.

   b)   Draw Venn diagram to showing subset relations of the following.

      A = $\{2, 8\}$, B = $\{x/x = 2n^2, n \leq 4 \text{ and } n \, \varepsilon \, N\}$

      C = $\{x/x$ is an even natural number less than 20$\}$

   c)   Examine the validity of the following argument

$$p \vee q$$
$$\underline{\sim q}$$
$$\therefore p$$

   d)   Find the adjoint for

$$A = \begin{bmatrix} 3 & -4 & 1 \\ -3 & 6 & -1 \\ 4 & -8 & 2 \end{bmatrix}$$

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[5421] - 204

M.C.A. (Commerce Faculty) (Semester - II)
204 : SYSTEM ANALYSIS AND DESIGN
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   *All questions are compulsory.*

    2)   *Neat diagrams must be drawn wherever necessary.*

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

Q1) A National Hockey league has many teams, each team has a name, city, coach, captain and set of players, each player belongs to only one team, each player has a name, position, skill level, and set of injury records. A team captain is also a player. A game is played between two teams. **[14]**

    i)   Draw DFD, context level diagram and ERD.

Q2) Attempt the following questions (Any two):   **[2 × 6 = 12]**

    a)   Describe waterfall model with suitable diagram in detail.

    b)   Design a GUI form for providing library management system for students and access various facilities of the college library.

    c)   Material is issued to the department by considering whether the material requisition node (MRN) is signed or not,- it contains valid items or not and it is given within 4 hours or not. Draw decision tree and decision table.

Q3) Attempt the following (Any three)   **[3 × 4 = 12]**

    a)   What is agile process of software development?

    b)   Explain fact finding techniques.

    c)   Explain various types of reusability study.

    d)   Explain spiral model with suitable diagram.

Q4) Write short note on (Any three)　　　　　　　　　　　　　**[3 × 4 = 12]**

　　　a)　Side effects of maintainance.

　　　b)　Role of system analyst.

　　　c)　Ma call's quality factors.

　　　d)　Reverse Engineering.

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[5421] - 205

M.C.A (Commerce) (Semester - II)
205 : DATABASE MANAGEMENT SYSTEM
(2013 Pattern) (Credit System)

Time :3 hours]   *[Max. Marks : 50*

Instructions to the candidates:
1) *Neat diagrams must be drawn wherever necessary.*
2) *Figures to the right indicate full marks.*
3) *Assume suitable data, if necessary.*
4) *All questions are compulsory.*

Q1) a)   Attempt any three.   **[3 × 2 = 6]**

     i)   Define I) field II) Record

     ii)   List the data types in SQL.

     iii)   List the states of transaction.

     iv)   What is strong entity set?

   b)   A car insurance company has a set of customers each of whom owns one or more cars. Each car has associated with it zero to any number of record accidents.
From a given case study list out entities attributes primary keys & relationships. Draw an E - R Diagram for the same.   **[8]**

Q2) Attempt any three.   **[3 × 4 = 12]**

   a)   Explain anomalies of un-normalized database.

   b)   Explain deadlock recovery in detail.

   c)   Explain lock based protocol.

   d)   Write a note on properties of transaction.

Q3) a) Consider the following relations and solve any two queries in relational algebra. **[2 × 2 = 4]**

Customer (Cust – no, Cust – name, addr, city)

Loan (Loan – no, Loan – amt, Loan – date, cust – no)

i) Display customers with loan amount greater than Rs.2,00,000.

ii) List loan details of customer 'Mr. Jadhav'

iii) List customers from 'Pune' city.

b) Consider the following relation and solve any four queries in SQL.

[4 × 2 = 8]

Book (bno, bname, publication, price)

Author (ano, aname, addr)

book – author (bno, ano)

i) Create table query for book table by adding primary key constraint and bname should not be null.

ii) Add publish – year attribute in book table.

iii) Display books published by 'bpb publication'.

iv) Insert a raw in Author table.

v) Change DBMS book price to 250.

Q4) Attempt any three. **[3 × 4 = 12]**

a) Write a note on database languages.

b) Explain basic structure of SQL query with example.

c) Following are the log entries at the time of system crash.

[Start - transaction, T_1]

[Write - item, T_1, A, 20]

[Commit, T_1]

[Check point]

[Start - transaction, T_3]

[Write - item, T_3, B, 25]

[Commit, T_3]

[Start - transaction, T_2]

[Write - item, T_2, B, 20]

[Start - transaction, T_4]

[Write - item, T_4, C, 30]

[Write - item, T_2, D, 25] ← system crash

If deferred update technique with checkpoint is used what will be the recovery procedure?

d) Consider the following transactions.

T$_1$	T$_2$
Read (x)	Read (z)
x = x + 10	z = z + 10
Write (x)	Write (z)
	Read (y)
	y = y+ 10
	Write (y)

Give two non -serial schedules that are serializable.

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[5421] - 206
M.C.A (Commerce) (Semester - II)
HUMAN RESOURCE MANAGEMENT
(2013 Pattern) (Credit System)

Time :3 hours]   *[Max. Marks : 50*

Instructions to the candidates:
1)   *All questions are compulsory.*
2)   *Figures to right indicate full marks.*

Q1) Answer the following (Any Two)   **[14]**

a)   Define recruitment & Selection of worker. Explain the process of selection of worker.

b)   Define training. Explain various methods of training in brief.

c)   Define HRM. Explain functions of HRM.

Q2) Answer the following (Any Two)   **[14]**

a)   What is Performance appraisal? Explain the importance & challenges of performance Appraisal in brief.

b)   Define job description and job specification. Explain in detail Job description & job specification with example.

c)   Define Job analysis. Explain steps in job analysis.

Q3) Answer the following (Any two)   **[14]**

a)   What is graveness redressal ? Discus collective bargaining is an effective tool for graveness redressal.

b)   Define worker union. Explain the various critical issues of Union in the current scenario.

c)   Discuss International training and development issue.

P.T.O.

Q4) Write short notes (Any Two)   **[8]**

    a)   Challenges of HRM

    b)   Various Methods of Training

    c)   Methods of organisation development

    d)   Responsibilities of HR manager in IT Industry.

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[5421] - 301

M.C.A. (Commerce Faculty) (Semester - III)
301 : CORE JAVA
(2013 Pattern)

Time :3 hours]

[Max. Marks : 50

Instructions to the candidates:

    1)   *All questions are compulsory.*

    2)   *Assume suitable data if necessary.*

Q1) Attempt any seven.

[7 × 2 = 14]

    a)   What is the purpose of appletviewer?

    b)   What is the use of 'Super' and Final' keywords?

    c)   Define Hashset.

    d)   What is the purpose of 'New' in Java?

    e)   Define vector.

    f)   List the access specifiers used in Java?

    g)   Name the class which is at the top of exception class hierarchy.

    h)   "Applet supports constructor" state true or false.

Q2) Attempt any three.

[3 × 4 = 12]

    a)   Why Java does not support multiple inheritance? Explain with example.

    b)   Write a java program which accepts a string as a command line argument and display only non-vowel characters.

    c)   What are the different veriable types supported by Java?

    d)   Write a java program to accept a number from user and throw "Negative number exception" if the entered number is negative.

P.T.O.

Q3) Attempt any three.   **[3 × 4 = 12]**

    a)   Define collection? Explain any three classes used in collection?

    b)   Explain steps used to create user defined package?

    c)   Write a java program using swing frame must contain a textbox and a button. The background and textcolor should be changed in "red" and "blue" respectively after a button is clicked.

    d)   Write a program to read 'n' strings and insert it into arraylist collection and display list in reverse order.

Q4) Attempt any three.   **[3 × 4 = 12]**

    a)   Difference between AWT and SWING.

    b)   Explain steps for creating user defined exception with example?

    c)   Write a java program which accepts 'n' numbers from user in array and display the array in reverse order.

    d)   Create a package "college" which has two classes "staff" and "Student" staff class has display ( ) method and student class has show ( ) method to show list of staff and student respectively.

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[5421] - 302

MCA (Part - II) (Commerce) (Semester - III)
302 : ADVANCED DATABASE MANAGEMENT SYSTEM
(2013 Pattern)

Time :3 hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   *Attempt any five questions.*

    2)   *Figures to the right indicate full mark.*

Q1) Attempt the following.   **[4 + 4 + 2 = 10]**

    a)   Explain join operations in details.

    b)   What is SOAP? Explain it in details.

    c)   Explain shared memory.

Q2) Attempt the following.   **[4 + 4 + 2 = 10]**

    a)   Explain directory systems in briefly.

    b)   Explain round robin partitioning technique.

    c)   Define i) Recall

               ii) Precision

Q3) Attempt the following.   **[4 + 4 + 2 = 10]**

    a)   Explain decision tree.

    b)   What is I/o parallelism? Explain it in details.

    c)   Define :

        i)   Object identity.

        ii)   Web based system

Q4) Attempt the following: **[4 + 4 + 2 = 10]**
   a)   Explain client server architecture.
   b)   Explain data warehouse structure in detail.
   c)   Define vector space mode.

Q5) Attempt the following: **[4 + 4 + 2 = 10]**
   a)   What is a homogenous database system
   b)   List steps of query processing.
   c)   Define i) Spatial data.
              ii) Point

Q6) Attempt the following: **[4 + 4 + 2 = 10]**
   a)   Compare between homogeneous & Hetrogeneous system.
   b)   Explain deadlock handling in DDBMS.
   c)   Define i) Ranked query
              ii) Boolean query

Q7) Attempt the following: **[5 + 5 = 10]**
   a)   Explain majority protocol.
   b)   Write a note on R - trees.

Q8) Attempt the following: **[5 + 5 = 10]**
   a)   Consider the following schema: Student (Sno, Sname , city, Class)
        Perform horizontal fragmentation of student relation using following predicates.
        P_1 : 6 City = 'Ahmednagar'
        P_2 : 6 City = 'Pune'
        P_3 : 6 City = 'Mumbai'
   b)   Perform vertical fragmentation of drug relation given below.
        Drug (dno, dname, type company, price) according to the following requirements:
        i)   Site 1 requires information about drug all details without price.
        ii) Site 2 requires information about company price.

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[5421]-303

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

303 : OBJECT ORIENTED SOFTWARE ENGINEERING

(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

   1)   *All questions are compulsory.*

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

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

Q1) Attempt any seven of the following.   **[7 × 2 = 14]**

   a)   Define elaboration phase during analysis.

   b)   Consider single object "Credit card" and draw object diagram with possible attributes.

   c)   What is use of state chart diagram?

   d)   Define dependency.

   e)   What do you mean by concurrency?

   f)   What is collaboration?

   g)   What is oose?

   h)   Define model of system.

Q2) Attempt any four of the following.   **[4 × 3 = 12]**

   a)   Explain Agile unified process in details.

   b)   Differentiate between white box and black box testing.

   c)   Explain UML architecture in details.

   d)   Explain "object oriented design Jacobson method" with suitable diagram.

   e)   Define things. Explain types of things in UML.

Q3) Attempt any three of the following. **[3 × 4 = 12]**

   a)   Differentiate between alpha and beta testing.

   b)   Define UP. Explain the UP phases with the help of diagram.

   c)   Describe system design process with suitable diagram.

   d)   Write a short note on "Iterative development with advantages.

Q4) Attempt the following. **[2 × 6 = 12]**

The passenger is required to fill in a reservation form giving details of his journey. The counter clerk ensures whether the place is available. If so, entities are made in the register, tickets are prepared, amount is computed and cash is accepted. A booking statement is prepared in triplicate from the reservation register. One copy of it is retained as office copy, the other is pasted on the compartment and then is pass on to the train conductor. Besides booking statement, cash statement is prepared at the end of each shift.

Read above case studies and draw the following diagrams :

   a)   Activity Diagram

   b)   Sequence Diagram

<div align="center">OR</div>

   a)   Draw Components, Object and use case diagram for College admission System.

   b)   Write a short notes on the following :

      i)   Test Data Generators.

      ii)   Data Management component.

      iii) Polymorphism.

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[5421]-304

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

304 : NETWORK OPERATIONS

(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   ***All questions are compulsory.***

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

Q1) Explain the following terms. (Any one)   **[1 × 2 = 2]**

    a)   Bandwidth

    b)   Protocol

Q2) Solve the following questions. (Any three)   **[3 × 4 = 12]**

    a)   What are the components of LAN? Explain each one in short.

    b)   Explain briefly CDMA channelization.

    c)   State the characteristics of line coding.

    d)   Describe Stop and Wait ARQ for noisy channel.

Q3) Solve the following questions. (Any three)   **[3 × 4 = 12]**

    a)   What are the services provided to the Transport Layer?

    b)   Write note on applications of Computer Network.

    c)   Explain unguided transmission media with its types.

    d)   The code 11010101111 was received. Using Hamming encoding algorithm, what is the original code sent?

Q4) Solve the following questions. (Any three) [3 × 4 = 12]

a)   What is Network Topology? State any two Network topologies.

b)   Explain P-persist strategy. Why is it not feasible to implement?

c)   Differentiate between Serial and Parallel Transmission.

d)   Explain briefly co-axial and fiber optic cable.

Q5) Solve the following questions. (Any three) [3 × 4 = 12]

a)   Explain briefly CSMA/CA.

b)   Write note on OSI Model.

c)   Differentiate between LAN and WAN.

d)   Explain Design issues of the layer.

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[5421] - 306
M.C.A. (Commerce) (Semester - III)
307 : M - COMMERCE
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:
   1)   All questions are compulsory.
   2)   Neat diagram must be drawn wherever necessary.

Q1) Answer the following (any two) :   **[14]**

   a)   Explain how consistent data broadcast utilized in global transaction?

   b)   Explain bluetooth communication technology in Mobile Commerce.

   c)   Explain role of the emerging wireless LAN's & 3G/4G wireless Network
         in - M - Commerce.

Q2) Answer the following (any three) :   **[12]**

   a)   Explain centent catching in M - Commerce service.

   b)   Explain regional server concept in mobile environment.

   c)   Explain Information Service Applications with example.

   d)   Explain different players in M - Commerce.

Q3) Answer the following (any three) :   **[12]**

   a)   Explain mobile marketing applications with example.

   b)   Explain theory of pricing of Mobile Commerce.

   c)   Explain supporting global transaction processing for mobile client.

   d)   Explain mobile financial services with example.

Q4) Write short note on (any three) :   [12]

    a)   WML and SMS information exchange technology.

    b)   Data reconciliation in global transaction.

    c)   M - Commerce life cycle.

    d)   Mobile Auction.

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[5421] - 307

M.C.A. (Commerce) (Semester - III)
308 : MANAGEMENT INFORMATION SYSTEM
(2013 Pattern) (Credit System)

Time :3 hours] *[Max. Marks : 50*

Instructions to the candidates:

    1)   *Solve any five questions.*

    2)   *Figure to the right indicate full marks.*

Q1) How information system impacts organizations and business firms? Explain in detail. **[10]**

Q2) Decision Support System (DSS) helps in taking right decision, explain. **[10]**

Q3) Explain how the structure of MIS impacts on functions of organisation. **[10]**

Q4) Explain different methods used for collection of data and information. **[10]**

Q5) What is system? Explain importance of system analysis. Differentiate MIS and system analysis. **[10]**

Q6) What is system orientation? Explain system development through OOT. **[10]**

Q7) Explain 'MIS development process model', in detail. **[10]**

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[5421] - 402

M.C.A. (Commerce) (Semester - IV)
402 : VISUAL PROGRAMMING
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   *Neat diagrams must be drawn wherever necessary.*

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

    3)   *Assume suitable data, if necessary.*

    4)   *All questions are compulsory.*

Q1) Attempt any seven of the following.   **[7 × 2 = 14]**

    a)   Explain mapping modes.

    b)   Define device context.

    c)   List out the different pen styles.

    d)   Explain any two GDI functions.

    e)   What is message queue?

    f)   What is Hungarian notation?

    g)   How parent talks to its child?

    h)   What is an invalid rectangle?

Q2) Attempt any three.   **[3 × 4 = 12]**

    a)   Explain ODBC and its architecture.

    b)   Differentiate between pen and brush.

    c)   What is Registration of class? Why is it necessary?

    d)   Write a window procedure to count the number of left mouse clicks and the right mouse clicks.

Q3) Attempt any three of the following: **[3 × 4 = 12]**

    a)   What is timer? Explain the application of timer.

    b)   Write a short note on virtual keys.

    c)   Explain -

        i)   WM - PAINT

        ii)   Use of stock pens

    d)   Explain any two window controls with example.

Q4) Attempt any three of the following.   **[3 × 4 = 12]**

    a)   Write a program to input two integer values using two edit boxes and third box to display factorial of the given values, when OK button is pushed.

    b)   What are the different child window controls? How are they created?

    c)   Define keystrokes. What will be the values of LPARAM and WPARAM when any keystrokes are generated?

    d)   Explain various ways to acquire the handle to the device context.

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[5421] - 403

M.C.A. (Commerce) (Semester - IV)
CS - 403: DISTRIBUTED DATABASE SYSTEM
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

  1)   *All questions are compulsory.*

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

  3)   *Neat diagrams must be drawn wherever necessary.*

Q1) Attempt any seven.   **[7 × 2 = 14]**

  a)   Discuss any two complicating factors in design of DDBMS.

  b)   State any four different forms of heterogeneity found in DDBMS.

  c)   Explain the term type incorrect query.

  d)   Define, Completeness Rule of fragmentation.

  e)   List the goals of transaction management.

  f)   List any 4 types of failures that can occur in distributed DBMS.

  g)   What do you mean by Linear Tree. Give one example.

  h)   Write two sufficient conditions to ensure that two schedules are equivalent.

Q2) Attempt any three.   **[3 × 4 = 12]**

  a)   List out all the characteristics of query processor and explain Optimization Timing.

  b)   Explain properties of transaction.

  c)   Explain MDBS architecture using Global conceptual schema.

  d)   Explain information requirement of Horizontal fragmentation.

Q3) Attempt any three: [3 × 4 = 12]

    a)   What is a false deadlock? Explain with example.

    b)   Explain reduction for primary horizontal fragmentation.

    c)   Explain centralized 2PC protocol in distributed environment.

    d)   Which factors must be shielded from users in DDBMS? Explain any one in detail.

Q4) Attempt any three: [3 × 4 = 12]

    a)   Draw the query graph for the following query and check whether the query is semantically correct.

            select emp.ename, asg.resp

            from emp, asg, proj

            where emp.eno = asg.eno

            and proj.pname = "CAD/CAM"

            and asg.dur ≥ 36

            and emp.title = " programmer"

            and asg.pno = proj.pno

    b)   Simplify following query in SQL using Idempotency Rule

            select title

            from emp

            where (not (title = " programmer")

            and (title = " programmer"

            or title = "Electric Eng.")

            and not (title = "Electric Eng."))

            or ename = "John"

    c)   Relation Emp(eno, ename, title) is fragmented as,

$$\text{Emp } 1 = \sigma_{eno <= "e_3"} (\text{Emp})$$

$$\text{Emp } 2 = \sigma_{eno <= "e_3"} (\text{Emp})$$

        Relation proj (pno, pname, budget, location) is fragmented as,

$$\text{Proj } 1 = \sigma_{budget < =5,00,000} (\text{Proj})$$
$$\text{Proj } 2 = \sigma_{budget > 5,00,000} (\text{Proj})$$

        Relation Asg (eno,pno, resp, dur) is fragmented with respect to proj.

        Write a query to find names of those employees with eno> e_3 who work on a project having budget 8,00,000/-. Draw the operator tree for the query and transform it into reduced operator tree.

d) Let $Q = \{q_1, q_2, q_3\}$ be a set of queries,

$A = \{A_1, A_2, A_3, A_4\}$ be set of attributes and

$S = \{S_1, S_2\}$ be set of sites.

i) Matrix (a) defines the attribute usage values

ii) Matrix (b) defines application access frequency

Assume that reF; (qk) = 1 for all qk and S_i and A_1 is the key attribute. Use the bond energy and vertical partitioning algorithms to obtain a vertical fragmentation of set of attributes in A.

$$
\begin{array}{c}
\begin{array}{cccc}
A_1 & A_2 & A_3 & A_4
\end{array} \\
\begin{array}{c}
q_1 \\
q_2 \\
q_3
\end{array}
\begin{bmatrix}
1 & 1 & 1 & 0 \\
0 & 1 & 1 & 0 \\
0 & 0 & 1 & 1
\end{bmatrix}
\end{array}
\qquad
\begin{array}{c}
\begin{array}{cc}
S_1 & S_2
\end{array} \\
\begin{array}{c}
q_1 \\
q_2 \\
q_3
\end{array}
\begin{bmatrix}
5 & 20 \\
25 & 8 \\
30 & 6
\end{bmatrix}
\end{array}
$$

Matrix (a)   Matrix (b)

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[5421] - 404

M.C.A. (Commerce) (Semester - IV)
404: WEB TECHNOLOGIES
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:
    i)   *Attempt any five questions.*
    ii)   *Figures to the right indicate full marks.*

Q1) Answer the following.

    a)   Explain physical & logical tags in HTML.   **[5]**

    b)   Explain event handling in javascript.   **[5]**

Q2) Answer the following.

    a)   Explain functions in VBScript.   **[5]**

    b)   Explain <div> & <span> tag.   **[5]**

Q3) Answer the following.

    a)   Write a following frame code to display   **[5]**

one	
two	three
four	
five	six

    b)   Write a javascript to calculate sum of digits of a given number.   **[5]**

Q4) Answer the following.

    a)   Explain features of XML.   **[5]**

    b)   Write a VBScript to print factorial of a given no.   **[5]**

Q5) Answer the following.

    a)   Write steps for installing PHP.   **[5]**

    b)   Explain elements & attributes of XML   **[5]**

Q6) Answer the following.

    a)   Explain table tags in detail.   **[5]**

    b)   Explain web server architecture model.   **[5]**

Q7) Answer the following:

    a)   Explain array in javascript with example.   **[5]**

    b)   Explain XML schemas.   **[5]**

Q8) Answer the following.

    a)   Explain control structures in VBScript with example. **[5]**

    b)   Explain form tags in detail.   **[5]**

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[5421] - 405

M.C.A. (Commerce Faculty) (Semester - IV)
406 : IT PROJECT MANAGEMENT
(2013 Pattern)

Time :3 hours] *[Max. Marks : 50*

Instructions to the candidates:

1) *All questions are compulsory.*

2) *Figures to the right indicate full marks*

Q1) Attempt the following (any 7) **[7 × 2 = 14]**

a) Define resource loading.

b) What are different types of complexities of software project?

c) Define change control board.

d) What is PERT?

e) State basic response to risks.

f) Define legitimate power.

g) What is output of Quality Control Process?

h) Define Risk utility.

i) State internal and external attributes of software measures.

Q2) Attempt the following (any 3): **[3 × 4 = 12]**

a) Explain user role in system implementation.

b) Discuss briefly communication management in a particular project.

c) What are different process of risk management?

d) Explain qualities of project manager.

Q3) Attempt the following (any 3) [3 × 4 = 12]

    a)   What are the content of overview of project?

    b)   Explain cost estimation tools of a project.

    c)   Discuss briefly project life cycle.

    d)   Write note on conflict management.

Q4) Attempt the following (any 3) [3 × 4 = 12]

    a)   Explain merits and demerits of organizational structure.

    b)   What are the tools and techniques used for quality control?

    c)   Write note on Delphi techniques.

    d)   Explain TOP TEN RISK item Tracking.

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[5421]-406

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

407 : CYBER LAW AND INFORMATION SECURITY

(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

1) *Neat diagrams must be drawn whenever necessary.*

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

Q1) Define and explain in brief of the following any Seven.   **[7 × 2 = 14]**

a)   Patent.

b)   Digital envolope.

c)   Need of Security.

d)   Stegnography.

e)   Cipher.

f)   Industrial design.

g)   Attribution of electronic records.

h)   Trademark.

Q2) Discuss any three of the following :   **[3 × 4 = 12]**

a)   Explain the symmetric cipher model.

b)   Briefly explain secure electronic transaction.

c)   Explain polyalphabetic substitution cipher technique of encryption with example.

d)   Explain IP security architecture.

Q3) Discuss any three of the following :   [3 × 4 = 12]

    a)   Explain digital signature in brief.

    b)   Briefly define the caeser cipher.

    c)   Explain the mode of operation of IT security.

    d)   What are the basic principles of public key cryptosystem.

Q4) Discuss any three of the following :   [3 × 4 = 12]

    a)   Explain SSL handshake protocol.

    b)   Explain the term Electronic Governance.

    c)   Discuss Hill cipher technique of encryption with example.

    d)   Explain the ESP Packet format.

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[5421] - 407

MCA (Commerce Faculty) (Semester - IV)
408 : ADVANCED NETWORKING
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

   1)   *Answers any five questions.*

   2)   *Figures to the right side indicates full marks.*

Q1) Attempt the following   **[4 + 4 + 2 = 10]**

   a)   Explain TCP/IP protocol model in brief

   b)   Explain the structure of a router

   c)   If a physical address is 48 bits (6 bytes) what is the minimum header size at the data link layer of the TCP/IP protocol suite?

Q2) Attempt the following   **[4 + 4 + 2 = 10]**

   a)   Write a note on ICMPV4 package.

   b)   List four key principles of security.

   c)   Explain the need of security.

Q3) Attempt the following   **[4 + 4 + 2 = 10]**

   a)   Write a note on routing information protocol (RIP).

   b)   Explain Cipher Feedback (CFB) mode.

   c)   Define and explain certification authority (CA)

Q4) Attempt the following   **[4 + 4 + 2 = 10]**

   a)   Write a note on voice over IP.

   b)   What would be the transformation of message 'SEE YOU AT COLLEGE' using Rail Fence technique?

   c)   Discuss any one passive attack.

Q5) Attempt the following   **[4 + 4 + 2 = 10]**

   a)   Alice meets Bob & says ZKHUH DUH BRX. If she is using caesar cipher, what does she want to convey?

   b)   What are the typical contents of digital certificates?

   c)   Define :

      i)   Plain text   ii)   Cipher text

P.T.O.

Q6) Attempt the following   **[4 + 4 + 2 = 10]**
    a)   Write a short note on electronic money transfer
    b)   Which are the key participants in SET?
    c)   How router forwards the datagram based on host specific method.

Q7) Attempt the following   **[5 + 5 = 10]**
    a)   Write a short note on 3-D secure protocol.
    b)   Given two prime numbers P=19 & Q=7. Find out N.E & D in an RSA encryption frocess.

Q8) Attempt the following   **[5 + 5 = 10]**
    a)   What are the limitations of firewall?
    b)   Explain the security handshake pitfalls

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[5421] - 501

M.C.A. (Commerce) (Semester - V)
501 : ADVANCED WEB PROGRAMMING
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   *All questions carry equal marks.*

    2)   *Figure to right full marks.*

    3)   *Attempt any five of the following*

Q1) Attempt the following:

    a)   Explain exception Handling Mechanism in C#.   **[4]**

    b)   Explain Interfaces in C# with example.   **[4]**

    c)   What is Iterators?   **[2]**

Q2) Attempt the following:

    a)   What is Global.asax file in ASP.Net? Explain its usage.   **[4]**

    b)   Define viewstate. Explain the concept with example.   **[4]**

    c)   Note on Event Handling.   **[2]**

Q3) Attempt the following

    a)   Explain WSDL document with example.   **[4]**

    b)   What is the difference between DataReader & DataSet.   **[4]**

    c)   What is Functions?   **[2]**

Q4) Attempt the following:

    a)   Write a web application in ASP.Net to search the record of Employee having Salary >30000. (Use SqlDataAdapter). Employee (Eid, Ename, Salary).   **[4]**

    b)   Write a program in C# to create Indexer on String Names.   **[4]**

    c)   What is JSON?   **[2]**

Q5) Attempt the following.

    a)   Explain Server Side State Management in ASP.net.   **[4]**

    b)   Explain Validation control.   **[4]**

    c)   What is Collection in C#?   **[2]**

Q6) Attempt the following:

    a)   Explain JSON with example.   **[4]**

    b)   Garbage collection in C# Asp.Net.   **[4]**

    c)   What is class Member?   **[2]**

Q7) Attempt the following:

    a)   What are Master Pages? Why do we need Master Pages?   **[5]**

    b)   Explain ASP .NET page Life cycle?   **[5]**

Q8) Attempt the following:

    a)   Write a C# program to accept the details of Person(pno, Name, Desig) And store those Details into Person table And Display All Details into DataGridView control.   **[5]**

    b)   What is SOAP? Explain its use.   **[5]**

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[5421]-502

M.C.A. (Commerce) (Semester - V)
DATA CENTER TECHNOLOGIES
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

1) Out of eight questions attempt any five.

2) Draw neat labelled diagram where needed.

Q1) Attempt all.

a) Explain adapter SCSI ID requirement and local disks cluster components.

[4]

b) State the guidelines used for planning a data center.   **[4]**

c) What is Plenum?   **[2]**

Q2) Attempt all.

a) Explain various components provided by ISP within data center.   **[4]**

b) Explain any two SPEC Benchmark in detail.   **[4]**

c) What are asymmetric two node cluster?   **[2]**

Q3) Attempt all.

a) Enlist various high availability metrics. Explain each in detail.   **[5]**

b) Explain what do you mean by system administration? Explain the various duties of system administration.   **[5]**

Q4) Attempt all.

a) Explain the network infrastructure needed in data center.   **[5]**

b) Explain briefly characteristics and role played by SNMP.   **[5]**

Q5) Attempt all.

    a)   Explain the different phases of capacity planning. Explain any one of them in detail. **[4]**

    b)   What are the advantages of load balancing? **[4]**

    c)   What is server sizing? **[2]**

Q6) Attempt all.

    a)   State the objectives of HVAC systems. **[4]**

    b)   Explain briefly the causes of Downtime. **[4]**

    c)   What is a benchmark? **[2]**

Q7) Attempt all.

    a)   What do you mean by budget? What are types of budget? What things are taken in consideration to decide budget for data centre? **[4]**

    b)   Write a short note on UPS. **[4]**

    c)   What is Colocation Data Center? **[2]**

Q8) Attempt all.

    a)   Explain how can be estimate power needs for data center. **[4]**

    b)   Explain in detail hardware based load balancing methods. **[4]**

    c)   What are the various sources of server security? **[2]**

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[5421] - 503

M.C.A. (Commerce Faculty) (Semester - V)
503 : INFORMATION SYSTEM AUDIT
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   *All questions are compulsory.*

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

Q1) Answer the following (any seven):   **[7 × 2 = 14]**

    a)   What is Audit Trail Control?

    b)   What are the key responsibilities of IS Auditor?

    c)   Explain cyber frauds.

    d)   What is the need for IT Audit?

    e)   Explain types of system.

    f)   What is cloud computing?

    g)   What is green IT?

    h)   What is IT Governance?

    i)   Explain need of BCM.

Q2) Answer the following (any three)   **[3 × 4 = 12]**

    a)   Explain disaster recovery plan.

    b)   Explain COBIT 5 framework in detail.

    c)   What are the information system control techniques? Explain categories of control.

    d)   Explain different types of cyber frauds.

Q3) Answer the following (any three): [3 × 4 = 12]

    a) Explain the components of security policy.

    b) Explain Auditor's role in SDLC.

    c) What is audit evidence? Explain different methods of collecting audit evidence.

    d) Why do you have to protect information system?

Q4) Answer the following (any three): [3 × 4 = 12]

    a) Explain the term "Cost Benefit Analysis" of Information.

    b) Differentiate between Deterministic & probabilistic system.

    c) Why a business continuity plain is important for an organization?

    d) Explain Business process design.

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[5421] - 504

M.C.A. (Commerce) (Semester - V)
CONTENT MANAGEMENT SYSTEM
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   All questions are compulsory.

    2)   Draw the diagrams wherever necessary.

Q1) Answer the following   **[7 × 2 = 14]**

    a)   What is data?

    b)   What is functionality?

    c)   What is Authoring?

    d)   What is Repository?

    e)   When do you need a CMS?

    f)   What is Dynamic Website?

    g)   What is Content Management?

Q2) Answer the following (any three)   **[3 × 4 = 12]**

    a)   List the types of formatting? Explain formatting by method.

    b)   What are the rules for creating context? Explain.

    c)   Explain static website with diagram.

    d)   Explain 'Acquiring' from collection system.

Q3) Answer the following (any three):   **[3 × 4 = 12]**

    a)   What is System Administration in Joomla.

    b)   How to gauge the complexity by amount of change.

    c)   Explain - Content is information put to use.

    d)   Write the steps to create a website for your college courses and Add a new article having subjects of MCA (Commerce).

Q4) Answer the following (any three):   **[3 × 4 = 12]**

    a)   Explain monolythic Vs Mix and match functionality.

    b)   Explain features of Joomla.

    c)   Explain publishing templates.

    d)   Write the steps to create a website for sports kit showroom and Edit the prices.

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[5421] - 505
M.C.A. (Commerce) (Semester - V)
506 : MOBILE COMMUNICATION
(2013 Pattern)

Time :3 Hours]

[Max. Marks : 50

Instructions to the candidates:

    1)   *Neat diagram must be drawn wherever necessary.*

    2)   *All questions are compulsory.*

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

Q1) Attempt any seven.

[7 × 2 = 14]

    a)   Define user mobility.

    b)   What is modulation?

    c)   Define FA - COA.

    d)   What is encapsulation?

    e)   What is exposed terminal?

    f)   List any two advantages of Indirect TCP.

    g)   Give the reasons for handover in GSM.

    h)   Define Dalvik virtual machine.

Q2) Attempt any three.

[3 × 4 = 12]

    a)   Explain difference between FHSS & DSSS.

    b)   Write a short note on mobile originating call in GSM.

    c)   What is mobile TCP? Give advantages and disadvantages of mobile TCP.

    d)   Discuss components of Android Applications.

Q3) Attempt any three. [3 × 4 = 12]

a) Explain radio subsystem in GSM.

b) Why are so many different identifiers/ addresses needed in GSM? Give reason.

c) Explain various Applications of mobile communication.

d) Write a short note on reverse tunneling.

Q4) Attempt any three. [3 × 4 = 12]

a) Explain entities and terminologies in mobile IP.

b) What is congestion control? Explain Slow start in mobile TCP.

c) Explain android application architecture.

d) Compare FDMA with SDMA.

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[5421] - 506
M.C.A. (Commerce) (Semester - V)
507 : SYSTEM SIMULATION AND MODELING
(2013 Pattern) (Credit System)

Time :3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:
1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Neat diagrams must be drawn wherever necessary.*

Q1) Attempt any two of the following.   **[2 × 7 = 14]**

a) Define pseudo random numbers. Explain the need of random number generator in simulation.

b) Explain steps used in simulation study with neat flow diagram.

c) What is queuing system? Explain queuing notations.

Q2) Attempt any three of following.   **[3 × 4 = 12]**

a) Explain the type of simulation with respect to output analysis, give an example.

b) Explain parameter estimation with examples.

c) Explain discrete distribution with example.

d) Write note on software packages of simulation.

Q3) Attempt any three of following.   **[3 × 4 = 12]**

a) Explain the characteristics of queuing system.

b) Clearly distinguish between verification and validation.

c) What is list processing? Explain in detail with example.

d) Explain different general purpose simulation packages.

Q4) Attempt any two of following. [6 × 2 = 12]

    a)   Explain the need of input modeling of identifying the input distribution.

    b)   Explain the simulation of logistics and supply chain system.

    c)   Explain the simulation of Railroads.

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[5421] - 507
M.C.A. (Commerce) (Semester - V)
BUSINESS AND PROFESSIONAL SKILLS
(2013 Pattern)

Time :3 Hours]   *[Max. Marks : 50*
Instructions to the candidates:
    1)   All questions are compulsory.
    2)   Figures to the right indicate full marks.

Q1) Define communication. Distinguish between verbal and non-verbal communication. **[10]**

OR

What do you mean by speech? Explain in brief various types of managerial speeches.

Q2) What do you mean by dress code? Explain the guidelines for professional business attire. **[10]**

OR

Explain in detail the process of communication.

Q3) What is self assessment in job application? Explain in detail. **[10]**

OR

Explain the steps to be followed for successful preparation for job interview.

Q4) What is a business meeting? Describe the guidelines for planning a meeting.**[10]**

OR

What do you mean by manners? Explain the role of good manners in business.

Q5) What do you mean by motivational communication? Describe the importance of motivational speech. **[10]**

OR

Explain in brief about circulars, memos and official notes.

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