[4666]-101

M.C.A. (Commerce Faculty)
101 : FUNDAMENTAL OF INFORMATION TECHNOLOGY
(2013 Pattern) (Semester-I) (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 side indicate full marks.

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

   a)   Types of Software.

   b)   Scheduling and Synchronization.

   c)   Binary Arithmetic.

   d)   External Storage devices.

   e)   Software Testing.

   f)   Software Maintenance.

   g)   Decision Tree.

   h)   Logic Gates.

Q2) Discuss Any Three of the following: **[3 x 4 = 12]**

   a)   Explain what is Instruction and Instruction Set in detail.

   b)   Explain instruction set of 8085.

   c)   Explain assembler in detail.

   d)   Explain compiler in detail.

Q3) Discuss Any Three of the following: **[3 x 4 = 12]**

   a)   What is Data Transmission Media?

   b)   List all output devices and explain any one in detail.

   c)   Explain the term topology and explain Mesh topology in detail.

   d)   Convert the following

          AC7 to Decimal

          111001101010 to Octal.

Q4) Discuss Any Three of the following: **[3 x 4 = 12]**

   a)   What is a Protocol and Explain Communication Protocol.

   b)   Draw flowchart to calculate addition of two numbers.

   c)   Differentiate between Digital and Analog Transmission.

   d)   Discuss Process Scheduling.

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[4666]-102

M.C.A. (Commerce Faculty)

PROGRAMMING IN 'C'

(2013 Pattern) (Semester-I)

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 x 2 = 14]**

  a) Define:

     i)   identifiers.

     ii) constants.

  b) Define following functions

     i)   printf()

     ii) scanf()

  c) Explain any two jump statements.

  d) What is function? What is the need of user defined function?

  e) What is dynamic array?

  f) "Structure may contain members of only one data type" Justify.

  g) What is conditional compilation?

  h) How does an append mode differ from a write mode?

Q2) Attempt Any Three: **[3 x 4 = 12]**

  a) Explain the basic structure of C program.

  b) What is the difference between while and do...while loop? Explain it with suitable example.

  c) What are the arithmetic operators that are permitted on pointers?

d) What will be the output of the program?

```
#include<stdio.h>
void fun(int*, int*);
int main()
{
    int i=5, j=2;
    fun(&i, &j);
    printf("%d, %d", i, j);
    return 0;
}
void fun(int *i, int *j)
{
*i=*i**i;
*j=*j**j;
}
```

Q3) Attempt Any Three: **[3 x 4 = 12]**

a) Write a 'C' program to calculate x * y by using User Defined Function.

b) Write a 'C' program to accept string and count number of vowels from it.

c) Write a 'C' program that compares two files and returns 0, if they are equal and 1 if not.

d) What will be the output of the program (sample.c) given below if it is executed from the command line (turbo c under DOS)?

cmd> *sample Good Morning*

```
/* sample.c */
#include<stdio.h>

Int main(int argc, char *argv[])
{
printf("%d %s", argc, argv[1]);
return 0;
}
```

Q4) Attempt Any Three: **[3 x 4 = 12]**

    a)   What is data structure? Why an array is called a data structure?

    b)   Write the difference between structure and union.

    c)   When do we use the following functions?

        i)   free()

        ii)   rewind()

    d)   What will be the output of the program?

```
#include<stdio.h>
int main()
{
union a
{
    int i;
    char ch[2];
};
union a u;
u.ch[0]=3;
u.ch[1]=2;
printf("%d, %d, %d\n", u.ch[0], u.ch[1], u.i);
return 0;
}
```

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[4666]-104

M.C.A. (Commerce)

104 : FINANCIAL ACCOUNTING

(2013 Pattern) (Semester-I) (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) Briefly discuss financial accounting concepts and conventions.   **[14]**

OR

From the following Trial balance of Hari and additional information, prepare Trading and Profit & Loss Account for the year ended 31ˢᵗ March, 2013 and a Balance Sheet as on that date:

Particulars	Dr. (Rs.)	Cr. (Rs.)	Particulars	Dr. (Rs.)	Cr. (Rs.)
Capital	–	1,00,000	Bad Debt Written off	7,000	–
Furniture	20,000	–	Creditors	–	1,20,000
Purchases	1,50,000	–	Drawings	24,000	–
Debtors	2,00,000	–	Provision for Dobubtful Debts	–	6,000
Interest Earned	–	4,000	Printing & Stationery	8,000	–
Salaries	30,000	–	Insurance	12,000	–
Sales	–	3,21,000	Opening Stock	50,000	–
Purchase Returns	–	5,000	Office Expenses	12,000	–
Wages	20,000	–	Provision for Depreciation	–	2,000
Rent	15,000	–	Sales Returns	10,000	–
Total				5,58,000	5,58,000

Additional information:

a) Depreciate Furniture by 10% on original cost;

b) A provision for Doubtful Debts is to be created to the extent of 5% on Sundry Debtors;

P.T.O.

c) Salaries for the month of March, 2013 amounting to Rs. 3,000 were unpaid which must be provided for. However, salaries included Rs. 2,000 paid in advance;

d) Insurance amounting to Rs. 2,000 is prepaid;

e) Provide for outstanding office expenses Rs. 8,000;

f) Stock used for private purpose Rs. 6,000;

g) Closing Stock Rs. 60,000.

Q2) Define financial accounting and its objective and scope. **[12]**

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

Enter the following transactions in the Journal of P.

Jan-13	Assets in Hand	Rs.
1	Cash Rs. 630; Cash at Bank Rs. 23,100; Stock of goods Rs. 26,400; Mohanratta & Co., Rs. 6,750 Liabilities: Marathi & Co., As 3,880; Ram Sons, Rs. 3,000	
2	Received a cheque from Mohanaratta & Co., in full settlement	6,650
3	Sold goods to Dass & Co	1,400
5	Sold goods to Jal Chand & Sons	1,440
7	Carriage paid	35
10	Sold goods to Gainda & Co., for cash	3,120
13	Brought goods from Ram & Sons	4,000
14	Paid Marathi & Co., by cheque in full settlement	3,800
15	Bought goods from Chatterjee & Mukherjee	6,300
20	Dass & Co. return goods, not being up to standard	100
22	Travelling expenses paid to salesman	147
25	Goods sold for cash to Vijay	800

Q3) "Management Accounting is one of the best tools in the hands of management of the modern large scale business". Explain. **[12]**

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

Shippers Ltd. which depreciates the machines @ 25% p.a. on the reducing balance method, provides you the following particulars:

Cost on 31-12-2011 Rs. 2,46,000. Provision for Depreciation (on 31-12-2011) Rs. 1,24,000. No amounts being charged in the year of sale but full charge is being made for the years during which addition is made. On 1-7-2013, one new machine was purchased for Rs. 24,000 and old machinery purchased on 1-7-2010 for Rs. 20,000 was discarded but could sold immediately. However, it was expected to realise Rs. 5,000 for the same.

a) Machinery Account.

b) Provision for Depreciation Account, and

c) Machinery Disposal Account for the years 2012 and 2013.

Q4) Write note on: **[12]**

ERP

SAP

OR

Record the following transactions in the Bank column Cash Book of M/s Time Zone for the month of January 2013.

Date	Details	Amount (Rs.)
2013		
Jan. 01	Bank Balance	32,500
01	Cash Balance	12,300
03	Purchased Goods by cheque	5,300
08	Goods Sold for cash	9,500
10	Purchased Typewriter by Cheque	5,400
15	Sold Goods and received Cheque (deposited on the same day)	7,900
17	Purchased Stationery by Cheque	1,000
20	Cash deposited into bank	10,000
22	Paid Cartage	500
24	Cheque given to Mudit	7,000
28	Rent paid by Cheque	3,000
30	Paid Salary	3,500

[4666]-105
M.C.A. (Commerce)
105 : PRINCIPLES OF MANAGEMENT
(2013 Pattern) (Semester-I) (New)

Time : 2 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) *Question No. 6 is Compulsory Question.*
2) *Attempt any 3 from 1 to 5.*
3) *Draw figures wherever necessary.*

Q1) a) Define Management. Distinguish between Management as an arts and Science. **[7]**

b) Explain the levels of Management. Discuss the detail function of top management. **[7]**

Q2) a) Explain in detail Henri Fayol's principles of Management. **[7]**

b) Define System Approach to management. Explain the Inter personal behavioral approaches. **[7]**

Q3) a) Planning and forecasting are the essential part of organizational management. Explain. **[7]**

b) Define Staffing. Explain the process of Staffing. **[7]**

Q4) a) Explain the term controlling. Discuss in detail the techniques of controlling. **[7]**

b) Define the term Motivation. Distinguish between X theory and Y theory. **[7]**

Q5) a) "Explain the term Social responsibility of management. **[7]**

b) Explain the SWOT analysis process with suitable example of IT professionals.

[7]

Q6) Short notes (Any Two): **[8]**

a) Budgets as a tool of control.

b) Total Quality Management.

c) Quality of Effective Leader.

d) Business Portfolio Matrix-BCG.

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[4666]-106
M.C.A. (Commerce)
BUSINESS COMMUNICATION
(2013 Pattern) (Semester-I)

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

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

Q1) What is Business letter? Explain in detail layout of Business letters. **[14]**

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

Distinguish between verbal and Non-verbal Communication. **[14]**

Q2) What is listening? Explain in detail types of listening. **[14]**

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

Define communication. Explain importance and scope of business communication. **[14]**

Q3) a) Write order letter to M/S Rajesh Trading company Pune, from Ramesh Trading company Mumbai for placing order for office furniture. **[7]**

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

     b)   i)   Write the noun form of given words: **[2]**

           1)   Modify- _____

           2)   Prosper-_____

       ii)   Fill in the blanks with appropriate adverb give in the bracket **[2]**

           1)   Abdul played-_____. (skill)

           2)   She was- _____. (dress) all in black

iii) Define with suitable example: **[3]**

1) Conjunction

2) Verb

3) Noun

c) Draft Notice and Agenda of M/S Godawari Company limited Surat for their share holder about First annual general meeting. **[7]**

OR

d) i) Fill in the blanks with appropriate preposition: **[2]**

1) He slept _____ eight o' clock.

2) The cat is _____ the kitchen.

ii) Write the Adjective forms of the following words: **[2]**

1) Hope- _____

2) Sense- _____

iii) Write the correct tense form: **[3]**

1) The sun _____ (rise) in the east.

2) I _____ (write) the letter in his presence.

3) It has been _____ (rain) all night.

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

a) How to make listening effective.

b) Effective presentation.

c) Internet and social media sites.

d) Need of business communication.

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[4666] - 11

M.C.A. (Commerce Faculty)
102: SYSTEM ORGANISATION AND MANAGEMENT
(2009 Pattern) (Semester - I)

Time :3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:
1) *Attempt all questions.*
2) *Figures to right indicate full marks.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Assume suitable data, if necessary.*
5) *Use of electronic pocket calculator and steam table is allowed.*

Q1) Explain the following terms: (Any Four)   **[16]**

   a)   Job Enrichment

   b)   Planning.

   c)   Decision-Making

   d)   Leadership

   e)   Marketing Policies

   f)   System

Q2) Answer the following: (Any Four).   **[16]**

   a)   State and explain the principles of Organisation.

   b)   Explain various sources of Recruitment.

   c)   State the advantages of Transaction processing system.

   d)   State the use of Information system in production and Operation Management.

   e)   Explain the role of Intranet in today's dynamic business.

P.T.O.

Q3) Answer the following: (Any Four). **[16]**

   a)   Explain the Software and HardWare Requirement for developing an efficient Information system.

   b)   Discuss the need of Information system in a Large Scale Organisation.

   c)   What do you mean by strengths of Business organisation.

   d)   Explain concept of supply Chain Management.

   e)   Give the importance of Management.

Q4) Answer the following: (Any Four). **[16]**

   a)   Give the Significance of Forecasting in Planning.

   b)   State and explain the features of staffing.

   c)   Describe in detail ''Maslow's Need Hierarchy Theory''.

   d)   Explain the functions of Top Level Management.

   e)   What is MIS?

Q5) Write short notes (Any Four) **[16]**

   a)   Technical Approach of Information System.

   b)   Vision

   c)   Essentials of Good Control System

   d)   Centralisation of Authority

   e)   Expert system

   f)   Enterprise Resource Planning.

✿   ✿   ✿

[4666] - 12
M.C.A. (Commerce Faculty)
PROGRAMMING FUNDAMENTALS: 'C' PROGRAMING
(2008 Pattern) (Semester - I)

Time :3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:

   1)   All questions are compulsory.

   2)   All questions carry equal marks.

   3)   Assume suitable data, if necessary.

Q1) Attempt any four: **[4×4 = 16]**

   a)   Explain the Structure of C-Program.

   b)   Write a short note on User Defined Data Types.

   c)   Explain Increment and Decrement Operators with example.

   d)   What is Header File? Explain use of stdio.h and string.h.

   e)   What is the difference between while and do.... while loop?

Q2) Attempt any four: **[4×4 =16]**

   a)   Write a 'C' Program to accept a four digit number from user and count zero, odd and even digits from the entered number.

   b)   Write a 'C' program to accept a number from user and display following pattern for n line

           5   6   7   8

           5   6   7

           5   6

           5

c) Write a 'C' program to calculate sum of Fibonacci series up to a given terms.

d) Write a 'C' program to calculate the area of Circle & Rectangle.

e) Write a 'C' program to check whether inputted character is digit or alphabet.

Q3) Attempt any four: [4×4 = 16]

a) Explain Scope of Variable in 'C'.

b) What is Array? How to initialize and access elements of an Array?

c) What is structure and what is use of structure in 'C'.

d) What is Pointer? What is the use of Pointer?

e) Explain strlen ( ) & strcat ( ) functions with proper syntax.

Q4) Trace output: (Any Four) [4×4 = 16]

a) void main () {

int i;

for (i = 0; i<=5; i++)

    printf("%d", ++i);

}

b) #include < stdio.h>

int main () {

    int i = 1;

    i = 2+ 2* i+ +;

    printf("%d", i);

    return 0;

}

c)
```c
#include<stdio.h>
int reverse (int);
int main ()
{
    int no = 5;
    reverse (no);
    return 0;
}
int reverse (int no)
{
    if (no = = 0)
        return 0;
    else
        printf("%d", no);
    reverse (- - no);
}
```

d)
```c
#include <stdio.h>
int main ()
{
    int a[5] = {5, 1, 15, 20, 25};
    int i, j, m;
    i = + + a[1];
    j = a[1] ++;
    m = a[i++];
    printf("%d, %d, %d", i,j,m);
    return o;
}
```

e) #include<stdio.h>

    #include<string.h>

    void main ()

    {

    char university [20] = "puneuniversity";

    printf("%d\n", size of (university));

    printf("%d\n", strlen(university));

    }

Q5) Attempt any four: **[4×4 = 16]**

   a) Write a 'C' Program to create a student structure having field rollno, studname and address. Accept the details of 'n' students into the structure, rearrange the data in alphabetical order of studname and display the result.

   b) Write a 'C' program to accept two strings as command line arguments and display union of both the strings.

   c) Write a 'C' program that compares two files and returns 0, if they are equal and 1 if not.

   d) Write a 'C' program to accept two strings str 1 and str 2 and compare them. If they are equal display their length. If str 1> str 2, convert str 1 to uppercase and str 2 to lower case and display the strings.

   e) Write a 'C' program to calculate sum or elements of an M×N matrix.

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[4666] - 14

M.C.A. (Commerce Faculty)
105: OPERATING SYSTEM
(2008 Pattern) (Semester - I)

Time :3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:

1)   All questions are compulsory.

2)   Neat diagrmas must be drawn whereve ncessary.

Q1) Attempt any four of the following: **[4×4 = 16]**

a)   Explain Block and Character Devices.

b)   Explain Indexed Allocation method in detail.

c)   What are the purpose of operating system?

d)   What advantages is there in having different time quantum sizes on different level of a multilevel queuing system?

e)   Explain Resource Allocation Graph in detail.

Q2) Attempt any four of the following: **[4×4 = 16]**

a)   Explain Time Sharing system in detail.

b)   Explain the bounded buffer problem which is a classic problem of synchronization.

c)   Explain Address Binding in detail.

d)   Explain file protection in detail.

e)   Explain Resident Monitor in detail.

P.T.O.

Q3) Attempt any four of the following: **[4×4 = 16]**

a) Explain in brief System calls provided by the operating system for the Communication.

b) Explain Indexed Access Method.

c) Calculate Average Waiting Time and Turn Around Time for Preemptive SJF CPU Scheduling Algorithm.

Process	Burst Time	Arrival Time
P1	2	1
P2	3	2
P3	5	0

d) Explain MFT (Multiple Contiguous Fixed Partition Allocation).

e) Explain the term Swap time and Overlapped Swapping.

Q4) Attempt any four of the following: **[4×4 = 16]**

a) Define file. List and Explain types of file.

b) Write a short note on Second Chance Page Replacement Algorithm.

c) Differentiate between long term and short term Scheduler.

d) Explain FCFS Scheduling Algorithm in detail.

e) Consider the following Page Reference string.

7,5,4,7,8,9,3,4,5,2,8,9,8,7

The number of frames is 3. Show Page traces and calculate page Faults of the following Page Replacement Algorithm.

i) FIFO

ii) LRU

Q5) Attempt any four of the following: **[4×4 = 16]**

a) Differentiate between Internal and External Fragmentation.

b) Compare Contiguous Memory Allocation and Pure Paging.

c) Write a note on deadlock Prevention Strategies.

d) Consider the following snapshot of a system.

	Allocation				Max		
	A	B	C		A	B	C
P0	0	1	0		7	5	3
P1	2	0	0		3	2	2
P2	3	0	2		9	0	2
P3	2	1	1		2	2	2
P4	0	0	2		4	3	3

Available		
A	B	C
3	3	2

Answer the following Question:

i) What is the content of need matrix?

ii) Is the system in safe state?

e) Explain/define the following terms:

i) Secondary memory

ii) Reference String

iii) Turn Around Time

iv) System Program

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[4666] - 15

M.C.A. (Commerce Faculty)
106: SOFTWARE ENGINEERING
(2008 Pattern) (Semester - I)

Time :3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:

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

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

3)   ***Draw neat diagrams wherever necessary.***

Q1) Solve the following case study: **[16]**

Dynamic manufacturing company is a company manufacturing mechanical tools and equipments. The company wants to computerize the sales order processing system.

The customer places an enquiry after which the company gives quotation for the items enquired by the customer. The customer may place order after receiving the quotation, if the customer places an order, the company has to monitor the dispatch of items. Whenever a dispatch is done, it is accompanied with document 'Delivery Chalan Cum Invoice'. After computerization, the company expects the following:

a)   Monitor the order given by customer and dispatch done.

b)   Generation of documents like DC cum Invoice generated reports like.

   i)   Pending order reports.

   ii)   Items dispatch reports.

   iii) Sales analysis reports.

Design the following

i)   Context Level DFD   **[4]**

ii)   1ˢᵗ Level DFD   **[6]**

iii) E-R Diagram.   **[6]**

Q2) Answer the following (Any four)

    a)   What is System? Explain Opened and Closed System with an example.

                                                                                                [4]

    b)   What is maintenance? Explain its types in details.   **[4]**

    c)   Prepare questionnaire for the Voting System.   **[4]**

    d)   Explain prototyping model in details.   **[4]**

    e)   Draw Decision table and decision tree for the maximum of 3 Numbers.**[4]**

Q3) Answer the following (Any four)

    a)   What is feasibility study? Explain any one in details.   **[4]**

    b)   Explain the role of analyst in details.   **[4]**

    c)   Explain the categories of information system.   **[4]**

    d)   What are general rules for conducting interview?   **[4]**

    e)   Explain the different types of test data generators.   **[4]**

Q4) Write a short notes on the following (Any four)

    a)   Structured English.   **[4]**

    b)   4GL   **[4]**

    c)   Waterfall Model   **[4]**

    d)   Re-Engineering and Reverse -Engineering.   **[4]**

    e)   Tanning and Optimization.   **[4]**

Q5) Answer the following (Any four)

    a)   What are the objectives and principles of testing?   **[4]**

    b)   What are the elements of data dictionary?   **[4]**

    c)   ''Can analysis affect the quality of software''. Comment? **[4]**

    d)   Explain different types of implementation strategies.   **[4]**

    e)   What are the differences between WBT and BBT?   **[4]**

✿   ✿   ✿

[4666]-201

M.C.A. (Commerce Faculty)
201 : DATA STRUCTURE USING C
(2013 Pattern) (Semester-II)

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

Instructions to the candidates:
   1)   Neat diagrams must be drawn wherever necessary.
   2)   Figures to the right side indicate full marks.

Q1) a)   Answer Any Three of the following: **[12]**

   i)   Write an algorithm for merge sort.

   ii)   List different types of linked list. Write C function to insert node at given position.

   iii) Define Queue. Explain all primitive operations performed on queue.

   iv)   List graph traversal methods. Explain any one with example.

   b)   Answer Any One of the following: **[2]**

   i)   Define Data Structure.

   ii)   Define ancestor and proper ancestor of a node in a tree.

Q2) Answer Any Three of the following: **[12]**

   a)   Define:

   i)   Stack

   ii)   Priority Queue

   iii) Space complexity

   b)   Write a C function to perform linear search on integers.

   c)   Explain representation of an array.

   d)   Compare singly linked list and doubly linked list.

Q3) Answer Any Three of the following: **[12]**

a) Convert the following into prefix expression. Show stack contains at each conversion ((((P+Q)/R)*S)*T).

b) Write an algorithm for DFS traversal of a graph.

c) List various types of rotations in AVL tree. Explain any one with example.

d) Write C function to perform bubble sort on intergers.

Q4) Answer Any Three of the following: **[12]**

a) Construct binary search tree for the following and also traverse the tree by using inorder, preorder and post order traversal 70, 50, 95, 60, 75, 90, 100.

b) Write C function to delete node from given position for circular linked list. Use dynamic representation.

c) Define:
   i) Max heap
   ii) Hash function
   iii) Big O

d) Solve the following:
   i) Write C function to check whether stack is empty or not.
   ii) Write C function to check whether circular queue is full or not.

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[4666]-202
M.C.A. (Commerce)
202 : OBJECT ORIENTED PROGRAMMING USING C++
(2013 Pattern) (Semester-II) (Credit Systems) (Theory)

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.*
4) *Assume suitable data if necessary.*

Q1) Attempt Any Two: **[2 x 7 = 14]**

a) Design a class 'employee' having empid, name and salary are the data members. Write a menu driven program to do following task using the concept file I/O in C++.

     i) Add employee record.

     ii) View employee record.

     iii) Delete employee record.

b) What is operator overloading? Write a program to overload minus operator for getting the substring.

     For example:

     Stringtemp = examination

     stringtemp - 5 = examin

c) Explain types of inheritance with suitable example of each type.

Q2) Write outputs with explaination (Attempt Any Three):   **[3 x 4 = 12]**

a) Class Test

     {

         public:

         Test ( );

     };

```cpp
Test : : Test ( )
{
    cout << "Constructor called \n";
}
int main ( )
{
    cout << "start \n";
    Test t1( );
    cout << "End\n";
    return 0;
}
```

b)
```cpp
void main ( )
{
    int a, *pa, & ra;
    pa = & a;
    ra = a;
    cout << "a="<<a<<"*pa="<<*pa<<"ra="<<ra;
}
```

c)
```cpp
# include < iostream.h>
int main ( )
{
    char str [ ] = {"\0 work\n hard"};
    cout <<sizeof (str) <<endl;
    cout << str;
    return 0;
}
```

d)
```cpp
# include < iostream.h>
# include < conio.h >
class base
{
```

```
public:
void disp ( )
{
        char * ptr=(char*) '0';
        int i = 96;
        int *j = (int*) & ptr;
        cout << i/*j;
}
};
void main ( )
{
        clrscr ( );
        base b;
        b.disp ( );
}
```

Q3) Attempt Any Three: **[3 x 4 = 12]**

    a)   Whta are virtual base classes? Explain need of virtual base class in building class hierarchy.

    b)   What is a friend function? Explain with suitable example.

    c)   What is polymorphism? What is the difference between compile time and runtime polymorphism

    d)   Write a program to swap two integer number and 2 real numbers. Use Templates.

Q4) Write short note on (Any Three):   **[3 x 4 = 12]**

    a)   Virtual function.

    b)   Features of OOPs.

    c)   Pointers to Object.

    d)   Function Templates.

●●●●●

[4666]-203

M.C.A. (Commerce)

203 : ELEMENTS OF MATHEMATICS

(2013 Pattern) (Semester-II) (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) Attempt Any Two: **[2 x 7 = 14]**

a)   Find the minimum spanning tree for following graph using krushal algorithm.
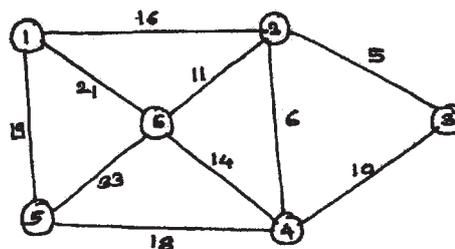
b)   Let A= {1, 2, 3, 4, 5, 6, 7}. Determine a relation R on A by aRb iff 3 divide (a–b). Show that R is an equivalence relation.

c)   Let, P:Raju is rich and Q: Raju is unhappy. Write the following statements in symbolic form:

i)   Raju is poor but happy.

ii)   Raju is neither rich nor unhappy.

iii)   Raju is either rich or unhappy.

iv)   Raju is poor or else he is rich and unhappy.

Q2) Attempt Any Three: **[3 x 4 = 12]**

a)   Let,

$$A = \begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix} \text{ and } B = \begin{bmatrix} 2 & 0 & -4 \\ 3 & -2 & 6 \end{bmatrix}$$

Find A, B.

b) Explain different types of Logical connectivities with truth table.

c) Define and explain:

   i) Eulerian Graph

   ii) Hamiltonian Graph

d) Verify the following implication is a tautology by using truth table.

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

Q3) Attempt Any Three: **[3 x 4 = 12]**

a) Explain the concept:

   i) Isomorphism

   ii) Sub graph

b) Define the transitive closure? Explain the working steps of Warshall's algorithm.

c) Let $X = \{1, 2, 3, 4\}$ and $R = \{<x, y> / x > y\}$. Draw the graph of R and also give its matrix.

d) Define and explain the concept:

   i) Partition of Set.

   ii) Sparse Matrix.

Q4) Attempt Any Three: **[3 x 4 = 12]**

a) Draw and determine the number of pendent vertices in a tree, if it has:

   i) 2 vertices of degree 2 and 1 vertex of degree 3.

   ii) 1 vertex of degree 4, 2 vertices of degree 3 and 1 vertex of degree2.

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

c) Define an explain the following:

   i) Injective function

   ii) Surjective function.

d) In a group of 120 students studying computer course, 84 can program C++ and 66 can program in Java. If 45 can program in both C++ and java; how many of the students are not program in either of the language.

●●●●●

[4666]-204

M.C.A. (Commerce)

204 : SYSTEM ANALYSIS AND DESIGN

(2013 Pattern) (Semester-II) (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 system need to be designed for a departmental store dealing in consumer items. Members enjoy credit facility and can purchase items as and when he or she needs them. Store has several counters and one can almost get all kinds of consumer items after visiting these counters. He becomes member by paying initial membership amount and gets the credit cards. He has to pay his outstanding on quarterly basis. System generate alert to these members. Defaulters are not allowed to purchase items until the default amount is cleared. Consider the different aspects of the above problem and model them appropriately.   **[14]**

   a)   Draw 1st level DFD.

   b)   Draw Membership form and Bill Receipt.

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

   a)   Describe Spiral Model with suitable diagram in detail.

   b)   Design a GUI form for providing student feedback for teaching faculty and infrastructure facilities of the institute.

   c)   In a Shopping Mall, following Scheme is introduced:

         If you are a regular customer, on every shopping of Rs. 5,000 and above, you will get 1 point. On collecting such 10 points you get a free tour package. For points below 10 you get a gift coupon. The collected points between 1 January, 2010 to 31 March, 2010 are only considered for this scheme.

         Draw Decision Tree and Decision Table for the above case.

Q3) Attempt Any Three: **[3 x 4 = 12]**

   a)   Explain Types of Software Testing in detail.

   b)   Explain McCall's Quality factors in detail.

   c)   Explain various Fact-finding Methods in detail.

   d)   Explain RAD model in detail.

Q4) Write short notes on (Attempt Any Three):   **[3 x 4 = 12]**

   a)   Agile process.

   b)   Role of System Analyst.

   c)   Re-engineering.

   d)   Types of Maintenance.

●●●●●

[4666]-205

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

Time : 2½ Hours]   *[Max. Marks : 50*

Instructions to the candidates:

    1)   Question No. 1 and 5 is Compulsory.

    2)   Answer any two questions from Remaining.

    3)   Neat diagrams must be drawn wherever necessary.

    4)   Figures to the right side indicate full marks.

Q1) M/S Singh Book Store is a renowned book agency, which runs a large book store. It keeps books on various subjects. Colleges send an enquiry to the book store and receive a quotation in turn. Book store then receives a purchase order from various colleges and delivers the book along with the delivery challan. M/S Singh wants to automate the entire activities.

Normalize this case up to 3 NF and draw an ER diagram for the same. **[14]**

Q2) a) Explain with proper example the concept of Generalization and Specialization. **[6]**

    b) Explain 3 tier Architecture of DBMS and its advantages over 2 tier architecture. **[6]**

Q3) a) What is Lock? Explain the types of locks. Explain two-phase Locking protocol for concurrency control. **[6]**

    b) Define deadlock. Explain deadlock detection and recovery. **[6]**

Q4) Consider the following table to solve the following queries (Any Six): **[12]**

Student (Sno, Sname, City,Class)

Subject (Sub_no, Sub_name)

Stud_Sub(Sno, Sub_no, Marks)

P.T.O.

a) Create table with constraints.

b) Add new column fee in Student table.

c) Display the name of student Sno between 111-116.

d) Display Sname, Sub_name and Marks students wise.

e) Calculate the average marks from Stud_Sub table.

f) Display the list of students whose Marks second highest.

g) Display the list of students whose name starts with 'D'.

Q5) Write short notes in details. (Any Three): [12]

a) Dynamic SQL.

b) Multivalued Dependency.

c) Recovery with Concurrent Transaction.

d) BCNF.

[4666]-206

M.C.A. (Commerce)
HUMAN RESOURCE MANAGEMENT (CBCS)
(2013 Pattern) (Semester - II)

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

Instructions to the candidates:
1) *All questions are compulsory.*
2) *Attempt any two from each question.*
3) *Figures to the right side indicate full marks.*

Q1) a) Define HRM. What are the modern day challenges faced by today's HR manager? **[7]**

b) Discuss the importance of Manpower planning and elaborate its objectives. **[7]**

c) Define Human resource information system. Explain its importance in organization. **[7]**

Q2) a) Define "HRP" & Explain the steps involved in the process of "HRP". **[6]**

b) Explain 'Job Analysis' Explain the process of job analysis. **[6]**

c) Explain the benefits of training & development to employees/organizations. **[6]**

Q3) a) Explain the employee selection process in detail. **[6]**

b) Explain job specification, job description, job Rotation with example. **[6]**

c) Define Recruitment. Explain the sources of recruitment in brief. **[6]**

Q4) a) Explain methods of employee Training in brief. **[6]**

b) What do you understand by Performance Appraisal? Elaborate purpose of Performance Appraisal. **[6]**

c) Discuss what collective bargaining is and explain its importance in industrial relations. **[6]**

[4666] - 21

M.C.A. (Commerce)
202: RELATIONAL DATABASE MANAGEMENT SYSTEM
(2008 Pattern) (Semester - II)

Time :3 Hours]

[Max. Marks : 80

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

Q1) Attempt all of the following.   **[2×8 = 16]**

a)   Diagrammatically represent 3-tier database architecture.

b)   Which are ACID properties of transaction?

c)   Define:

   i)   Primary Key

   ii)   Super key

d)   What is NOT NULL constraint?

e)   What is Timestamp? Which are two types of timestamp?

f)   What is difference between simple and composite attributes?

g)   What is schedule?

h)   Give syntax for ORDER BY clause in SQL.

Q2) Attempt any four.   **[4×4 = 16]**

a)   Write a note on Dynamic SQL.

b)   Write a note on Multiple Granularity Locking.

c)   Write a note on Log Based Recovery.

d)   What is difference between 2-phase Locking protocol and Strict 2-Phase Locking protocol? Explain in detail.

e)   What is Integrity Constraint? Which are different types of Integrity Constraints?

P.T.O.

Q3) Attempt any four. [4×4 = 16]

    a)   What is Normalization? What are advantages of normalization?

    b)   Explain different types of failure in system?

    c)   What is transaction? Explain states of transaction with diagram.

    d)   Explain following Relational Algebra operations

        i)   DIVISION

        ii)   INTERSECTION

    e)   Which are different users of DBMS?

Q4) Attempt the following. [10+6 = 16]

    A)   In 'Niramay' hospital many doctors are working. Personal information of doctors are maintained to get them fixed salary per month. The patients are admitted to the hospital into room. They are treated by various doctors. Sometimes patients perform certain pathological tests which carried out into the labs. [1×10 = 10]

Draw E-R Diagram for the above scenario. Identify Entities and Relationships among Entities.

    B)   Attempt all of the following. [2×3 = 6]

        a)   Write a note on Specialization.

        b)   What is Authorization? Explain in detail.

Q5) Attempt following. [10+6 = 16]

    A)   Consider the following Schema [1×10 = 10]

        Machine (mno, mname, mtype, mcost)

        parts (pno, pname, pdesc)

        M_P (mno, pno)

        Machine and Parts are related with Many to Many relationship.

Solve the following queries using SQL

    a)   Increase the cost of the machine by 10%.

    b)   Display name of machine whose cost is between 50,000 to 70,000.

    c)   Delete the record from part whose part name is 'Wheel'.

Solve the following queries using Relational algebra

    a)   List all parts of 'CNC' machine.

    b)   List all machines having cost greater than 1,00,000.

B)   Attempt all of the following.   **[2×3 = 6]**

    a)   Consider the following transactions

T1	T2	T3
R(A)	R(C)	R(B)
A = A + 10	R(B)	R(C)
W(A)	W(B)	B = B+15
R(B)	R(A)	W(B)
B = B - 10	A = A - C	C = C+B
W(B)	W(A)	W(C)

Find out a schedule which is serializable to serial schedule <T1, T2, T3>.

    b)   Consider the following non-serial schedule. Is this schedule is serializable to serial schedule <T1, T2, T3>?

T1	T2	T3
R(A)		
A=A-100		
W(A)		
		R(C)

R(B)

B = B+100

W(B)

      R(B)

      B = B - C

      W(B)

            R(B)

      R(A)
      A = A+C
      W(A)

            R(C)
            B = B-500
            W(B)
            C = C - B
            W(C)

✡   ✡   ✡

[4666] - 22

M.C.A.(Commerce Faculty)
203 - COST ACCOUNTING AND COST CONTROL TECHNIQUES
(2008 Course) (Semester - II)

Time : 3 Hours]
[Max. Marks : 80

Instructions to the candidates:

1) All questions are compulsory.

2) All questions carry equal marks.

Q1) Answer the following : (Any Four):
[16]

   a)   What are the advantages of cost accounting?

   b)   Differentiate between Cost accounting vs. financial accounting.

   c)   What is the difference between Cost unit and cost centre?

   d)   Give Element wise classification of cost.

   e)   Give Functional classification of overheads.

Q2) The following figures have been extracted from the records of a manufacturing company for the year ending 31st March, 2013. You are required to prepare a statement of cost showing:
[16]

   a)   Cost of raw materials consumed

   b)   Prime Cost

   c)   Factory Cost

   d)   Cost of production

   e)   Cost of goods sold

   f)   Total cost of goods sold and profit on sales.

Particulars	Rs.
Stock of Raw Materials (01-04-2012)	3,000
Stock of Raw Materials (31-03-2013)	2,400
Purchases of Raw Materials	14,000
Stock of work-in-progress(01-04-2012)	1,000
Stock of work-in-progress(31-03-2013)	800
Carriage inward	500
Manufacturing wages	4,000
Other direct expenses	200
Indirect wages	1,000
Experiment expenses	400
Wastage of materials	50
Factory overhead	7,000
Establishment on costs	2,000
Selling overhead	4,000
Distribution overhead	1,000
Stock of finished goods (01-04-2012)	1,200
Stock of finished goods (31-03-2013)	3,000
Sales	40,000

Q3) The following are the expenses on a contract which commences on 1st Jan.2013

[16]

Materials purchased	9,00,000
Materials on hand	1,75,000
Direct wages	2,70,000
Plant issued	75,000
Direct expenses	1,55,000

The contract price was Rs. 15,00,000 and the same was duly received when the contract was completed in August 2013.

Charge indirect expenses at 15% on wages.

Provide Rs. 15,000 for depreciation on plant and prepare the contract account and the contractee's account.

OR

A transport service company is running five buses between two towns which are at 50 kms distance. Seating capacity of each bus is 50 passengers. The following particulars were obtained from their books for April, 2013: **[16]**

Particulars.	Rs.
Wages of drivers, conductors and cleaners	24,000
Salaries of office staff	10,000
Diesel oil and other oil	35,000
Repairs and Maintenance	8,000
Taxation, Insurance etc.	16,000
Depreciation	26,000
Interest and other expenses	20,000
	1,39,000

Actually, passengers carried were 75 percent of seating capacity. All buses ran on all days of the month. Each bus has made one round trip per day. Find out the cost per passenger km.

Q4) Given the following information, prepare a cash budget: **[16]**

Month	Sales	Purchases	Wages	Production overheads	Selling overheads
Jan	100000	40000	10000	6000	6000
Feb	120000	45000	15000	6500	6500
March	150000	35000	18000	7000	6600
April	160000	30000	20000	7700	6800
May	175000	25000	22000	8000	6200
June	200000	20000	24000	8500	6300

The company has a policy of selling its goods at 50% cash and the balance on credit. On credit sales, 50% is paid in the following month and balance 50% two months from the sale. Purchases are paid one month from the month of purchase wages are paid in the following month and overheads are also paid in the following month. The company plans a capital expenditure, in the month of April, for Rs. 25,000.

The company has an opening balance of cash of Rs. 40,000 on 1st Jan 2010. Prepare a cash budget for Jan to June.

OR

a) Rajkumar Ltd. provides you the following information: **[8]**

	Sales (Rs.)	Profit(Rs.)
Period 1	10,000	2,000
Period 2	15,000	4,000

You are required to calculate:

i) P/V ratio

ii) Fixed cost

iii) Break-even sales volume

iv) Sales to earn a profit of Rs. 3,000 and

v) Profit when sales are Rs.8,000

b) Calculate Material Cost Variance from the following information: **[8]**

Standard Price of material per kg = Rs. 4

Standard Usage of materials = 800 kgs

Actual Usage of materials = 920 kgs

Actual Price of materials per kg = Rs.3

Actual Cost of material Rs. 2,760

Standard cost of material for actual production Rs. 3,200

Q5) Write short notes on (Any four): **[16]**

a) Methods of absorption of overheads.

b) Methods of costing.

c) Re-apportionment of overheads.

d) Under and over absorption of overheads.

e) Direct and indirect cost.

✦ ✦ ✦ ✦

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M.C.A. (Commerce Faculty)
ACCOUNTING FOR MANAGEMENT
(2008 Pattern) (Semester - II)

Time :3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:

    1)   *All questions are compulsory & carry equal marks.*

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

    3)   *Use of claculator is allowed.*

Q1) Explain the term "Management Accounting". Distinguish between Management Accounting and other forms of Accounting.   **[16]**

OR

"The technique of Marginal Costing can be a valuable aid to Management" –comment on the statement by stating advantages & application of Marginal Costing.

[16]

Q2) Following are the ratios relating to the activities of Bharat Traders Limited**[16]**

Stock Velocity   6

Proprietary Fund Turnover Ratio (On Cost of Sales)   2

Fixed Assets Turnover Ratio (On Cost of Sales)   4

Gross Profit Ratio   20%

Debtors Velocity   2 Months

Creditors Velocity   73 Days

Gross Profit Rs. 3,00,000/- and Reserves and Surplus amounted to Rs. 1,00,000/-.

Closing Stock was Rs. 25,000/- in excess of Opening Stock.

Calculate - a)   Closing Stock,   b)   S.Debtors   c)   S.Creditors

d)   Share Capital   e)   Fixed Assets.

OR

What do you mean by Cash Flow Statement? Explain its advantages. How does Cash Flow Statement differs from a Funds Flow Statement.   **[16]**

Q3) The monthly budgets for manufacturing overheads of a concern for two levels of activity were as follows.   **[16]**

Capacity	60%	100%
Budgeted Production	600Units	1,000Units
Particulars	Amount Rs.	Amount Rs.
Wages	1,200	2,000
Consumable Stores	900	1,500
Maintenance	1,100	1,500
Power and Fuel	1,600	2,000
Depreciation	4,000	4,000
Insurance	1,000	1,000
Total	9,800	12,000

You are required to -

a)   Indicate with reason which of the items are fixed, Variable and Semi-variable overheads?

b)   Prepare a budget for 80% Capacity.

c)   Find out both Fixed Cost and Variable Cost per Unit of Output at 60%, 80% and 100% Capacity.

OR

The following figures are extracted from the books of a manufacturing concern for the year 2013-14. **[16]**

Direct Material   Rs.   4,10,000/-

Director Labour   Rs.   1,50,000/-

Fixed Costs   Rs.   1,20,000/-

Variable Overheads   Rs.   2,00,000/-

Sales   Rs. 10,00,000/-

Calculate -

a)   Profit Volume Ratio

b)   B.E.P. Sales

c)   Profit when sales are of Rs. 8,00,000/-

d)   Sales to earn profit of Rs. 7,50,000/-

e)   Effect on BEP if,

    i)   10% increase in Fixed Costs

    ii) 10% increase in Variable Overheads

Q4) Balance Sheets of Cullinan Co. Limited as on 31st March, 2013 and 31st March, 2014 **[16]**

Liabilities	31-03-2013 Rs.	31-03-2014 Rs.	Assets	31-03-2013 Rs.	31-03-2014 Rs.
Share Capital	1,50,000	1,75,000	Fixed Assets	2,50,000	3,00,000
			(-) Accumulated	50,000	62,500
			Depreciation	2,00,000	2,37,500
General Reserve	50,000	6,25,000	Investment	45,000	45,000
Capital Reserve	---	2,500	Stock	50,000	67,500
Profit & Loss A/c.	25,000	50,000	S. Debtors	56,250	61,250
10% Debentures	75,000	50,000	Bills Receivable	10,000	16,250
O/s. Expenses	2,500	3,000	Cash	2,500	3,000
S. Creditors	40,000	62,500	Discount on issue of Debentures	3,750	2,500
Provision for Taxation	17,500	19,000			
Proposed Dividend	7,500	8,500			
Total	3,67,500	4,33,000	Total	3,67,500	4,33,000

Additional Information:

a) During the year Investments costing Rs. 25,000/- were sold at 10% profit which was credited to Capital Reserve A/c.

b) During the year Fixed Assets with a net block value of Rs. 2,500/- (Accumulated Depreciation of Rs. 7,500/-) was sold for Rs. 2,000/-.

c) Taxed paid for the year amounted to Rs. 15,000/-

d) 10% Debentures were redeemed at a premium of 20%.

Prepare the Statement of Sources and Application of Funds for the year ended 31st March, 2014 showing the changes in the Working Capital. (All working notes are to form part of your answer)

OR

Explain in detail various types of Budgets. **[16]**

Q5) Write short notes (Any Two): **[16]**

a) Common Size Statement.

b) Budget Committee.

c) Scope of Management Accounting.

d) Limitations of Ratio Analysis.

✦ ✦ ✦ ✦

M.C. A. (Commerce Faculty)
205: NETWORKING OPERATIONS
(2008 Pattern) (Semester - II)

Time :3 Hours]

[Max. Marks : 80

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

Q1) Attempt the following (Any Four)　　　　　　　　　　　　　**[20]**

a) What is Computer Network.

b) What is Search Engine? Explain.

c) Explain briefly TCP/IP Internet Model Radio Waves wireless transmission briefly.

d) What do you understand by Fiber Optics Cable?

e) Explain briefly TCP/IP Internet Model.

Q2) Attempt the following (Any Four)　　　　　　　　　　　　　**[20]**

a) Explain briefly Transparent Bridges.

b) Explain Gateways in detail.

c) Explain Simplex and Full Duplex communication.

d) What do understand by propagation Methods?

e) Explain briefly LAN and WAN.

Q3) Attempt the following (Any Four)   **[20]**

    a)   Explain any two types of Network Topology.

    b)   Explain briefly Internet Service provider.

    c)   Differentiate between Server Bases LANs and Peer-to-Peer LANs.

    d)   What do you understand by Coaxial Cable?

    e)   Explain briefly Bluetooth.

Q4) Write Short Note on (Any Two)   **[20]**

    a)   ISO-OSI reference Model.

    b)   Network Interface Card.

    c)   Network Security Devices.

✧   ✧   ✧

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M.C.A. (Commerce)
206: OBJECT ORIENTED PROGRAMMING
(2008 Pattern) (Semester - II)

Time :3 Hours] *[Max. Marks : 80*

Instructions to the candidates:
  1) *All questions are compulsory.*
  2) *Figures to the right side indicate full marks.*
  3) *Assume suitable data, if necessary.*
  4) *Answer of sub questions of each questions should be attempted at one place. It should not be written separately.*

Q1) Attempt any Four: **[4×4 = 16]**

  a) ''Destructor does not take any argument in C++''. Justify (T/F).

  b) What is constructor? Explain with example parameterized and overloaded constructor.

  c) Write similarities of Abstract class and interface in java.

  d) Explain primitive data types in java.

  e) Explain the following keywords:

   i) static

   ii) final

Q2) Attempt any Four: **[4×4 = 16]**

  a) Write a note on Type casting.

  b) Explain the terms with example:

   i) Pass by reference

   ii) Return by reference

  c) How constants and variables are important in developing a program? Give examples in C++ & Java.

P.T.O.

d) Compare working with array with reference to Java and C++?

e) Explain the base class access controls in C++.

Q3) Attempt any Four. [4×4 = 16]

a) What is the purpose of following operator?

i) :

ii) : :

b) Why Java is more secure language than other programming language?

c) What is Friend Function? Explain with example.

d) What is Operator Overloading? Explain Compile and Run Time Polymorphism (using C++).

e) Give difference between C++ and Java.

Q4) Attempt any Four. [4×4 = 16]

a) Write a program in Java to create an abstract class volume. Derive two classes Cylinder and Cone. Calculate volume of both.

b) Write a program to print the following pattern using C++:

11

13   15

17   19   21

23   25   27   29

c) Write a program using C++ to overload binary % operator to calculate mod of the values contained in two different objects.

d) Write a Java program to accept two integer values from Command Line Argument and calculate Power of Integer.

e) Write a Java program to accept a number from the user. If number is zero, then throw user defined exception "Number is Zero", otherwise check whether number is prime or not (use static keyword).

Q5) A) Trace the output: (Assume there is not syntax error): **[2×4 = 8]**

a) public class Test

{

static void nPrint (String msg, int n)

{ while (n%2 = = 0) {

System.out.println(msg);

n - -;}

}

public static void main(String a [])

{

Test t = new Test ();

t.nPrint ("A Message", 2);

}

}What will be the output, when executed? Explain Why?

b) #include<iostream.h>

class base

{public:

virtual void fun ( )

{ cout << "function of base";}

void run ( )

{ fun ( ); }

};

class derived: public base

{ public:

void fun ( )

    { cout < < "function of derived";}

};

void main ( )

{

derived d;

d.fun ( );

}

What will be the output, when executed? Explain Why?

B) Attempt any two: **[2×4 = 8]**

   a)   Write a program using java to find out the sum of all integers greater than 100 and less than 200 that are divisible by 7.

   b)   Create a class time having data members hours and minutes, also define constructors to assign objects and create friend function sum to add two objects. Display sum by using display member function.

   c)   Write a program in java to check whether the entered character is digit, alphabet or space character.

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[4666]-301

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

301:CORE JAVA

(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)   Assume suitable data if necessary.

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

   a)   What is Hash Set?

   b)   Write any two features of Java.

   c)   What is access scope of protected method?

   d)   Write the java statements to create the array of 10 integers.

   e)   Name the Java package containing all stream classes.

   f)   What is the role of CLASSPATH variable?

   g)   What type of variables can be defined in an in interface?

   h)   What is difference between paint and repaint ( )

   i)   Which method is used specify containers layout? write its syntax.

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

   a)   Explain primitive data types used in java.

   b)   What are the advantages of collection class?

   c)   Write a Java program that displays the number of non - vowels in a given word.

   d)   Write a java program to create a frame containing two buttons (Yes/No) when button Yes or No is pressed, message displayed in a label control such as "Button Yes/No is pressed".

Q3) Attempt any three : [3×4=12]

a) Explain the process of memory allocation and deallocation of an object in java.

b) How to create an user defined exceptions.

c) Write a Java program to accept 'n' movie names from the user, insert into ArrayList and display the contents of same Array List also remove all these elements.

d) Write a program to define an abstract class Round shape with one data member radius and a constant PI. Declare abstract methods Find Area ( ) and Find Volume ( ). Define a sub class sphere and calculate the area and volume of a sphere object.

Q4) Attempt any three : [3×4=12]

a) How does applet differ from application program? Explain in detail.

b) Why AWT is used in Java? Explain any two components with suitable example.

c) Write a java program to accept 5 strings, if a digit is entered then an user defined exception "Error :: Enter valid string" is thrown.

d) Create a package MCA which will have 2 classes class MATHS with a method to add 2 integers and another method to add 3 float values. Class maximum with a method to find maximum of 3 Numbers.

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[4666] - 302

M.C.A. (Commerce)
302: ADVANCED DATABASE MANAGEMENT SYSTEM
(2013 Pattern) (Semester -III) (Credit System)

Time :3 Hours]

[Max. Marks : 50

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

Q1) Attempt the following:

   a)   What are similarities between OODBMS & ORDBMS?   **[4]**

   b)   Explain C/S Architecture.   **[4]**

   c)   Define: **[2]**

   i)   Spatial Data

   ii)   Raster Data

Q2) Attempt the following:

   a)   What is difference between foreign key & object identity?   **[4]**

   b)   Why there is need of parallel database system? Differentiate between shared disk & shared memory architecture.   **[4]**

   c)   What is object data model?   **[2]**

Q3) Attempt the following:

   a)   Write a note on grid file.   **[4]**

   b)   Write a note on partitioned Join.   **[4]**

c) Define: **[2]**

   i)   Linear speed up

   ii) Linear scale up

Q4) Attempt the following:

   a) What is distributed database system? Which are types of distributed database system? **[4]**

   b) Explain Abstract model of transaction system. **[4]**

   c) What is Read One Write All Available approach? **[2]**

Q5) Attempt the following:

   a) Write a note on Nested loop Join. **[4]**

   b) Write a note on object Exchange Model. **[4]**

   c) What is query optimization? **[2]**

Q6) Attempt the following:

   a) Write a note on HITS algorithm. **[4]**

   b) Write a note on object. **[4]**

   c) Define: **[2]**

   i)   Precision

   ii) Recall

Q7) Attempt the following:

   a) Consider the following schema

   Game (<u>gno</u>, gname, no-of players, coachname)

Perform Horizontal fragmentation of Game relation using following predicates.

P_1: $\sigma_{g\,name}$ = "Cricket"

P_2: $\sigma_{g\,name}$ = "Hockey"

P_3: $\sigma_{g\,name}$ = "Football" [5]

b) Perform vertical fragmentation of Book relation given below. Book (bno, bname, price, pubname). According to following requirements. [5]

i) Site A requires information about bno, & bname.

ii) Site B requires information about price & pubname.

Q8) Attempt the following:

a) Explain Inverted Index in detail with suitable example. [5]

b) Explain in detail steps of query processing. [5]

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[4666] - 304

M.C.A. (Commerce)
304: NETWORK OPERATIONS
(2013 Pattern) (Semester -III) (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) Solve.

  A) Solve any Three.   **[4×3 = 12]**

    a)   Write note on Mesh topology.

    b)   Explain layer functionality of OSI model.

    c)   Explain sliding window protocol in detail.

    d)   Write note on ALOHA.

  B) Solve Any ONE.   **[2×1 = 2]**

    a)   Compare LAN, WAN, MAN.

    b)   Define Bandwidth and Throughput.

Q2) Solve any Three.   **[4×3 = 12]**

  a)   Explain various design issues of layers.

  b)   Explain NRZ-L & NRZ-I in detail.

  c)   Explain various error control methods in detail.

  d)   How to implement connection oriented services? Explain design issues
        of it on Network layer.

Q3) Solve Any Three.   **[4×3 = 12]**

    a)   Write note on service primitives.

    b)   What is message switching? Write Advantages & disadvantages.

    c)   Write note on IPv4 protocol.

    d)   Explain the concept of VLAN.

Q4) Solve Any Three.   **[4×3 = 12]**

    a)   Explain client server Network. Write Advantages and disadvantages.

    b)   Explain logical Addressing. Write IPv6 address structure.

    c)   Explain twisted pair cable with its type.

    d)   Consider a noiseless channel with bandwidth of 3000Hz transmitting with 4 signal levels. Find out maximum bit rate.

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[4666] - 305

M.C.A. (Commerce Faculty)
306: OPERATING SYSTEM
(2013 Pattern) (Semester -III)

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

Instructions to the candidates:
1) *All questions are compulsory.*
2) *Neat diagrams must be drawn whenever necessary.*

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

    a)   List component of operating system.

    b)   What are the attributes of file.

    c)   List the stages of process.

    d)   What is Role of PCB (Process Control Block).

    e)   Define pre-emptive scheduling.

    f)   What is mean by critical section?

    g)   What is the structure of semaphore?

    h)   Define circular wait.

Q2) Attempt the following (Any 3).   **[3×4 = 12]**

    a)   Discuss advantages and dis- advantages of paging.

    b)   Explain functions of operating system.

    c)   What are types of system call? Explain any one in detail.

d) Consider following process. Calculate average turn around time (TAT) for processes with Non-pre-emptive SJF and priority pre-emptive CPU scheduling algorithm.

Process	Arrival Time	Burst Time	Priority
P$_1$	0	8	4
P$_2$	1	6	6
P$_3$	3	7	3
P$_4$	3	9	1

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

a) Explain virtual memory in detail.

b) What is linked allocation? Explain it.

c) Explain Resource allocation graph.

d) Consider the following page reference string:

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 7, 0. How many page fault will occur for following page replacement algorithm, assuming 4 frames.

i) Optimal Replacement

ii) LRU replacement

Q4) Attempt the following: (Any 3)   **[3×4 = 12]**

a) Explain Deadlock prevention method.

b) Explain Multilevel Feedback Queues.

c) What are shared pages? Explain the concept of it.

d) Consider the following snapshot of system. A system has 5 processes & 4 resource types.

	Allocation		
	A	B	C
P_0	0	1	0
P_1	2	0	0
P_2	3	0	2
P_3	2	1	1
P_4	0	0	2

	Max		
	A	B	C
P_0	7	5	3
P_1	3	2	2
P_2	9	0	2
P_3	2	2	2
P_4	4	3	3

Available		
A	B	C
3	3	2

Answer the following questions using Banker's algorithm.

i) What are the content of matrix need?

ii) Is the system in a safe states? Give safe sequence.

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[4666] - 306

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

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 system architecture of transaction database access for M-commerce client.

b) Explain any 3 communication technology in detail for mobile commerce technology.

c) Explain Mobile purchase, mobile marketing and advertising in detail.

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

a) Explain the role of wireless network in mobile commerce services.

b) Explain different players in M-commerce.

c) Explain concept of local database in Mobile Environment.

d) Explain HTML & XML.

Q3) Answer the following (Any Three) :   **[12]**

a) Explain Global transaction processing.

b) Explain GPRS & EDGE.

c) Explain distribution to Handheld services in Mobile commerce services.

d) Differentiate between M-commerce & E-commerce.

Q4) Write short note on (Any Three) :   **[12]**

a) Utilization at consistent data broadcast.

b) M-commerce Application : location based services

c) 4G.S.

d) Content catching.

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[4666]-31

M.C.A. (Commerce Faculty)
301:ADVANCED OPERATING SYSTEM
(2008 Pattern) (Semester - III)

Time : 3 Hours]   *[Max. Marks :80*

Instructions to the candidates:

   1)   *All questions are compulsory.*

   2)   *All questions carry equal marks.*

Q1) Attempt any four of the following :   **[4x4=16]**

   a)   Write a short note on Hungarian notation.

   b)   Explain valid and Invalid rectangle.

   c)   Define caret. Explain all the caret functions.

   d)   Explain virtual key codes.

   e)   Explain unix operating system services.

Q2) State true or false and justify your answer (any four):   **[4x4=16]**

   a)   Window is an object.

   b)   The 'edit' control provides built in cut, copy, paste functionality.

   c)   System menu of a window cannot be modified.

   d)   An MDI application is multithreaded.

   e)   WM-PAINT message is generated only when window is resized.

Q3) Answer the following (Any Eight):   **[8x2=16]**

   a)   Explain Peek message ( ).

   b)   Define pipe. Write its syntax.

   c)   Define view port.

   d)   Write any two unix commands.

   e)   What is DIB?

f) Define scroll bar. Give any two properties of scroll bar.

g) Explain any two shell commands.

h) Define kernel.

i) What is SDK?

j) Write syntax for 'write' system call.

Q4) Answer the following (Any four): **[4x4=16]**

a) Write a shell program to find factorial of given number.

b) Write a shell script to display list of all files in current directory.

c) Display a modal dialog box containing text "This is message box" and a OK Button, when user presses F1 key.

d) Display a "Hello message" at the point in client area where the right mouse button is pressed and erased when it is released.

e) Write a window procedure to scroll string " Good Morning" in client area by using Timer Method.

Q5) Answer the following (Any four): **[4x4=16]**

a) Explain why there is a need to lock Inode during read algorithm?

b) Explain mounting and unmounting algorithms in file system.

c) Explain sleep and wake up ( ) algorithms.

d) What is the difference between Interrupts and Exceptions?

e) Explain UNIX system architecture in detail.

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[4666]-32

M.C.A. (Commerce Faculty)
303:ENTERPRISE RESOURCE PLANNING AND MANAGEMENT
(2008 Course) (Semester - III)

Time : 3 Hours]   *[Max. Marks :80*
Instructions to the candidates:
   1)   *Solve any five questions.*
   2)   *All questions carry equal marks.*
   3)   *Give illustration, draw diagrams whenever necessary.*

Q1) What is ERP? Describe problem areas in ERP implementation and Reasons for growth of ERP. **[16]**

Q2) What do you mean Data Warehousing? Describe its characteristics? Explain various components of data warehouse. **[16]**

Q3) What is BPR? Explain different phases of BPR. **[16]**

Q4) Write a short notes on: **[16]**

   a)   Oracle

   b)   Jd-Edwards

   c)   OLAP

   d)   PeopleSoft

Q5) What is Vendor? Explain the Role of Vendor for ERP. **[16]**

Q6) What is EDI? Explain various EDI Standards and EDI Services. **[16]**

Q7) Explain ERP implementation life cycle. **[16]**

Q8) Explain the term: [16]

  a) ERP and E-Commerce

  b) Benefits of ERP

  c) IDoc

  d) Integrated mangement information.

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[4666]-34

M.C.A. (Commerce Faculty)
305 CYBER LAW AND ETHICS
(2008 Pattern) (Semester - III)

Time : 3 Hours]　　　　　　　　　　　　　　　　　　　*[Max. Marks :80*

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

Q1) Attempt any four of the following:　　　　　　　　　　**[4x4=16]**

　　a)　Explain intellectual property in cyberspace.

　　b)　Define insurance. Give its advantages.

　　c)　Explain the term controller to act as repository.

　　d)　Explain the section of acknowledgement of receipt.

　　e)　Explain section under duties of subscribers.

Q2) Attempt any four of the following:　　　　　　　　　　**[4x4=16]**

　　a)　Explain encryption with example.

　　b)　List some modes of operation in data Processing Application.

　　c)　What is symmetric cryptosystem? Give some limitaions of symmetric cryptosystem.

　　d)　Explain with example cryptosystem for Authentication.

　　e)　Explain RSA algorithm.

Q3) Attempt any four of the following:　　　　　　　　　　**[4x4=16]**

　　a)　Explain in details skipjack.

　　b)　Explain triple DES.

　　c)　Explain with example how public cryptosystem works in practice?

　　d)　What are cyber contracts? Explain.

　　e)　Explain in brief formation of electronic contracts.

Q4) Attempt any four of the following: [4x4=16]

a) Explain mistake in electronic commerce.

b) Explain chat stalking.

c) What is online Harassment? Explain.

d) Give a brief description of Bulletin Board system.

e) Explain a real problem in the virtual world concerned to cyber stalking.

Q5) Attempt any four of the following: [4x4=16]

a) How cyber crimes are classified? Explain.

b) Write a short note on IT ACt, 2000.

c) What is computer virus? Explain.

d) Explain User Datagram Protocol (UDP) attack.

e) Explain web Based crimes.

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[4666]-35

M.C.A. (Commerce Faculty)
306:FINANCIAL AND INVESTMENT ANALYSIS
(2008 Pattern) (Semester - III)

Time : 3 Hours]   *[Max. Marks :80*

Instructions to the candidates:
1) *All questions are compulsory.*
2) *All questions carry equal marks.*

Q1) What is Mutual Fund? List out in brief the RBI guidelines on Mutual Fund.

OR

Explain in brief the regulations of Primary Market and Secondary Market.

Q2) What do you understand by 'derivative Trading'? Explain the various categories of detivative trading.

OR

What is 'Technical Analysis'? Explain the various tools of Technical Analysis.

Q3) Describe the objectives of OTCEI. Explain the role and importance of OTCEI in development of small companies.

OR

What do you understand by Portfolio Investment Performance? Explain the various components of Portfolio Investment Performance.

Q4) What is MARKOWITZ Model? Expalin the assumptions and parameters of Markowitz diversification.

OR

What is 'Company Analysis'? Explain in detail how company analysis is made.

Q5) Write detailed notes on any two of the following:

a) Charting tools.

b) Risk adjustment and performance measurement.

c) Stock selection and market timing.

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[4666]-41

M.C.A. (Commerce)

401: ADVANCED DATABASE MANAGEMENT SYSTEM

(2008 Pattern) (Semester - IV)

Time : 3 Hours]   *[Max. Marks :80*

Instructions to the candidates:

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

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

   3)   *Assume suitable data if necessary.*

Q1) Write a note on (Any 4):   **[4x4=16]**

   a)   Client/Server Architecture.

   b)   Object Identity.

   c)   OLAP.

   d)   Grid Files.

   e)   Majority based approach.

Q2) Attempt Any 4 of the following: **[4x4=16]**

   a)   What is distributed database system? Explain its different types.

   b)   Difference between OODBMS & ORDBMS.

   c)   What is semistructured Data? How it is represented?

   d)   Compare remote backup and replication in terms of availability.

   e)   What is difference between thin and thick client?

Q3) Attempt Any 4 of the following: **[4x4=16]**

   a)   What is data partitioning? Which are the data partitioning techniques?

   b)   What do you mean by Extended E-R Model? Explain with suitable example.

   c)   Write a note on KDD.

   d)   Explain parallel database architecture.

   e)   Write a note on Object Exchange Model.

Q4) Attempt Any 4 of the following: [4x4=16]

    a) Define:

        i) Cache-coherency problem.

        ii) Intrquery parallelism.

        iii) Intraquery parallelism

        iv) I/O Parallelism.

    b) How to use inverted index?

    c) Write a note on spatial data.

    d) What is DSS? State benefits of DSS.

    e) Write a note on OLTP.

Q5) Attempt Any 4 of the following: [4x4=16]

    a) Define:

        i) Posting File

        ii) Ranked Query

        iii) Boolean Query

        iv) Term Frequency

    b) What is query optimization?

    c) What is vector space model?

    d) Consider the following schema:

        Game(gno, gname, no_of_players, coachname)

        Perform horizontal fragment of the Game relation using following predicates:

        $P_1 : \sigma_{gname="cricket"}$
        $P_2 : \sigma_{gname="hocky"}$
        $P_3 : \sigma_{gname="football"}$

    e) perform vertical fragmentation of Book relation given below

        Book (bno, bname, price, pubname)

        According to following requirements.

        i) site A requires information about bno, bname.

        ii) Site B requires information about price & pubname.

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[4666]-42

M.C.A. (Commerce)
402: DATA CENTER TECHNOLOGIES
(2008 Pattern) (Semester - IV)

Time : 3 Hours]   *[Max. Marks :80*

Instructions to the candidates:
1) *All questions are compulsory.*
2) *Figures to the right side indicate full marks.*
3) *Assume suitable data if necessary.*

Q1) Attempt following (any four):   **[4x4=16]**

a)   What are the types of complex cluster configuration? Describe any one of them.

b)   What are the types of load balancing? Explain any one type in detail.

c)   Explain different guidelines for automation.

d)   What do you mean by slowest link? How to identify it explain with suitable example.

e)   Explain following:

   i)   SPEC - mail benchmark

   ii)   SPEC - web benchmark

Q2) Attempt following (any four):   **[4x4=16]**

a)   Explain various reasons to maintain proper environment within datacenter.

b)   What things are taken in consideration to make configuration and maintenance easy within datacenter?

c)   Explain various causes of downtime within datacenter.

d)   How to select proper location for datacenter?

e)   Explain following:

   i)   Aisles

   ii)   Plenum

Q3) Attempt following (any four): **[4x4=16]**

   a) Explain different aspects of system performance.

   b) What do you mean by automation? Explain different types of automation.

   c) What is load balancing? Explain different terms used in load balancing.

   d) What is cluster? Explain different types of cluster?

   e) Explain following:

       i) Electrostatic discharge (ESD).

       ii) Power conditioning.

Q4) Attempt following (any four): **[4x4=16]**

   a) Enlist various high availability metrics. Explain each in detail.

   b) What are the drawbacks of complex cluster configuration?

   c) What is server sizing? Why server sizing and capacity planning are difficult and produces inaccuracies?

   d) Explain following cluster components?

       i) Administrative (maintenance) network.

       ii) Shared disks.

   e) What are the characteristics of an outstanding design?

Q5) Write a short note on following (Any four): **[4x4=16]**

   a) NOC.

   b) Cold-liquid air conditioning system.

   c) Private Heartbeat Networks.

   d) Power distribution units (PDUs).

   e) Internet access in datacenter.

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[4666]-43

M.C.A. (Commerce)

403: WEB ENABLING SYSTEM AND BUSINESS APPLICATION
(New 2008 Pattern) (Semester - IV)

Time : 3 Hours]   *[Max. Marks :80*

Instructions to the candidates:

1) *All questions are compulsory.*
2) *Figures to the right side indicate full marks.*
3) *Assume suitable data if necessary.*
4) *Answer of sub questions of each questions should be attempted at one place. It should not be written separately.*

Q1) Attempt any Four: **[4x4=16]**

    a)   Explain need of adapter in business system?

    b)   Write a note on MVC.

    c)   Explain various tags used in JSP.

    d)   Explain simple working of client and server with proper example?

    e)   Explain use of factory pattern in web development?

Q2) Attempt any Four: **[4x4=16]**

    a)   Explain the role of thread and integrity property in web application?

    b)   Give comparative explanation on HTML and XML.

    c)   Explain structure of Design pattern.

    d)   Define Server. Explain different Server Technologies.

    e)   Explain JSP Life Cycle.

Q3) Attempt any Four: **[4x4=16]**

    a)   Discuss fundamental parts of an E-business Application?

    b)   Write a note on cookie.

    c)   Explain steps for Java database connectivity?

    d)   What is the role of XML in web based application development?

    e)   Explain Client Server Technology.

Q4) Attempt any Four: **[4x4=16]**

a) What is Design Pattern? How it is used in E-business?

b) How session Tracking is achieved in Java using Servlet?

c) Explain current limitations of XML.

d) List and explain JDBC Components.

e) Explain J2EE Multitier Architecture.

Q5) Attempt any Four: **[4x4=16]**

a) Create a JSP Page which accepts color name from user and change the background of page with the given color name.

b) Create an XML document which stores voter's details.

c) Write a JDBC Program to accept a date from user and display total number of patient visited in clinic on the given date.

d) Write a program in java using servlet which accept number from user and displays it in reverse order on next page.

e) Write a program using jsp to display Fibonacci series of a given number.

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[4666]-44

M.C.A. (Commerce)
405: CLIENT/SERVER TECHNOLOGIES
(2008 Pattern) (Semester - IV)

Time : 3 Hours]   *[Max. Marks :80*

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.*
4) *Use of calculator is allowed.*
5) *Assume suitable data if necessary.*

Q1) Attempt Any Four: **[4x4=16]**

   a)   What is fat client? Explain any two examples.

   b)   Explain server Building block.

   c)   Write a short note on stack sandwitch.

   d)   Explain wireless to WAN connection.

   e)   What are various types of function in JavaScript? Explain with example.

Q2) Attempt Any Four: **[4x4=16]**

   a)   What is the Response Object? How can it send visitors to another page.

   b)   Write a short note on Distributed technology.

   c)   What is MOM? Give advantages and disadvantage.

   d)   Explain Asynchrous Transfer Mode (ATM).

   e)   Write a short note on ISDN.

Q3) Attempt Any Four: **[4x4=16]**

   a)   Write A JavaScript which checks the contents entered in a form's text element. If the text entered is in the lowercase, convert to uppercase.

   b)   Write an ASP code to display all records from employee table, where Emp_id has to accepted from html page, take suitable structure of employee table (emp_id,ename,edept,eadd).

   c)   Write a program using a ASP to for web page to display the following

         1

      2   2

    3   3   3

   d)   Write a program using JavaScript to check number entered is an Armstrog number or not.

   e)   Write a JavaScript to accept two numbers. Display them in textboxes. Print multiplication of two numbers in third textbox.

Q4) Attempt Any Four: **[4x4=16]**

   a)   Define term:
       i)   Server
      ii)   Bridge

   b)   Write a short note on personal communication service.

   c)   What is difference between client side and server side scripting.

   d)   What is Global.asa? What purpose does it serve?

   e)   What is socket? Explain.

Q5) Attempt any Four: **[4x4=16]**

   a)   What is Array? Explain Array Object Method in ASP.

   b)   Explain 3-tier architecture with example.

   c)   Explain CurssorType in ASP in RecordSet.

   d)   What do you mean by IP switches.

   e)   Explain life cycle of ASP.

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[4666]-45

M.C.A. (Commerce)
406: KNOWLEDGE MANAGEMENT FOR BUSINESS
(New 2008 Pattern) (Semester - IV)

Time : 3 Hours]   *[Max. Marks :80*

Instructions to the candidates:

1) *All questions are compulsory.*
2) *Figures to the right side indicate full marks.*
3) *Assume suitable data if necessary.*
4) *Answer of sub questions of each questions should be attempted at one place. It should not be written separately.*

Q1) Attempt any Four: **[4x4=16]**

   a)   Explain activities of knowledge management?

   b)   Explain benefits of expert system?

   c)   Explain role of human element in expert system?

   d)   Explain semantic network with example?

   e)   Expalin steps for dealing with uncertainty in AI?

Q2) Attempt any Four: **[4x4=16]**

   a)   Describe in-house development strategy for expert system?

   b)   How does knowledge management provide or support organizational learning?

   c)   Define organizational memory? How it is related to the idea of knowledge management?

   d)   Explain process of case based reasoning?

   e)   What are the major advantages and disadvantages of observation method.

Q3) Attempt any Four: **[4x4=16]**

    a)   Levels of Knowledge.

    b)   Model based reasoning.

    c)   Electronic Document Management(EDM).

    d)   Frame.

    e)   Black board(Workplace).

Q4) Attempt any Four: **[4x4=16]**

    a)   Explain difficulties of knowledge acquisition from multiple experts?

    b)   Explain process of protocol analysis?

    c)   Compare conventional system with expert system.

    d)   "Knowledge engineers are compared with system analyst" Comment.

    e)   What is production rule? Give an example.

Q5) Attempt any Two: **[2x8=16]**

    a)   Explain forward chaining with example?

    b)   Explain the different strategies for knowledge management implementation?

    c)   Explain the process of implementing an expert system?

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[4666]-51
M.C.A. (Commerce)
501-CONTENT MANAGEMENT SYSTEM
(Semester-V) (2008 Pattern)

Time : 3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:
1) *Draw neat diagrams and screenshots wherever necessary.*
2) *Figures to the right side indicate full marks.*

Q1) Attempt any FOUR of the following: **[16]**

    a) What is functionality? Explain Monolithic Vs Mix-and-Match functionality.

    b) List the types of Information and explain it.

    c) Content is Named Information- Explain.

    d) Explain any four teaching do's and any four teaching don'ts of Moodle.

    e) Explain Dynamic website with diagram.

Q2) Attempt any FOUR of the following: **[16]**

    a) Explain 'Repository' of Management System.

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

    c) CM is combination of Content- Related Disciplines-Explain.

    d) Explain any four principles of moodle.

    e) Structure is important-Explain.

Q3) Attempt any four of the following: **[16]**

    a) Write a short note on-Content is Information plus Data.

    b) Explain collection services of Collection System.

    c) How to gauge the complexity by size of contribution.

    d) Explain Web CMS with diagram.

    e) Explain Storing Information.

Q4) Attempt any FOUR of the following: [16]

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

    b)   Explain Web Publications.

    c)   Explain Moodle in Education and Training.

    d)   What is data? Explain-Content is not data.

    e)   How to gauge the complexity of Number of Publications.

Q5) Write the steps for the following in Joomla (Any FOUR): [16]

    a)   Create a website for different hospitals in Pune and Add new hospital to it.
    b)   Create a website and add Meta Tag to it.
    c)   Create a website and Insert images into it.
    d)   Create a website for books of all subjects such that Navigation to Computer books.
    e)   Create a website for Sports Kit showroom and Edit the prices.

□□□□

[4666]-52

M.C.A. (Commerce)

502-DISTRIBUTED DATABASE SYSTEM

(Semester-V) (2008 Pattern)

Time : 3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:
1) *Neat diagrams must be drawn wherever necessary.*
2) *Figures to the right side indicate full marks.*
3) *Assume suitable data if necessary.*

Q1) Write a note on (Any Four):   **[4×4=16]**
- a) Market Places.
- b) Transactional Workflow.
- c) Content of Catalog.
- d) Basic Timestamp mechanism.
- e) Performance Tuning.

Q2) Attempt Any Four: **[4×4=16]**
- a) What is Multimedia Database? Which are different multimedia data formats?
- b) Define
    - i) Person-in-middle attacks
    - ii) Digital Certificate
- c) What is fragmentation? What are advantages and disadvantages?
- d) What is query optimization? Which are problems in query optimization?
- e) What is behavior of the 2PC protocol in case of site failures and lost messages?

Q3) Attempt Any Four: **[4×4=16]**
- a) Explain different objects which represent geometric information?
- b) Write a note on Bottom_Up approach of distributed database design.
- c) Explain different communication structures of commit protocol.
- d) What is Serializability? Explain with example.
- e) What are different alterenatives for allocation of catalogy.

Q4) Attempt Any Four: **[4×4=16]**

a) How recovery of distributed transaction is achieved?

b) Write a note on distributed deadlock preventation.

c) Write a note on parametric queries.

d) What is distributed database system? What are its advantages and disadvantages?

e) Explain terms:
  i) Global read protocol
  ii) Local read protocol

Q5) Attempt Any Four: **[4×4=16]**

a) Transaction T 10 and T 12 are executing at site 5. Transaction T 11 and T 13 are executing at site 6.
   Transaction T 10 is waiting for T 11. Transaction T 13 is waiting for T 11. Transaction T 12 is waiting T 13. Transaction T 10 is waiting for T 12.
   Draw LWFG and DWFG. Detect the deadlock.

b) Consider a relational schema
   Property (pno, area, rate)
   Perform Horizontal Fragmentation of property relation using following predicates.
   P1=σ rate < 10000
   P2=σ rate >=10000 and rate<=20000
   P3=σ rate > 20000

c) Consider a relational schema
   Book (bno, bname, pubname, price)
   Author (ano, aname)
   B_A (bno, ano)
   Draw the simple and optimized operator tree for the following query.
   Select bname
   From Author, Book, B_A
   Where price>500
   And pubname =' Techmax' and aname =' Mr. Patil'
   And Book. bno = B_A. bno and Author.ano =B_A. ano.

d) Consider a relational schema
Machine (<u>mno</u>, mname, mcost)
Part(<u>Pno</u>,pname)
M_P (mno, pno)
Convert the following simple operator tree into optimized operator tree.

$$\Pi \text{ mname}$$

$$\uparrow$$

$$\sigma \text{ mcost>10000}$$

$$\uparrow$$

$$\sigma \text{ pname='Wheel'}$$

$$\uparrow$$

NJ mno   NJ pno

Machine   M_P   Parts
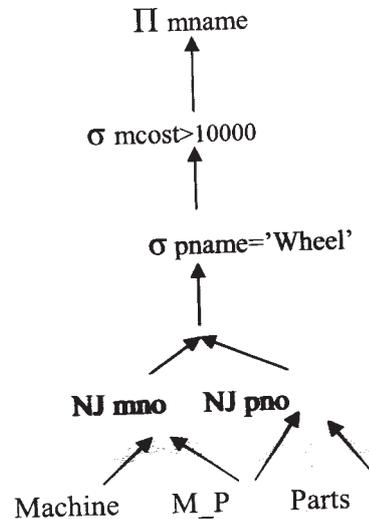
e) Consider a relational schema
Car (<u>cno</u>, carmodel, color, price) is horizontally fragmented as
Car1 = σ price<100000
Car2 = σ price>=100000 and price<=500000
Car3 = σ price>500000
Reduce the following query.
Select* from car where price between 200000 and 400000

□□□□

[4666]-53

M.C.A. (Commerce Faculty)

503:E-COMMERCE PRACTICES AND TECHNOLOGIES
(2008 Pattern) (Semester-V)

Time : 3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:
   1)   *All questions are compulsory.*
   2)   *All Questions carry equal marks.*

Q1) Attempt any four of the following: **[4×4=16]**

   a)   Give difference between E-commerce and E-business.

   b)   Explain M-Commerce business model in detail.

   c)   Explain concept of Personalization with example.

   d)   Explain any four types of auction in detail.

   e)   Explain credit card fraud in detail.

Q2) Attempt any four of the following: **[4×4=16]**

   a)   Explain Digital cash and Digital checking payment systems.

   b)   Differentiate between symmetric and asymmetric key encryption.

   c)   Explain web -server software in detail.

   d)   Write a note on E-commerce portals.

   e)   Explain tools for website Optimization.

Q3) Attempt any four of the following: **[4×4=16]**

   a)   Explain the process of choosing server software.

   b)   Define E- commerce. Give advantages and disadvantages of E-commerce.

   c)   Explain EBPP model in detail.

   d)   Explain Hacking and types of Hackers.

   e)   Define Encryption and give limitations to encryption solution.

Q4) Attempt any four of the following: **[4×4=16]**

   a)   Explain Cyber Vandalism in detail.

   b)   Explain online stored value payment systems in detail.

   c)   Explain C2C and P2P business models in detail.

   d)   Explain when to use and hoe to use auctions.

   e)   Explain Digital Certificate in detail .

Q5) Attempt any two of the following: **[2×8=16]**

   a)   Why are cell phone networks threat to PayPal's future growth?

   b)   In which category or categories of e-commerce do P2P file-sharing networks fall?

   c)   What strategies should PayPal adopt in order to maintain its growth over next five years?

□□□□
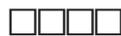
[4666]-54

M.C.A. (Commerce)

504-DATA MINING & WAREHOUSING

(2008 Pattern) (Semester-V)

Time : 3 Hours]   *[Max. Marks : 80*

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.*
4) *Use of calculator is allowed.*

Q1) Attempt any four of the following: **[16]**

     a)   Difference between OLAP & OLTP.

     b)   What is Data Warehousing? What is need of data warehousing.

     c)   What is Data mart? When Data Mart is appropriate?

     d)   State the difference between SMP &MMP.

Q2) Answer the following (Any Four):   **[16]**

     a)   What is Data Mining system? How it differs from KDD process.

     b)   What are Data Mining Primitives?

     c)   What is Web Mining and usage.

     d)   Write a note on Data Mining Language.

Q3) Answer the following (Any Two):   **[16]**

     a)   Explain snowflake schema with example & suitable diagram.

     b)   What is clustering? What are partitioning methods use in clustering.

     c)   Write note on Testing of Data Warehousing.

Q4) Answer the following (Any Two):   **[16]**

a)   Explain Architecture of Data Mining System.

b)   Explain the architecture of Query Manager, With suitable diagram.

c)   Classify the following tuple using Bayesian Classification.

T=<Jon, M, 1.95 >

Name	Gender	Height	Output
Kate	F	1.6m	Short
JIMI	M	2m	Tall
Maggie	F	1.9m	Medium
Mina	F	1088m	Medium
Sweety	F	107m	Short
Bob	M	1.85m	Medium
Dolly	F	1.6m	Short
David	M	1.7m	Short
Woody	M	2.2m	Tall
Steeve	M	2.1m	Tall
Todd	M	1.95m	Medium
Kim	M	1.9m	Medium
Amy	F	1.8m	Medium
Windy	F	1.75m	Medium

Q5) Write short note on (Any Four):   **[16]**

a)   Metadeta
b)   ROLAP, MOLAP
c)   Spacial Mining
d)   Pentaho Report Designer
e)   RAID Technology

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