



[4380] – 1002

Seat No.	
-------------	--

M.C.A. (Semester – I) (Management Faculty) Examination, 2013
IT – 12 : 102- “C” PROGRAMMING
(2012 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

Note : 1) Question 1 is **compulsory**.
2) Attempt **any 6** from **remaining**.

1. Find and explain output of following (**any four**) : **10**

a) Void main () {
 int fun (int);
 int i = fun(10);
 printf(“%d\n”, --i);
}

int fun(int i) {
 return(i ++);
}

b) Void main() {
 int i = 4, j = - 1, k = 0, w, x, y, z;
 w = i || j || k;
 x = i && j && k;
 y = i || j && k;
 z = i && j || k;
 printf(“%d %d %d %d\n”, w, x, y, z);
}

P.T.O.



```
c) Void main( ) {
    unsigned in res;
    res = (64 >> (2 + 1 - 2)) & ~(1 << 2);
}
```

```
d) Void main( ) {
    char str[] = {70, 97, 105, 116, 104, 0};
    printf("%s\n", str);
}
```

```
e) #define A 50
    #define B A + 100
    void main( ) {
        int i, j;
        i = B/20;
        j = 500 - B;
        printf("i = %d, j = %d\n", i, j);
    }
```

2. Write a C program to count and display total number of alphabets, numeric characters, special characters, number of words and number of lines in a file. **10**

3. a) Write a C program to get transpose of given matrix in same matrix. **5**

b) Write a program to find sum of this series upto n terms. **5**

$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{9} + \frac{1}{16} + \dots$$

4. Write a C program to read runs scored by a batsman in last 5 innings. Display bar chart showing batsman's last five performances. **10**



- 5. a) Write a function for performing case sensitive string comparison. [use pointers] **5**
- b) Write a program to print following pattern for 'n' number of lines. **5**

For n = 5 →

```
1 1 1 1 1
2 2 2 2
3 3 3
2 2
1
```

- 6. Write a C program to accept 100 records of employee. The structure contents name, age and basic salary. Also calculate total salary of employee as **10**

total salary = Basic + D.A. + HRA

where DA is 10% of Basic and

HRA is 5% of Basic

Display name, age and total salary of employees in descending order on the basis of total salary.

- 7. a) Write recursive program to print Fibonacci series for n terms. **5**
- b) Write a function to reverse the given number. **5**

- 8. Write short note on : **10**

- a) Malloc() and free()
 - b) Bit fields.
-



[4380] – 105

Seat
No.

M.C.A. (Management Faculty) (Semester – I) Examination, 2013
MT 11:106 : DISCRETE MATHEMATICS
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : i) Question No. 1 is **compulsory**.

ii) Attempt **any 2** from Questions 2, 3 and 4.

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

1. a) Obtain the PDNF for the given formula : $(P \vee ((\neg Q \rightarrow R) \wedge (R \rightarrow \neg P)))$. 5
- b) Let $A = \{1, 2, 3, 4\}$ and $R = \{ \langle x, y \rangle \mid x \text{ is greater than or equal to } y \}$. Check whether the given relation R is equivalence relation or not. 5
- c) Let $A = \{2, 3, 4, 6, 12, 18, 24, 36\}$. A partial order \leq defined as 'a divides b'. Draw the Hasse diagram. 5
- d) Define Semigroup and Monoid. 5
- e) Draw a simple and complete graph with 4 vertices. 5
- f) Draw the truth table for the following : 5
- i) $(P \leftrightarrow \neg Q)$
- ii) $(R \rightarrow (\neg Q \wedge P))$
2. a) Let $A = \{1, 2, 3, 4, 6\}$; aRb if and only if a is multiple of b. Find. 8
- i) R
- ii) Matrix of the relation R
- iii) Diagraph of R.
- b) Express the contrapositive, converse and inverse forms of the conditional statement given below: "If x is rational, then x is real". 6
- c) Show that the proposition $((P \vee Q) \wedge \neg(\neg P \wedge (\neg Q \vee R)))$ is tautology or not. 6

P.T.O.



3. a) Find the group codes generated by

8

$$H = \begin{pmatrix} 1 & 1 & 0 & 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 1 & 0 & 1 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 & 1 \end{pmatrix}.$$

b) Let $A = \{1, 2, 3, 4\}$ and let $R = \{(1, 1), (1, 2), (1, 4), (2, 4), (3, 1), (3, 2), (4, 2), (4, 3), (4, 4)\}$. Find transitive closure by using Warshall's algorithm.

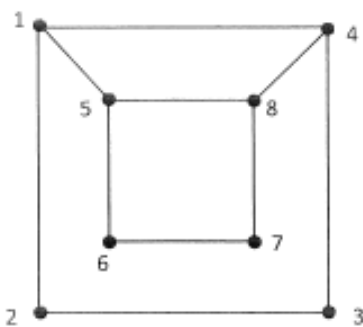
6

c) Let $R = \{<a, a>, <a, b>, <b, a>, <b, b>, <c, a>\}$ and $S = \{<a, a>, <a, c>, <b, c>, <c, c>\}$. Find $R \bullet R, R \bullet (S \bullet R)$.

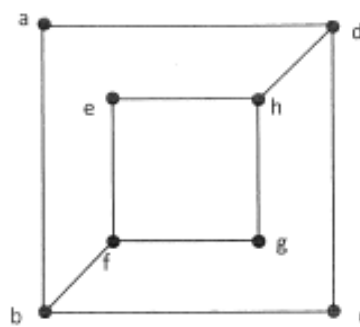
6

4. a) Check whether the following graphs are isomorphic or not.

8



Graph G_1



Graph G_2

b) Check $\langle I, * \rangle$ is a binary operation, where I is set of integers and $*$ is defined as $x * y = x + y - xy$.

6

c) Define :

6

- i) Tautology
- ii) Contradiction
- iii) Connected Graph.



[4380] – 2005

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – II) Examination, 2013
205-IT 24 : ENTERPRISE RESOURCE PLANNING
(2012 Pattern)**

Time : 3 Hours

Max. Marks : 70

Instructions : i) Question No. 1 and Question No. 6 are **compulsory**.
ii) Solve **any three** questions from question Nos. 2, 3, 4 and 5.
iii) Figures to the **right** indicate **full** marks.

1. The Institute of Corporate Planning is well reputed institute providing higher education in the field of Management and Computer Science. Presently, the institute is using manual system for administrative work which resulting in data inconsistency and time consuming. So to overcome this problem the institute decided to develop the integration of various departments for office automation, being You as ERP consultant discuss the pre-implementation and post-implementation key success factors. Also prepare the detail report about the ERP implementation. **20**
2. a) Explain the need and importance of ERP system. **5**
b) Discuss the modules and sub modules in Human Resource Management. **5**
3. a) Explain the modules in production planning and production control in ERP systems. **5**
b) Explain the role of management in ERP implementation. **5**
4. What is BPR ? Discuss BPR lifecycle in detail with suitable diagram. **10**
5. Explain ERP implementation methodology in brief. **10**
6. Write a short note on **(any four)** : **20**
 - 1) OLAP
 - 2) ERP Vendors
 - 3) Data Warehousing
 - 4) CRM
 - 5) ERP market.



[4380] – 201

Seat No.	
-------------	--

M.C.A. (Semester – II) (Management Faculty) Examination, 2013
IT-21 : 201 : DATA STRUCTURES USING “C”
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Question 1 is **compulsory**.

2) Solve **any five** from Q. 2 to Q. 8.

3) Assume **suitable** data **wherever** necessary.

4) Draw **suitable** diagram **wherever** necessary.

5) Figures to **right** indicate **full** marks.

1. A) A graph is implemented as adjacency list of N nodes. Write a non-recursive function for Depth first search traversal. 7
- B) Define Data structure. 3
- C) A float array is defined as float no [50] [60] [70] [80]. Find the address of element no [20] [30] [40] [50]. 5
- D) Write a note on Abstract Data type. 5
2. Write a program to multiply two polynomials. 10
3. Write a program using function create (), insert (), delete (), display () for doubly Linear linked list. 10
4. Convert the following in fix expressing into its equivalent postfix and prefix form. Show contents of stack in table format. 10
 $(A + B) * C - D / E \wedge F$
5. Draw an AVL tree for the following. Nanded, Pokhran, Pune, Revasa, Solapur, Jamkhed, Amravati, Parner, Mumbai, Yavatmal. 10

P.T.O.



6. Write short notes on : **10**
- A) DEQUEUE
 - B) Generalized Linked list.
7. A) Write an algorithm for Non-recursive preorder traversal of Binary search tree. **5**
- B) Draw a Binary search tree for the following data **5**
- 70, 80, 50, 90, 10, 20, 65, 100
- Write preorder and postorder traversals for the above tree.
8. A) Write a function to insert node in threaded binary tree. **5**
- B) Explain Applications of Queue. **5**
-



[4380] – 305

Seat No.	
-------------	--

M.C.A. (Semester – III) (Mgmt. Faculty) Examination, 2013
BM – 31 : 305 : MANAGEMENT SUPPORT SYSTEMS AND IS SECURITY
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Q. 1 and 7 are **compulsory**.
2) Attempt **any four** from Q. 2 to Q. 6.
3) Figures to the **right** indicate **full marks**.

1. Explain in detail the information required in designing IT-based MIS for handling personal function. **10**
2. Explain the use of heuristic programming in decision making. **10**
3. Define organisation and explain the various types of organisation structure. **10**
4. Explain the significance of value of information and explain different types of information. **10**
5. Define DSS. Explain various components of DSS in detail. **10**
6. Explain in detail about the security aspects of Information Systems. **10**
7. Write short notes (on **any four**) : **(4×5=20)**
 - a) Static and Dynamic Models
 - b) Characteristics of EIS
 - c) Types of Systems
 - d) Negative Feedback
 - e) Conventional Systems Vs Expert Systems.



[4380] – 404

Seat No.	
----------	--

M.C.A. (Management Faculty) (Semester – IV) Examination, 2013
MT 41 : OPTIMIZATION TECHNIQUES
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Instructions :**
- i) Question No. 1 is **compulsory**.
 - ii) Solve **any two** questions from question nos. 2, 3 and 4.
 - iii) **Use** of Scientific Calculator and Statistical Tables are **allowed**.
 - iv) Figures to the **right** indicate **full** marks.

1 a) A project consists of different activities and relevant data as follows :

9

Activity	Immediate Predecessor	Duration (days)		
		Optimistic	Most Likely	Pessimistic
A	-	2	3	4
B	-	3	4	5
C	-	6	6	6
D	A	3	5	7
E	A	2	3	4
F	B, D	7	8	9
G	B, D	4	4	4
H	C, F	5	8	11
I	E	3	6	9
J	G, I	2	5	8

- i) Draw PERT Network of the project.
- ii) Find the expected duration of the project and variance.
- iii) Find the probability that the project will be completed before 18 days.

P.T.O.



b) Solve the following Integer Programming Problem : 9

Max : $Z = 4x_1 + 6x_2$

Subject to :

$$x_1 + 3x_2 \leq 6$$

$$6x_1 + x_2 \leq 24$$

$$x_1, x_2 \geq 0 \text{ and integers}$$

c) In a super market, handled by one cashier, customers expected to arrive 6 in an hour. The cashier takes 6 minutes to handle a customer. Find : 6

- i) the probability that the customer need not wait.
- ii) expected number of customers waiting for the cashier.
- iii) the average time spent by the customer in the supermarket.

d) Solve the problem of job assignments to minimize the cost : 6

		Jobs					
		J ₁	J ₂	J ₃	J ₄	J ₅	J ₆
Technicians	T ₁	2	5	8	2	7	9
	T ₂	6	7	8	6	2	7
	T ₃	6	9	4	3	8	5
	T ₄	5	2	8	4	9	6
	T ₅	6	3	8	5	2	7

2. a) Find the optimum solution for the given transportation problem : 9

		Warehouses				Supply
		P	Q	R	S	
Factory Plants	A	10	8	7	12	500
	B	14	12	8	8	600
	C	7	9	14	10	200
	D	8	10	12	14	700
Demand		700	550	450	300	



b) The following are the failure rates of certain type of capacitors. 6

Week :	1	2	3	4	5
Percent of failing at end of week :	5	20	45	70	100

There are 500 such capacitors present in the machine. The cost of replacing individually a failed capacitor is Rs. 5. If all the capacitors are replaced at fixed interval, whether they are working or not working, it would cost Rs. 2 per capacitor. What policy the maintenance manager should follow between individual replacement policy and group replacement policy, if group policy is adopted, at what interval of time he should replace all capacitors ?

c) Explain the terms : 5

- i) Degeneracy in transportation problem
- ii) Unrestricted variable
- iii) Constraint
- iv) Arrival rate
- v) Infeasible solution

3. a) Solve the following LPP by 2-phase simplex method : 9

$$\text{Min : } Z = 5x_1 + 9x_2$$

Subject to :

$$3x_1 + 2x_2 \geq 3$$

$$1x_1 + 4x_2 \geq 4$$

$$x_1, x_2 \geq 0$$

b) A company's demand for a particular item is 40000 in a year. The cost to the company to place an order is Rs. 400 and the company spends Rs. 2 per item per year to store the item. Find : 6

- i) The optimum lot size
- ii) The time interval between the orders
- iii) Total inventory cost

c) Explain the various queuing models. 5



4. a) The time and costs of a certain project is given in the following table: 9

Activity	Normal		Crash	
	Time	Cost	Time	Cost
1 – 2	6	1400	4	1900
1 – 3	8	2000	5	2800
2 – 3	4	1100	2	1500
2 – 4	3	800	2	1400
3 – 4	0	0	0	0
3 – 5	6	900	3	1600
4 – 6	10	2500	6	3500
5 – 6	3	500	2	800

The indirect cost of the project is Rs. 300 per day. Draw the project network and find the normal duration and cost. If the activities are systematically crashed, then what would be the optimum duration and cost of the project ?

b) Explain the following assignment problem as LPP : 6

	A	B	C	D	E
I	3	8	5	3	8
II	2	4	4	6	8
III	3	3	5	7	4
IV	5	4	2	2	7
V	8	1	8	5	3

c) Describe the inventory model instantaneous supply and without shortages. 5



[4380] – 407

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – IV) Examination, 2013
BME3 : Elective : 413 : INFORMATION SYSTEM AUDIT AND
GOVERNANCE
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Q. 1 and Q. 6 are **compulsory**.
2) Solve **any three** from Q. 2 to Q. 5.

1. Perform the auditing of an educational organization having computerization for admission process, examination process including result process. Prepare a detail audit report covering the auditing objectives, audit charter, five logical threats and corresponding controls, five major evidences and their relevancy with objectives. 20
2. What is the importance of evidences ? Explain any two evidence collection techniques in detail. 10
3. Explain the Performance measurement tools used by auditor for auditing an ERP system implemented by an educational institute XYZ ? 10
4. Explain BCP process in detail. 10
5. Define and explain the role of auditor during SDLC phases. 10
6. Write short notes on (**any four**) : (4×5=20)
 - a) IT Crimes
 - b) HR Policies
 - c) Steering Committee and their Role in Auditing
 - d) Audit Standards
 - e) Risk Assessment Process.



[4380] – 503

Seat No.	
-------------	--

M.C.A. (Mgmt. Faculty) (Semester – V) Examination, 2013
IT-53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Question 1 and 7 are **compulsory**.
2) Attempt **any four** from **remaining**.

1. An autonomous management institute has started distance learning CCNA programme for working network professional. Institute is interested in conducting online admission process, virtual teaching and exam. As a IT consultant suggest various models of e-learning and justify your suggestion. **15**
2. Define BPO and explain the laws of BPO. **10**
3. What is e-banking and explain various security techniques in it. **10**
4. What are the different models of E-Commerce ? Explain in details. **10**
5. What is knowledge management ? Explain different tools. **10**
6. Explain supply chain management and E-logistics. **10**
7. Write short note (**any three**) : **15**
 - a) E-Governance Models
 - b) GPS
 - c) RFID
 - d) Embedded System
 - e) Content Management System.



[4380] – 506

Seat No.	
-------------	--

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2013
ITE-2 : Elective : PROGRAMMING LANGUAGE PARADIGMS (New)
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

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

1. Explain analysis of source program and synthesis of object program with suitable block diagram. 15
2. Explain binding time classes and its significance in programming language. 10
3. Explain layers of virtual computer for web application. 10
4. Explain attributes of data control. 10
5. What are the different elements requiring storage management ? 10
6. What are the attributes of good programming language ? 10
7. Explain the Implicit and Explicit Sequence Control. 10
8. Write short note on **(any three)** : 15
 - a) Firmware computer
 - b) Features of Java
 - c) Compiler and Assembler
 - d) Scalar Data Type
 - e) Heap storage Management.



[4380] – 509

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
ITE5 – Elective : DISTRIBUTED DBMS
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) *Q. 7 is compulsory.*
2) *Solve any five from remaining i.e. Q. 1 to Q. 6.*
3) *Draw suitable diagram when needed.*
4) *Whenever necessary state assumption.*
5) *Give suitable example if required.*

1. What is DDBMS ? Explain its advantages and disadvantages. 10
2. Explain Top-Down design process for designing DDBMS. 10
3. Explain distributed object management model with suitable example. 10
4. Explain concurrency control for centralized database. 10
5. What is query optimization ? Explain in detail join ordering in fragment queries. 10
6. Explain generic layering scheme for distributed query processing. 10
7. Write short notes (**any 4**) : 20
 - 1) Mobile database system
 - 2) Object clustering
 - 3) Cold restart
 - 4) Network Topologies
 - 5) Distributed deadlocks
 - 6) Horizontal Fragmentation.



[4380] – 51

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
IT-51 : SOFTWARE TESTING AND QUALITY ASSURANCE
(2005 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Q. No. 1 is **compulsory**.
2) Solve **any five** from the **remaining**.

1. a) A train and air Reservation Agency is in process of implementing their newly designed online reservation system. The system allows the user to login, check the flight and train status, booking history, cancellation with due charges, view the route, reservation availability, timings etc.
Design a test plan stating scope, strategies, risk, schedules, control procedures, environment etc. and other desired details. **15**
- b) Design the test cases for all test Paths for a code to get the first 10 even numbers. **5**
2. Explain in detail with suitable example about different White Box Testing techniques. **10**
3. Explain following terms with suitable example : **(2×5=10)**
 - a) Walkthrough
 - b) Statement coverage and Branch coverage
 - c) Software quality factors
 - d) Six sigma
 - e) System Testing.

P.T.O.



4. Define the need of testing. Explain V & V life cycle in detail. 10
 5. What do you mean by testing strategies ? Explain each strategy in detail. 10
 6. Explain in detail the necessary requirements and steps involved for testing an object oriented application. 10
 7. Write short notes on **(any two)** : **(2×5=10)**
 - a) CAST
 - b) Clean room engineering
 - c) Black Box Testing.
-



[4380]– 54

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
BM-51 : SOFTWARE PROJECT MANAGEMENT
(2005 Pattern)

Time : 3 Hours

Max. Marks :70

Note : 1) Q. 1 and Q. 8 are **compulsory**.
2) Solve **any five** from Q. 2 to Q. 7.

1. Draw network diagram for the following project activities and find the critical path.

10

S. No.	Activities	Precedence	Days
1	A	–	3
2	B	–	4
3	C	A	5
4	D	A	6
5	E	C	7
6	F	D	8
7	G	B	9
8	H	E, F, G	3

2. What are the various Cost Estimation Techniques ? Explain COCOMO Model in detail. 10
3. What is meant by Risk Management ? 10
4. Discuss the role of Quality Assurance during Software Development. 10
5. Discuss Managing Customer Expectation. 10

P.T.O.



6. Explain Software Configuration Management. **10**
7. What are the characteristic of performance management in IT Team ? **10**
8. Write a note on (**any 2**) : **10**
- a) User Acceptance Testing
 - b) Role of User in Software Project Management
 - c) MS-Project
 - d) Baseline.
-



[4380] – 61

Seat No.	
-------------	--

M.C.A. (Semester – V) (Management Faculty) Examination, 2013
Management Elective : ITE-7 : PARALLEL COMPUTING
(2005 Pattern)

Time : 3 Hours

Max. Marks :70

- Instructions :** 1) Question No. 1 is **compulsory**.
2) Solve **any four** questions from 2 to 6.
3) Assume suitable data **wherever** necessary.
4) Draw suitable diagram **wherever** needed.
5) Figures to the **right** indicate **full** marks.

1. Discuss the following (**any two**) : **(2×5=10)**
- a) Grid Computing
 - b) Parallel Virtual Machine
 - c) Gantt Chart
 - d) Communication Latency
2. a) State and explain different fundamental parameters required for the analysis of parallel algorithm. **7**
- b) What are the primary attributes used to measure the performance of a parallel computer system ? **8**
3. a) Compare Vector Processing and Array Processing. **7**
- b) Explain pipeline processing and describe the architecture of pipeline processing. **8**

P.T.O.



4. a) Write a shared memory program for parallel systems, to add elements of an array using two processors. **7**
 - b) Differentiate between tightly coupled system and loosely coupled system. **8**
 5. Explain the concept of thread with basic methods in concurrent programming languages for creating and terminating threads. Also give the advantages the thread offers over other processes. **15**
 6. What is Flynn's classification computer system ? List salient features of parallel systems. **15**
-



[4380] – 63

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – V) Examination, 2013
Management Elective : IT-9 : PROGRAMMING LANGUAGES AND
PARADIGMS
(2005 Pattern)**

Time : 3 Hours

Max. Marks : 70

Note : 1) Q. 1 and Q. 8 are **compulsory**.
2) Solve **any four** from the **remaining**.

1. Explain the major components involved in organization of conventional computer. **15**
2. Explain the syntactic criteria of good programming language. **10**
3. Distinguish between programmer and system control storage. **10**
4. Explain compiler structure showing all its stages from original syntax to executable code. **10**
5. Explain Layers of virtual computer for web application. **10**
6. Explain the implicit and explicit sequence control. **10**
7. Explain sequencing with non-arithmetic expressions. **10**
8. Write short note on **(any three)** : **(5×3=15)**
 - a) LISP overview
 - b) Binding time classes
 - c) Scalar data types
 - d) Type conversion
 - e) PDA.



[4380] – 1001

Seat No.	
-------------	--

M.C.A. (Mgmt. Faculty) (Semester – I) Examination, 2013
IT 11 : 101 : COMPUTER ORGANIZATION
(New) (2012 Pattern)

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.
2) Solve **any four** questions from the **remaining**.
3) Draw **neat** diagrams **whenever** necessary.

1. a) Draw and explain 32-bit (80486) architecture in detail. 10
b) Explain Compiler and Interpreter. 5
2. Convert the following : (2×5=10)
 - a) $(22.5)_{10} = (?)_2$
 - b) $(3234)_8 = (?)_{16}$
 - c) $(AF2)_{16} = (?)_{10}$
 - d) $(1010.01)_2 = (?)_{10}$
 - e) $(150.125)_{10} = (?)_{16}$
3. What is Interrupt ? Explain the types of Interrupts. 10
4. Differentiate between RISC and CISC. 10
5. What is Register ? Draw and explain any one shift register in detail. 10
6. What is DMA ? Explain DMA transfer modes in detail. 10
7. Write short note on the following (**any three**) : (3×5=15)
 - a) Performance of Processors
 - b) 1's and 2's complement
 - c) Decoder
 - d) Features of 64-bit architecture.



[4380] – 1003

Seat No.	
-------------	--

**M.C.A. (Semester – I) (Management Faculty) Examination, 2013
(2012 Pattern)**

IT-13 : 103 : SOFTWARE ENGINEERING

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any three** from Q.2 to Q.6.
3) Draw **neat** diagrams.

1. New B Bazar 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/She becomes members by paying initial membership amount and get the credit cards. He/She 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.
 - a) Draw context and 1st level DFD. 10
 - b) Prepare SRS (scope, objective, function/non functional requirements, system specification) for the above system. 10
2. Design a data entry screen with validation for inquires at Rohit advertisement for their Hoarding display boards which are available on various location in the city. 10
3. Describe the phases of SDLC in detail. 10
4. Explain CASE tools with its components. 10
5. Explain the features of a modern GUI form with a suitable example. 10
6. Explain the role of documentation in maintenance and types of documentation. 10
7. Write notes on (Attempt **any four**) : 20
 - a) Data Dictionary
 - b) Reverse engineering
 - c) Code Design
 - d) JAD
 - e) Functional decompozition diagram
 - f) Agile process
 - g) Structured English.



[4380] – 1004

Seat No.	
-------------	--

M.C.A. (Mgt. Faculty) (Semester – I) Examination, 2013
BM-11 – 104 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND
ORGANIZATIONAL BEHAVIOR
(2012 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : i) Question No. 1 is **compulsory**.
ii) Attempt **any 3** from the remaining.
iii) Figures to the **right** indicate **full** marks.

1. a) Explain the concept of management and discuss managerial functions in detail. 15
b) Critically evaluate the statement, “Innovation distinguishes between a leader and a follower”. 10
2. Explain how motivation helps to achieve success in an IT industry with the help of Maslow’s need hierarchy theory. 15
3. Explain OB and state the important elements of the behavioural approach. 15
4. Define organisation and discuss different organizational structures. 15
5. Explain the contribution of Henry Fayol in the evolution of management thoughts. 15
6. Write short notes (**any three**) : 15
 - a) Theory X Vs Theory Y
 - b) Johari window
 - c) Team Building
 - d) Decision making tools
 - e) Managerial skills.



[4380] – 1005

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – I) Examination, 2013
MT11 : 105 – DISCRETE MATHEMATICS
(New) (2012 Pattern)

Time : 3 Hours

Max. Marks : 70

- Instructions :** i) Question No. 1 is **compulsory**.
ii) Solve **any two** questions from question Nos. 2, 3 and 4.
iii) Use of scientific calculator and Statistical Tables are allowed.
iv) Figures to the **right** indicate **full** marks.

1. a) Show the following equivalence : 5
$$(P \rightarrow Q) \wedge (R \rightarrow Q) \Leftrightarrow (P \vee R) \rightarrow Q$$
- b) Obtain PCNF of the following : 5
$$(P \vee Q) \vee (\neg P \wedge R) \vee (Q \wedge R)$$
- c) Prove following binomial identity by combinatorial arguments : 5
$$\binom{2n}{n} = 2 \binom{n}{2} + n^2$$
- d) Find number of way of seating 5 boys and 5 girls around a circular table such that boys and girls sit on alternate seats. 5
- e) Define abelian group. 5
- f) Define equivalence relation. Give example. 5

P.T.O.



2. a) Write the following in symbolic form : 5

If Tina marries Rahul, she will be in Pune. If Tina Marries Ram, she will be in Mumbai. If she is either in Pune or in Mumbai, she will be definitely settled in life. She is not settled in life. Thus she did not marry Rahul or Ram.

b) Find the coefficient of the term $x^6y^6z^5$ from the expansion of $(2x^2 - 3y^3 + 4z)^{10}$. 5

c) Prove that the conclusion S is valid from the statements : 5
 $P, (P \wedge Q) \rightarrow R, \neg S \rightarrow \neg R, Q$

d) Define : Universe of Discourse, Universal Quantifier, Existential Quantifier. 5

3. a) Find the transitive closure for the relation 5

$R = \{ \langle a, a \rangle, \langle a, b \rangle, \langle b, a \rangle, \langle b, d \rangle, \langle c, c \rangle, \langle c, d \rangle, \langle d, b \rangle \}$
 defined over the set $A = \{a, b, c, d\}$.

b) For the given relation matrix, find the relation set and draw its digraph. 5

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

c) Let $R = \{ \langle x, x \rangle, \langle y, x \rangle, \langle z, z \rangle \}$ and $S = \{ \langle x, x \rangle, \langle x, y \rangle, \langle y, z \rangle, \langle z, y \rangle \}$.
 Find $R \bullet S, (R \bullet R) \bullet S$ and S^2 . 5

d) Find whether the given function $f(x) = x(x^3 - 5)$ for all positive integers of x is bijective or not. 5

4. a) Find the number of non negative integer solutions for $x_1 + x_2 + x_3 = 31$ where $x_1 \geq 4, x_2 > 7$ and $x_3 \geq 10$. 7

b) Find the code words generated by the parity check matrix 7

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

c) State and prove derangement formula. 6



[4380] – 101

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – I) Examination, 2013
IT-11 : 101 : COMPUTER ORGANIZATION AND ARCHITECTURE
(New) (2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any four** questions from the remaining.
3) Draw the **neat** diagrams **wherever** necessary.
4) Figures to the **right** indicates **full** marks.

1. a) Draw and explain 16-bit architecture in detail. 10
b) Define Software. Explain system Softwares and Application Softwares. 5
2. Explain system bus and its characteristics. 10
3. Convert the following : (2×5=10)
 - a) $(11011.001)_2 = (?)_{10}$
 - b) $(527.12)_8 = (?)_{16}$
 - c) $(FA2B.16)_{16} = (?)_2$
 - d) $(175.3125)_{10} = (?)_8$
 - e) $(FA2.B4)_{16} = (?)_{10}$
4. What is counter ? Explain any one counter in detail. 10
5. What is DMA ? Explain DMA technique using different DMA transfer modes. 10
6. What is pipelining ? Explain instruction pipelining in detail. 10
7. Write short note on following (**any three**) : (5×3=15)
 - a) Memory Hierarchy.
 - b) Parallel Processing.
 - c) Multiplexer and Demultiplexer.
 - d) Compilers, Interpreters and Assemblers.



[4380] – 102

Seat No.	
-------------	--

M.C.A. (Semester – I) (Management Faculty) Examination, 2013
IT – 12 : 102 : “C” PROGRAMMING
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Question 1 is **compulsory**.
2) Solve **any six** questions from Q.2 to Q.8.
3) Assume suitable data **wherever** necessary.

1. Find and explain the output of following (**any four**) : **10**

a) main ()

```
{  
    int i = 10 ;  
    i = ! i >14 ;  
    printf ("i = %d", i) ;  
}
```

b) #include <stdio.h>

```
int main ( )  
{  
    void fun (char * ) ;  
    char a[100];  
    a[0] = 'A'; a [1] = 'B';  
    a[2] = 'C'; a [3] = 'D';  
    fun (&a[0]);  
    return 0;  
}  
void fun(char * a)  
{  
    a++ ;  
    printf ("%C", *a);  
    a++;  
    printf ("%C", *a);  
}
```

P.T.O.



```
c) #include <stdio.h>
   # define SWAP (a, b) int t; t = a; a = b; b = t;
   int main ( )
   {
       int a = 10, b = 12;
       SWAP (a, b);
       printf ("a=%d b = %d \n", a, b);
       return 0 ;
   }

d) # include <stdio.h>
   # include <string.h>
   void main ( )
   {
       struct {
           int m ;
           float f;
           char mess [50];
       } m;
       m.num = 1;
       m.f = 3.14f;
       strcpy (m.mess, "Everything is possible");
       printf ("%d %d %d \n", &m.num, &m.f, &m.mess);
       printf ("%d %f %s\n", m.num, m.f, m.mess);
   }

e) void main ( )
   {
       int x;
       x = - 3 * - 4% - 6 /-5 ;
       printf ("x = %d\n", x);
   }
```




- 2. a) Write a C program to find the reverse of a given string (use recursive function). **5**
- b) Write a C program to print following pattern for 'n' number of lines. Read n from user, e.g. If n = 4.

```
      *
     **
    ***
   ****
```

5

- 3. a) Write a C program to find sum of digits of a given number. Read number by using command line argument. **5**
- b) Write a C program to find all prime numbers within range of 5000 – 15000. **5**
- 4. Write a C program to store information of books for a Book store like title, author, publisher and price. Print the details of books having price more than Rs. 450/- (use array of structure). **10**
- 5. Write a C program to read a file and find the frequency of a given word in the file. **10**
- 6. Write a C program to draw following objects. Fill bat with yellow color and ball with red. **10**



- 7. Write short note on followings : **10**
 - a) Preprocessor directives
 - b) Advantages/disadvantages of union over structure.
- 8. a) Write a C program to find whether a given number is odd/even using bitwise operator. **5**
- b) Write a function to compare two strings by using pointers (Don't use library functions). **5**



[4380] – 103

Seat No.	
-------------	--

**M.C.A. (Semester – I) (Management Faculty) Examination, 2013
BM-11 : 103 PRINCIPLES AND PRACTICES OF MANAGEMENT AND
ORGANIZATIONAL BEHAVIOR
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

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

1. A) Classify different structures of organisation with examples. What type of structure suits companies like Tata motors ? 15
B) Planning is the blood line of any organization. Explain in detail with reference to the importance, steps and limitations of planning. 10
2. "Transactional analysis is an excellent tool of conflict management" discuss with reference to the ego states. 15
3. How far effective decision making plays a vital role in the growth of the organization ? What are different environments of decision making ? 15
4. Do you agree that monetary benefits is the most effective means of motivating employees ? Explain with reference to the various aspects of Mc Gregor's theory of motivation. 15
5. Define Conflict. What is the difference between functional and dysfunctional conflict ? Discuss how competition is different from conflict. 15
6. Write short notes (**any 3**) : 15
 - 1) Line Vs Staff
 - 2) Centralisation Vs Decentralisation
 - 3) Qualities of leader
 - 4) Skills of manager
 - 5) Team building.



Seat No.	
----------	--

**M.C.A. (Management Faculty) (Semester – I) Examination, 2013
IT – 13 : 104 : OPERATING SYSTEMS CONCEPT (2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

Note : 1) Question Nos. 1 and 7 are **compulsory**.
2) From the remaining questions solve **any 4**.

- 1. What is Deadlock ? Explain how deadlock can be detected and recovered with the help of examples. 10
- 2. What is distributed operating system and how it different from the centralized system. 10
- 3. Explain any two disk scheduling algorithms using example. 10
- 4. Consider the following snapshot of the system. 10

Process	Burst Time	Arrival Time	Priority
P1	3	1	3 (Highest)
P2	2	2	2
P3	5	0	1 (Lowest)

- Compute average Turnaround Time and Average Waiting Time for Preemptive Priority Scheduling Algorithm. 10
- 5. Explain the concept of paging with example and use of TLB. 10
- 6. Explain the various levels of RAID structures. 10
- 7. Write short notes on (**any four**) : 20
 - 1) File Allocation Table FAT
 - 2) Demand Paging
 - 3) System Calls
 - 4) Process States
 - 5) Critical Section Problem.



[4380] – 2001

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – II) Examination, 2013
IT 21 : 201 : OBJECT ORIENTED PROGRAMMING USING C++
(2012 Pattern)**

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Question No.1 is **compulsory**.
2) Solve **any six** from question no. 2 to 8.
3) Figures to the **right** indicate **full marks**.

1. Explain the output of following program :

10

a) namespace xyz

```
{
    int x = 10 ;
}
void main ( )
{
    int y = 200 ;
    int x = 100 ;
    cout <<endl << "x ⇒" << x;
    using namespace xyz;
    cout << endl<< "x ⇒" << x;
    cout <<endl<< "y=" << y;
}
```

b) void main ()

```
{
    int a, * b = &a;
    int * * c = &b;
    a = 2 ;
    ** c = 4;
    b = (int *) ** c;
    cout <<"A=" <<a<<endl;
    cout <<"B=" <<b;
}
```

P.T.O.



```
c) void main ( )
{
    cout << set w (10) << setfill ('#');
    cout.setf (ios :: internal, ios :: adjustfield);
    cout <<setiosflags (ios :: showpoint);
    cout << setprecision(5);
    cout <<11.432 <<endl;
    cout << setiosflags (ios :: showpos);
    cout << 15.4;
}
```

```
d) void main ( )
{
    b001 b1, b2;
    b2 = true;
    int a = 10, b = 20;
    b1=a=b;
    b001 b3 = b1 || b2;
    if (b3)
        cout << "good";
    else
        cout << "very good";
}
```

- 2. A) Explain static member function and static data member. 5
- B) Explain with example – Dynamic constructor. 5
- 3. A) Write a program to overload '+' operator to concatenate two strings. 5
- B) Explain with example, conversion from class type to built in type. 5



4. A) What is user defined manipulator ? Write a single user defined manipulator to provide following output specifications.
- 1) Column width 10
 - 2) Right justification
 - 3) Trailing zeros
 - 4) Fill unused spaces with '*'. 5
- B) Explain virtual function with suitable example. 5
5. Write a program that accepts the filename using command line arguments, and counts number of characters, number of words and number of lines. 10
6. Write a program to pass parameters to the base class constructor in multilevel inheritance. 10
7. A) Write a function template swap () to swap two elements. 5
- B) What is exception ? How certain exceptions are restricted in C++ ? 5
8. Write short notes on **(any two)** : 10
- A) Standard Template Library (STL)
 - B) Namespaces.
 - C) Run Time Type Identification (RTTI).



[4380] – 2002

Seat No.	
-------------	--

M.C.A. (Semester – II) (Management Faculty) Examination, 2013
IT – 22 : 202 : DATABASE MANAGEMENT SYSTEM
(2012 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Q. No. 1 is **compulsory**.
2) Solve **any five** questions from **remaining**.
3) State assumptions **wherever** necessary.

1. An Educational institute wants to computerize its student management system. The details are as follows :
 - 1) Institute has departments.
 - 2) Department conducts various full time courses.
 - 3) Department has various teachers teaching subjects of various courses.
 - 4) Course has subjects with unique code.
 - 5) Student appear for an exam for which he gets result.For the above case, draw the E-R diagram and normalized (3NF) file layout. **20**
2. Explain E.F. Codd's rules. **10**
3. Explain the concept of deadlock. Explain how it is detected and prevented. **10**
4. Explain log-based recovery techniques in detail. **10**
5. Explain the architecture of DBMS. **10**
6. Explain RAID in detail. **10**
7. Write short notes on **(any two)** : **10**
 - 1) Database security
 - 2) Non-SQL database
 - 3) Types of keys in database
 - 4) Generalization and specialization.



[4380] – 2003

Seat No.	
----------	--

M.C.A. (Management Faculty) (Semester – II) Examination, 2013
IT 23 : 203 : OPERATING SYSTEM CONCEPTS (2012 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Question 1 is **compulsory**.
2) Solve **any 5** from **remaining**.
3) Black figures to the **right** indicate **full** marks.
4) Draw **neat** diagrams **wherever** necessary.

1. a) Consider the following snapshot of a system. 10

Process	Allocation			Maximum			Available		
	A	B	C	A	B	C	A	B	C
P0	0	0	1	0	0	1	2	2	2
P1	1	0	0	1	7	5			
P2	1	3	5	2	3	5			
P3	0	6	3	0	6	5			

Check

- 1) The system is in safe state
2) If a request of resources (0,4, 2) arise from Process P3, can the request be granted immediately ?
- b) Explain the various scheduling criteria. 5
- c) Compare any two preemptive scheduling algorithms. 5
2. a) Suppose the R/W head is at track 67, moving towards track number 512. The disk queue contains request for 77, 17, 167, 189, 90, 100, 75, 77, 200, 430, 212, 1999, and 500. Find the total number of head movements to satisfy the request using
- a) SSTF
b) C-SCAN 5

P.T.O.



b) Assume a page size of 4 words. Logical memory and page table information is given below :

Page No.	Offset	Content
0	0	a
	1	b
	2	c
	3	d
1	0	e
	1	f
	2	g
	3	h
2	0	i
	1	j
	2	k
	3	l

Page Number	Offset
0	3
1	2
2	0

- Calculate the physical address for 'g' and 'k'. 5
3. a) Explain NOS Architecture in detail. 7
 b) Explain thrashing. 3
 4. a) Define page fault. 2
 b) Calculate the number of page fault for the following reference string for 3 frames for LRU and Optimal Page replacement algorithm.
 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 8
 5. a) Explain free space management in brief. 3
 b) Explain RAID structure. 7
 6. Explain various process operations handled by OS. 10
 7. Write short notes on (**any two**) : 10
 - a) Features of Android
 - b) Monitor
 - c) Virtual Machine



[4380] – 2004

Seat No.	
-------------	--

M.C.A. (Semester – II) (Management Faculty) Examination, 2013
BM 21 : 204 – MANAGEMENT INFORMATION SYSTEM AND BUSINESS
INTELLIGENCE
(New) (2012 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) *Q.7 is compulsory.*
2) *Attempt any 5 questions from Q.1 to Q.6.*

1. Define the term B.I. Explain its needs. Draw and explain B.I. Architecture. **10**
2. Define D.S.S. Explain various components of D.S.S. in detail. **10**
3. Define Information. Explain the factors in deciding quality of Information. **10**
4. Define M.I.S. Explain the MIS structure based on organizational functions. **10**
5. Explain the Herbert-Simon model of decision making in detail. What are its limitations ? **10**
6. Explain the concept of Data Warehousing. Discuss the needs of Data mining in modern business. **10**
7. Write short note on following **(Any 4) :** **(4×5=20)**
 - a) Expert system
 - b) Simulation
 - c) Law of requisite variety
 - d) Data Marts
 - e) EIS Vs DSS
 - f) OLTP Vs OLAP.

B/I/13/5,275



[4380] – 202

Seat No.	
-------------	--

M.C.A. (Semester – II) (Management Faculty) Examination, 2013
IT-22 : 202 : DATABASE MANAGEMENT SYSTEM
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Q. No. 1 is **compulsory**.
2) Solve **any five** questions from remaining.
3) State assumptions **whenever** necessary.

1. a) Normalize the following upto 3NF. 12

Application Serial No.

First Name

Surname

Middle Name

Address

City

Pin Code

Phone No.

E-mail

Course Name

Application date

Academic year

Form Fee Receipt No, form fee receipt date,

Form fee amount

Payment mode

DD/Cheque number.

b) Explain various characteristics of DBMS. 8

P.T.O.



- | | |
|--|----|
| 2. a) Explain various database users. | 6 |
| b) Explain structure of relational database. | 4 |
| 3. What is deadlock ? How deadlock is detected and prevented ? | 10 |
| 4. Explain log-based recovery techniques in detail. | 10 |
| 5. Explain object oriented DBMS concept in detail. | 10 |
| 6. Explain different relational notation used in relational algebra. | 10 |
| 7. Write short notes on (any two) : | 10 |
| 1) RAID | |
| 2) Encryption | |
| 3) Data independence | |
| 4) Types of locks. | |



[4380] – 203

Seat No.	
-------------	--

M.C.A. (Semester – II) (Management Faculty) Examination, 2013
IT – 23 : 203 : SOFTWARE ENGINEERING
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

N.B. : 1) Q. No. 1 and Q. No. 7 are **compulsory**.
2) Attempt **any three** from Q. No. 2 to Q. no.6.

1. Sai College of Science offers courses of various branches such as Computer Science, Electronics, Physics, etc. The College receives sufficiently large number of applications for admission to F.Y. , S.Y. and T.Y. classes. The college has decided to computerize its admission programme.

The standard admission procedure requires to follow the norms set by concerned government agencies, University and the college administration. The procedure also involves disbursing admission forms at a cost, collecting duly completed forms, preparing merit lists and admitting the students as per norms, notifying student, collecting fees, cancellation of admission, preparing and submitting reports to the concerned authorities.

You are required to study the system and

- i) Draw context level and first level DFD. 10
- ii) Prepare the SRS for the same. 10
- 2. Explain the various Fact-Finding techniques required for collection of information. 10
- 3. Discuss the role of CASE Tools in software development life cycle along with its advantages. 10
- 4. Design a GUI form for Railway Reservation System. 10
- 5. Compare SDLC vs. Prototyping. 10
- 6. Explain decision tree, decision table with proper examples. 10
- 7. Write a short note on **(any four)** : 20
 - a) Software Maintenance
 - b) Types of Documentation
 - c) Role of System Analyst
 - d) Agile Process
 - e) Structured Charts.



[4380] – 204

Seat No.	
-------------	--

M.C.A. (Semester – II) (Management Faculty) Examination, 2013
BM 21:204 : SOFT SKILLS
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Question 1 is **compulsory**.
2) Attempt **any three** from remaining questions.

1. a) Define communication. Explain the process of communication with a neat block diagram. **15**
b) Distinguish between formal and informal communication. **10**
2. What is the importance of listening and what are the barriers of effective listening ? **15**
3. What is self-esteem ? Differentiate between low and high self-esteem. **15**
4. Your college is arranging a “Blood Donation Camp”. Prepare a Notice to inform prospective donors and volunteers. Also, request “Pune Blood Bank” for their guidance and infrastructure. Assume appropriate data. **15**
5. Write short notes on **any three** of the following :
 - a) Telephone etiquette
 - b) Meditation process
 - c) Time management
 - d) Work culture.

B/I/13/540



[4380] – 205

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – II) Examination, 2013
MT-21: 205 : PROBABILITY AND COMBINATORICS
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

- Instructions :**
- i) Question No. 1 and Question No. 4 are **compulsory**.
 - ii) Solve **any one** from Question Nos. 2 and 3. And solve **any one** from Question Nos. 5 and 6.
 - iii) **Use of statistical table and non programmable calculator is allowed.**
 - iv) Figures to the **right** indicate **full** marks.

- 1. a) State and prove generalized Inclusion and Exclusion principle. 5
- b) A committee of 7, consisting of 2 republicans, 2 democrats and 3 independents, is to be chosen from a group of 5 republicans, 6 democrats and 4 independents. How many committees are possible ? 5
- c) How many permutations can be formed from the word SOCIOLOGICAL ? 5
- d) What is the coefficient of x^5y^8 in the expansion of $(x + y)^{13}$? 5
- 2. a) Solve the following : 8
 - 1) Pascal's Identity
 - 2) ${}^{m+n}C_n = {}^mC_0 {}^nC_0 + {}^mC_1 {}^nC_1 + \dots + {}^mC_n {}^nC_n$
- b) How many non-negative integer solutions are there to the equation ? 7
 $X_1 + X_2 + X_3 = 15$, if $X_1, X_2, X_3, > 0$
- 3. a) Determine the discrete numeric function of generating function, 7
 $A(z) = (1 + z)^n + (1 - z)^{-n}$
- b) Solve recurrence relation 7
 $a_{n+2} + 2a_{n+1} + a_n = 9 \cdot 2^n$; for $n = 0$ given $a_0 = 2$ and $a_1 = 4$

P.T.O.



4. a) Define following terms with examples : 5

- i) Exhaustive Events
- ii) Mutually Exclusive Events

b) Let the joint pmf of two discrete random variables (X, Y) is as follows : 5

X Y	- 2	0	2
-1	0.1	0.2	0.1
0	0.2	0.1	0.1
1	0.1	0.1	0

- i) Find marginal probabilities.
 - ii) Find conditional probability distribution of Y given X = 1.
- c) In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find the mean and variance of the distribution. 5
- d) Let X be a continuous random variable with pdf. 5

$$f(x) = \begin{cases} ax, & 0 \leq x \leq 1 \\ a, & 1 \leq x \leq 2 \\ -ax + 3a, & 2 \leq x \leq 3; \\ 0, & \text{elsewhere} \end{cases}$$

Determine the constant a

5. a) Define binomial distribution. Find mean and variance of binomial distribution. 8

b) The diameter of an electric cable, say x, is assumed to be a continuous random variable with pdf $f(x) = 6x(1 - x)$, $0 \leq x \leq 1$
Check that f (x) is pdf and find p (x<0.5) 7

6. a) Define Exponential distribution and find MFG of distribution. 8

b) Find mean and variance of Gamma distribution. 7



[4380] – 301

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – III) Examination, 2013
IT – 31-301 : WEB TECHNOLOGIES
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Note : 1) Q. 1 and Q. 8 are **compulsory**.
2) Solve **any 5** from Q. 2 to Q. 7.
3) Draw **neat** diagram.

1. Explain DOM and SAX Parser with examples. 10
2. Design University on-line examination enquiry form. Validate any five fields using JavaScript (Assume suitable fields). 10
3. Explain CSS and its different types with examples. 10
4. Explain request and response objects with examples. 10
5. Write XML code to display cricket player information and convert XML to HTML format. 10
6. Explain following tags : 10
 - i) <Anchor>
 - ii) <IFrame>
 - iii)
 - iv) <Frameset>
7. Write ASP program to fill on-line form for MH-CET-MCA course with suitable fields and insert into database. 10
8. Write short notes (**any two**) : 10
 - i) String and math object in VBScript
 - ii) Three tier architecture
 - iii) Date and Array Object in JavaScript.



[4380] – 302

Seat No.	
-------------	--

**M.C.A. (Semester – III) (Management Faculty) Examination, 2013
IT – 32 : 302 : DATA COMMUNICATION AND COMPUTER NETWORKS
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

Instructions : i) **Q.1 and Q.8 are compulsory.**
ii) **Attempt any four from remaining.**

1. a) Justify with **true** or **false** (**not** more than **60** words). **10**
 - i) HTTP uses a TCP connection to transfer files.
 - ii) Router operates at Data link layer.
 - iii) ICMP is a transport layer protocol.
 - iv) Shared medium environment are collision domains.
 - v) A cable break in bus topology network does not affect network communications.
- b) What are the purpose of ARP, RARP, ICMP and IGMP of IP layer ? Explain. **10**
2. Why layered approach of networking model developed ? What are the advantages of layered model ? Explain the process of Data Encapsulation in layered model. **10**
3. a) Describe the meaning and purpose of DNS. Explain name resolution and inverse resolution. **5**
- b) Explain DHCP address discovery process, address renewed process and address release process. **5**
4. What are the reasons the network designers create subnetting ? Explain reason for using supernetting. Determine the network, subnetwork and host addresses if IP address is 42.56.29.13 and subnet mask is 255.255.240.0. **10**
5. Define topology. How does the number of attached computer affect a bus topology network ? Explain the operation of ring topology network. **10**

P.T.O.



6. Define SMTP. Explain with example the function of SMTP and POP. **10**
7. Define and explain public key and symmetric key signatures. Explain different types of network threats. **10**
8. Write short notes (**any 2**) : **10**
- a) Proxy server
 - b) Vsat
 - c) Design issues of wireless Lan requirement
 - d) FTP.



[4380] – 303

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – III) Examination, 2013
IT 33-303 : OBJECT ORIENTED PROGRAMMING USING C++
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Q. 1 is **compulsory**.
2) Solve **any six** from Q. 2 to Q. 8.
3) Figures to **right** indicate **full** marks.
4) Make suitable assumption **wherever** necessary.

1. Explain output of the following program (2×5=10)

a) #include <iostream.h>

```
class some
{
    public:
        ~some()
        {
            cout <<"some's destructor"<<endl;
        }
};
void main()
{
    some s;
    s.~some();
}
```

b) #include <iostream.h>

```
class base
{
    int arr[10];
};
class b1 : public base { };
class b2 : public base { };
class derived : public b1, public b2 { };
int main()
{
```

P.T.O.



```
        cout<<sizeof(derived);
        getchar();
        return 0;
    }
c) #include <iostream.h>
class base
{
    public :
        virtual void foo( )
        {
            cout <<"base class function is called\n";
        }
        ~base( )
        {
            cout <<"base class destructor is called\n";
        }
};
class derived: public base
{
    public:
        void foo( )
        {
            cout<<"derived class function is called\n";
        }
        ~derived( )
        {
            cout<<"\n derived class destructor is called\n";
        }
};
void main( )
{
    base *bp = new derived;
    bp->foo();
    delete bp;
}
d) #include<iostream.h>
class nameless
{
    public:
        nameless( )
```



```
        {
            cout<<"constructor called\n";
        }
~nameless()
    {
        cout<<"destructor called\n";
    }
};
void main( )
{
    nameless( );
    nameless obji;
}
```

```
e) #include<iostream.h>
void execute (int 4x, int y = 200)
{
    int temp = x+y;
    x+=temp;
    int(y! = 200)
        cout <<temp<<x<<y<<endl;
}
void main( )
{
    int a = 50, b = 20;
    execute(b);
    cout<<a<<b<<endl;
    execute(a, b);
    cout<<a<<b<<endl;
}
```

2. Answer **any five** :

(2×5=10)

- a) What is need of copy constructor ?
- b) What is difference between early and late binding ?
- c) What is need of default arguments ? How are they defined ?
- d) What is this pointer ?



- e) Can we use same function name for a member function and non member function of the class in the same program file ? If yes, how are they distinguished ? If no, give reasons.
- f) What is downcasting ?
3. Design classes Rupee and Dollar such that they support the following statements **10**
- Rupee $r_1, r_2;$
Dollar $d_1, d_2;$
 $d_1 = r_2;$ // converts Rupee to Dollar
 $r_2 = d_1;$ // converts Dollar to Rupee
Note : 1 Dollar = 50 Rs.
4. Write a program for generic Queue class with two member functions, insert and delete. Use the array to implement the queue. **10**
5. a) Explain what is virtual and pure virtual function ? **5**
b) What are virtual base classes ? Explain need of virtual base class in building class hierarchy. **5**
6. a) Explain three different types of containers. **5**
b) What is RTTI ? Suggest some cases where we need to use RTTI ? **5**
7. a) Write a program to read text file and count number of characters in it. **5**
b) Explain the roles of `seekg()`, `seekp()`, `tellg()` and `tellp()` functions in the process of random access in a binary file. **5**
8. Write short notes (**any two**) : **(2×5=10)**
- a) Dynamic memory management in C++
b) Rethrow() in Exception handling
c) Explicit constructor ?



[4380] – 304

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – III) Examination, 2013
IT-34 : 304 : ADVANCED DATABASE MANAGEMENT SYSTEMS
(New) (2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Question No. 7 is **compulsory**.
2) Solve **any five** questions from 1 to 6.
3) Figures at the **right** indicate marks.
4) Assume **any** suitable database example as a **case study**.

1. a) What do you mean by Inter-Query and Intra-query parallelism ? Explain with example. 6
- b) Explain object oriented database architecture. 4
2. a) What is OLAP ? What are 3 types of OLAP servers ? 6
- b) Outlier analysis in Data mining. 4
3. a) Compare with example homogeneous and heterogeneous databases. 6
- b) Write note on Data preprocessing. 4
4. a) Explain various concurrency control approaches in DDBMS. 6
- b) Explain deadlock handling in DDBMS. 4
5. a) Explain distributed catalog manager. 6
- b) Explain Text mining with example. 4
6. a) Explain DTD with example. 6
- b) What are various XML parsers ? 4
7. Write short note on **(any four)** : **(5×4=20)**
 - a) Web search engines
 - b) Design of parallel systems
 - c) Machine learning
 - d) Client server architecture
 - e) Mobile databases.



[4380] – 401

Seat No.	
-------------	--

M.C.A. (Semester – IV) (Management Faculty) Examination, 2013
IT– 41 – 401 : JAVA PROGRAMMING
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : i) Question 1 and 8 compulsory.
ii) Solve **any five** from question 2 to 7.

1. Answer the following questions : **10**
 - a) Differentiate between Abstract class and Interface.
 - b) Explain anonymous class.
 - c) Explain any four methods of StringBuffer class.
 - d) Explain File class.
 - e) What is Inet Address ?
2. Write a client-server socket program. Client program will accept file name from user and sends it to server. If file does not exists, server will send “File does not exists” else server will read file contents, will replace vowels with ‘+’ and sends it to client. **10**
3. Write GUI based JDBC application for Hostel admission [Assume suitable table structure]. **10**
4. Write RMI application to display amount in words. Accept amount in digits from client and display word value on server. [For Ex. Amount 1230, output should be One Thousand Two Hundred Thirty.] **10**
5. Write a Java application to check/compare contents of two files, and display appropriate message. **10**

P.T.O.



6. What is exception handling in Java ? Describe checked and unchecked exceptions, with suitable examples. 10
7. Explain MouseListener and MouseMotionListener with suitable example. 10
8. Write short-notes on **any two** : 10
 - a) GridLayout
 - b) Jar Files
 - c) Stub and Skeleton.



[4380] – 401

Seat No.	
-------------	--

M.C.A. (Semester – IV) (Management Faculty) Examination, 2013
IT– 41 – 401 : JAVA PROGRAMMING
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : i) Question 1 and 8 compulsory.
ii) Solve **any five** from question 2 to 7.

1. Answer the following questions : **10**
 - a) Differentiate between Abstract class and Interface.
 - b) Explain anonymous class.
 - c) Explain any four methods of StringBuffer class.
 - d) Explain File class.
 - e) What is Inet Address ?
2. Write a client-server socket program. Client program will accept file name from user and sends it to server. If file does not exists, server will send “File does not exists” else server will read file contents, will replace vowels with ‘+’ and sends it to client. **10**
3. Write GUI based JDBC application for Hostel admission [Assume suitable table structure]. **10**
4. Write RMI application to display amount in words. Accept amount in digits from client and display word value on server. [For Ex. Amount 1230, output should be One Thousand Two Hundred Thirty.] **10**
5. Write a Java application to check/compare contents of two files, and display appropriate message. **10**

P.T.O.



6. What is exception handling in Java ? Describe checked and unchecked exceptions, with suitable examples. 10
7. Explain MouseListener and MouseMotionListener with suitable example. 10
8. Write short-notes on **any two** : 10
 - a) GridLayout
 - b) Jar Files
 - c) Stub and Skeleton.



[4380] – 402

Seat No.	
-------------	--

M.C.A. (Semester – IV) (Mgmt Faculty) Examination, 2013
IT42 : 402 : SOFTWARE TESTING AND QUALITY ASSURANCE
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Q.1 and Q.7 are **compulsory**.
2) Solve **any four** from remaining.

1. a) Write a test plan with scope of testing, risk and contingencies, strategy, schedule, deliverables, suspension and resumption criteria for web based job portal. [10]
b) Explain usability testing in detail. [5]
2. Compare : a) Alpha Vs Beta testing
b) Static Vs Dynamic testing [10]
3. What do you mean by Black Box testing ? How you can perform it using Boundary Value Analysis and equivalence partitioning ? [10]
4. Explain regression testing and installation testing with suitable example. [10]
5. Explain V and V model with suitable diagram. [10]
6. Write test cases for Mobile Tracking System. [10]
7. Write short notes on (**any three**) : [5×3=15]
 - a) Formal Technical Review
 - b) Quality Factors
 - c) CAST
 - d) Code Coverage.



[4380] – 403

Seat No.	
-------------	--

M.C.A. (Semester – IV) (Mgt. Faculty) Examination, 2013
IT-43 : 403 : OBJECT ORIENTED ANALYSIS AND DESIGN (New)
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) *Q.1 is compulsory.*
2) *Solve **any five** from the **remaining**.*
3) *Mention assumptions made for solving the **case studies**.*

1. The management of Suvidha Hospital has decided to computerize their operations. There are resident, full time and consulting doctors, with various specialization-consulting doctors visit hospital at a fixed time every day or some days of the week, which varies from doctor to doctor. The visiting charges also vary from doctor to doctor.

Patients are admitted to hospital and their main course of admission is recorded. For accident cases, additional information such as Police buckle no., name of the police and accident description is recorded. A patient is admitted into a room, which has certain category and having fixed charge per day.

Draw the following diagrams for above case :

- a) Use Case Diagram 10
- b) Class Diagram 10
2. Explain with the help of example OMT methodology. 10
3. a) Draw a sequence diagram for sending friend *request* to your friend on facebook. 5
- b) Draw a collaboration diagram for accepting friends request on facebook. 5
4. What is Three-layered architecture ? Explain in detail. 10

P.T.O.



5. Draw an activity diagram for the following : 10

Subject Teacher uploads the assignment on the internet, sends SMS to the respective student on student's registered mobile number. Students solve the assignment and upload the solution for the teacher for checking. A list of defaulters who have not submitted the assignment gets generated and is sent to the respective subject teacher.

6. Draw the state transition diagram for the following scenario :

Shri Ganesh is a private company dealing with sales and purchases of houses, plots and flats. People intending to sale their properties have to register online and fill up property information form. Show and deposit necessary documents, description of the property, expected price. The company consultants display this information on the website. People interested in buying such property fill up the offer form, which contains purchase price. After the other formalities if the deal is accepted, the property is marked "sold" on the site.

10

7. Write a short note on **(any 2)** : 10

- 1) Categories of pattern
- 2) Deployment and component diagram
- 3) Guideline for test plan
- 4) Reusability



[4380] – 405

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – IV) Examination, 2013
BM-E1 : Elective : 411 : MIS FRAMEWORK AND IMPLEMENTATION
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Question nos. 1 and 7 are **compulsory**.
2) Attempt **any four** questions from **remaining**.

1. Define MIS with its feature and limitations. 10
2. Differentiate between DSS and EIS with example. 10
3. Discuss the impact of IT infrastructure on the socio-economic environment of the organization. 10
4. Explain the critical success factors for accounting information system. 10
5. How to maintain customer relationship using information technology ? Use appropriate example to explain. 10
6. How the formats of information differs for different managerial levels ? 10
7. Write short note on **any four** : 20
 - a) GDSS
 - b) Objective of security policy
 - c) Competitive advantage
 - d) Attributes of good information
 - e) Threats to IT infrastructure
 - f) Cost benefit analysis of information systems.



Seat No.	
----------	--

**M.C.A. (Management Faculty) (Semester – IV) Examination, 2013
BM E2 – 412: (Elective) FOUNDATION OF DECISION PROCESSES
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

- Instructions :** i) Question No.1 is **compulsory**.
ii) Solve **any two** questions from **remaining**.
iii) Figures to the **right** indicate **full** marks.
iv) **Use** of electronic calculator is **allowed**.

1. a) At a bus terminal every bus should leave with driver. At the terminus they keep 2 drivers as reserved if anyone on scheduled duty is sick and could not come. Following is the probability distribution that driver become sick. **10**

No. of Sick Drivers :	0	1	2	3	4	5
Probability :	0.30	0.20	0.15	0.10	0.13	0.12

Simulate for 10 days and find utilization of reserved drivers. Also find how many days and how many buses cannot run because of non-availability of drivers.

Use the following random numbers : 30, 54, 34, 72, 20, 02, 76, 74, 48, 22.

- b) Explain the elementary queuing system in detail. **10**
- c) Solve the following game : **10**

		Player Y		
		Y ₁	Y ₂	Y ₃
Player X	X ₁	1	2	7
	X ₂	6	7	2
	X ₃	6	6	1



2. a) A student tries to be punctual for the classes. If he is late on a day he is 80% sure to be on time the next day. If he is on time then there is 20% chance that he will be late on the next day. How often in the long run is he expected to be late for the class ? 10
- b) Customers arrive at a one window ticket counter according to a Poisson distribution with a mean of 10 minute and service time per customer is exponential with a mean of 6 minutes. The space in front of ticket counter can accommodate only three customers including the serviced one. Other customers have to wait outside this space. Calculate :
- 1) Probability that customer can come directly to the space in front of the ticket window.
 - 2) Probability that an arriving customer will have to wait outside the directed space.
 - 3) How long an arriving customer is expected to wait before getting the service ?
 - 4) Utilization parameter of the entire system.
 - 5) Probability that a customer has to wait for more than 10 minutes in the system. 10
3. a) Book-store sales a particular book of a Tax Laws for Rs. 250. It purchases the book for Rs. 200 per copy. Since some of the tax laws changes every year become outdated and the book can be disposed at Rs. 130 each. According to past experience the annual demand for this book is between 18 to 23 copies. Assuming that the order for this book can be placed only once during a year. The problem before the stock manager is to decide how many copies of the book should be purchased for the next year.

From the past data, the probability distribution of number of copies sold is as follows :

No. of copies sold	18	19	20	21	22	23
Probability	0.05	0.10	0.30	0.40	0.10	0.05

Calculate the VPI and find optimal strategy. 10

- b) Define Markov Chain. Explain the concept of Markov Chain with suitable example. 10



4. a) You are given the following estimates concerning a Research and Development programme : 10

Decision D_i	Prob. of Decision D_i Given Research $P(D_i/R)$	Outcome Number	Prob. of Outcome X_i Given D_i $P(X_i/D_i)$	Payoff Value of Outcome X_i (Rs '000)
Develop	0.5	1	0.6	600
		2	0.3	-100
		3	0.1	0
Do not develop	0.5	1	0.0	600
		2	0.0	-100
		3	1.0	0

Construct and evaluate the decision tree diagram for the above data and identify the most optimal decision. Show your calculations for evaluation.

- b) State the axioms of utility. Explain the use of utility theory in Decision Making with suitable example. 10



[4380] – 408

Seat No.	
-------------	--

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2013
BME – 4 : Elective – 414 : COLLABORATIVE MANAGEMENT
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

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

1. What is Environment Threat and Opportunity Profile (ETOP) ? What is its role in strategic analysis ? Explain with relevant examples. **14**
2. State and explain the Structural, Functional and Behavioral issues involved in strategy implementation. **14**
3. “One plus one makes three : this equation is the special alchemy of a merger or an acquisition”. Explain. **14**
4. Leadership style, corporate culture, values and ethics plays crucial role in effective implementation strategy. Comment. **14**
5. A value chain is a chain of activities for a firm operating in a specific industry. Explain the concept and discuss its competitive advantages. **14**
6. Define strategic management. Explain the nature and importance of strategic evaluation. **14**
7. Write short notes (**any two**) : **14**
 - 1) Project implementation
 - 2) BCG matrix
 - 3) Social responsibility
 - 4) GE 9 cell model.



[4380] – 409

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – IV) Examination, 2013
BME – 5 : Elective : 415 : DECISION SUPPORT SYSTEM
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

Note : 1) Question 1 and 7 are **compulsory**.

2) Solve **any four** questions out of remaining questions.

1. Concept of need of system integration explain with example. **10**
2. Explain importance of Artificial Intelligence and expert system in DSS. **10**
3. How is DSS development different than the traditional system development ? **10**
4. Explain importance of database management system for DSS and its structure in detail. **10**
5. Explain knowledge based expert system with knowledge representation methods. **10**
6. Explain ESS with an example and enumerate ESS characteristics and capabilities. **10**
7. Write short notes on **(any 4)** : **20**
 - 1) OLAP
 - 2) GIS
 - 3) SCM
 - 4) Data warehouse
 - 5) Prototyping.



[4380] – 410

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – IV) Examination, 2013
BM E6 (Elective) 416 – ENTERPRISE RESOURCE MANAGEMENT
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

- Instructions :** i) Question No. 1 and Question No. 6 are **compulsory**.
ii) Solve **any three** questions from Question Nos. 2, 3, 4 and 5.
iii) Figures to the **right** indicate **full** marks.

1. Samsung Mobile is multinational company which produces mobile handset. They have to implement the ERP system. The company is having their outlets in the five different countries. The sale of company is increasing every year by 10 %. Company hired you as consultant for implementing various modules for daily automation. You have to prepare a Brief report of vendor modules and sub modules in the integration and automation of the business transaction. Also you require preparing brief report on vendor analysis and selecting the best module to improve company performance. **20**
2. a) Explain the concept of data mining in detail. **5**
b) Explain the critical and success factors for an ERP implementation. **5**
3. a) How the integration of SCM and CRM module with ERP system will provide more benefit to an enterprise. Explain by taking the example of online business company. **5**
b) Discuss the modules and sub modules in Sales and Distribution Management. **5**
4. a) Discuss the various modules of ERP system. **5**
b) Define BPR. Explain the different BPR phases in detail. **5**

P.T.O.



5. a) How can an ERP system provide advantage for a business ? Explain by taking the example of multiplex theater. **5**
- b) Explain ERP implementation methodology in brief. **5**
6. Write short notes on **any four** : **20**
- 1) Operations in OLAP
 - 2) ERP vendor
 - 3) ESS
 - 4) ERP market
 - 5) MIS



[4380] – 501

Seat No.	
-------------	--

M.C.A. (Semester – V) (Management Faculty) Examination, 2013
IT-51 : HUMAN COMPUTER INTERFACE
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Question 1 is **compulsory**.
2) Attempt **any five** from the remaining.
3) Assume suitable data **wherever** necessary.
4) Figure at **right hand** indicate **full marks**.

1. Answer **any four** : **20**
 - a) Explain three pillars of design.
 - b) Describe difference between STM and LTM.
 - c) Explain design guidelines for form fill-in and dialog boxes.
 - d) Describe LUCID methodology.
 - e) Explain direct manipulation and virtual environment.
2. a) Discuss the characteristics of good Web Page Design. **10**
b) List and explain Norman's any four principles of good design.
3. a) What is Window Design ? Explain individual and multiple design. **10**
b) Explain the term acceptance testing.
4. Explain 6 type tasks where pointing devices are applications. Explain direct and indirect control pointing devices. **10**
5. List down in 5 phase frame work to clarify user interfaces for textual search. Explain each of them in detail. **10**
6. Discuss OAI model for website design. **10**
7. Write short notes on **(any two)** : **10**
 - a) Expert reviews
 - b) Error messages
 - c) Online manuals.



[4380] – 502

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
IT-52 : SOFTWARE I.T. PROJECT MANAGEMENT
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Note : 1) Q. 1 is **compulsory**.
2) Solve **any five** from Q. 2 to Q. 7.

1. a) A recently established Software Industry has computerized its Human Resource Management System by using various software applications for Selection, Training, Performance Evaluation and Retention of their Employees. You as a Software Expert need to find out Risk involved in Implementation and Administration of the project. 15
b) Explain in brief CPM and PERT. 5
2. You cannot satisfy a customer unless you know what he wants. Justify this statement and explain how you can manage customer expectation ? 10
3. Discuss how the role of Testing is very crucial in Software Projects ? 10
4. Define Software Configuration Management explain the tasks of Software configuration management. 10
5. Explain the Cost Estimation Technique COCOMO Model in detail with example. 10
6. Role of QA and QC in Software Development. 10
7. Write short note (**any 2**) : 10
 - a) Version and Release Management.
 - b) Differentiate between Directive and Collaborative Styles.
 - c) Gantt Charts.
 - d) Role of User in System Implementation.



[4380] – 504

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
IT 55 : ADVANCED INTERNET TECHNOLOGY
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Note : 1) Question 1 and 7 are **compulsory**.
2) Attempt **any four** from **remaining**.

1. Explain 4C payment modes with comparison. 10
2. Design a html page to display list of available books in a listbox. Allow user to select multiple books and submit form. Write a servlet code to display selected books. 10
3. List out JSP Standard Actions. Explain any two. 10
4. Write Perl program for Hangman word game. 10
5. Write PHP code to send e-mail to two recipients simultaneously. Provide GUI to accept recipients' email-ids, subject and message text from user. 10
6. Design html page to accept ADHAR card registration information. Write JSP code to store registration details in database. 10
7. Write short notes on **any four** : 20
 - a) Cookies in Servlet
 - b) Arrays in Perl
 - c) Include () and Required () in PHP
 - d) Public and Private encryption
 - e) \$_GET and \$_POST in PHP.



[4380] – 505

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – V) Examination, 2013
IT-E 1 (Elective) : CYBER LAW AND IT SECURITY
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Q. Nos. **1 and 7** are **compulsory**.
2) Solve **any three** from remaining questions.

1. a) Explain scope of IT Act 2000 and recent amendments in it. **10**
b) What is digital signature ? How digital signature is use for security purpose ? **10**
2. Explain cryptography in detail. Explain role of public key and private key in cryptography. **10**
3. Explain establishment and composition of appellate tribunal under Cyber Regulations. **10**
4. Explain concept of domain name with reference to cyber law. **10**
5. What are the powers of adjudicating officer to impose penalties ? **10**
6. What is E-Governance ? Explain one example of E-Governance. **10**
7. Write short notes (**any four**) : **(4×5=20)**
 - a) Reverse Hijacking
 - b) Genesis of cyber law
 - c) Spamming
 - d) RSA Algorithm
 - e) Trademark Law.



[4380] – 507

Seat No.	
-------------	--

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2013
ITE-3 : ADVANCED UNIX (Elective)
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Question 1 and 7 are **compulsory**.
2) Solve **any 4** from remaining.
3) Draw suitable diagrams **wherever** necessary.

1. Explain the following system calls with examples and syntax (**any five**) : **(5×2=10)**
 - a) lseek ()
 - b) fork()
 - c) dup()
 - d) chmod()
 - e) link()
 - f) exit()
2. Explain the directory related system calls. **10**
3. What is Orphan Process ? Explain the ways by which it can be avoided. **10**
4. What are message Queues ? Explain the structure of information maintained by Kernel for every message Queue. **10**
5. What is a Semaphore ? Explain how you control operation on a semaphore. **10**
6. What are pipes ? What happens when a pipe system is called ? Explain how they are different from ordinary files ? **10**
7. Write short notes on the following (Attempt **any four**) : **(4×5=20)**
 - a) malloc(), calloc() and realloc().
 - b) Methods of Inter-Process Communication.
 - c) Race Condition.
 - d) Real UID vs Effective UID.
 - e) File descriptor.
 - f) Record locking.



[4380] – 508

Seat No.	
----------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
ITE 4 : (Elective) : MOBILE WIRELESS COMPUTING
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions: 1) Question No. 1 and 7 are **compulsory**.
2) Attempt **any three** questions from the remaining Q. 2 to Q. 6.

1. a) Define the following terms and write their functions (**any four**) : **10**
 - i) BSS
 - ii) HLR
 - iii) MMF
 - iv) PCF
 - v) UMTS
 - vi) MAC.
- b) What are the functional difference in various generations of mobile computing ?
Explain. **10**
2. a) Explain the concept of frequency-reuse. **5**
- b) What is hand-off ? Define different methods of hand-off. **5**
3. What is WAP Gateway ? Explain its functions. **10**
4. Explain DHCP. How DHCP can be used for mobility management ? **10**
5. Define indirect TCP. Explain selective retransmission. **10**
6. Explain dynamic source routing. **10**
7. Write short notes (**any four**) : **20**
 - i) HIPER LAN
 - ii) CDMA
 - iii) GPRS
 - iv) QoS in Wireless
 - v) Push-Pull
 - vi) Adhoc Networks.



[4380] – 52

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
IT-52 : ADVANCED INTERNET TECHNOLOGY
(2005 Pattern)

Time : 3 Hours

Max. Marks : 70

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

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

1. What is digital signature ? Explain its advantages and disadvantages. **10**
2. Write ASP code for ADHAR card registration (Assume suitable table structure). **10**
3. Write a JSP code to generate book report for specific publisher and price above 250/- (use suitable table structure). **10**
4. Write a PHP program to accept account number from user and display account holder details along with account transactions. (Use suitable table structures). **10**
5. Explain JSP Actions - include and forward. **10**
6. a) With suitable example, explain error handling in ASP. **5**
b) Explain pattern matching in Perl. **5**
7. Write short note on **any four** : **20**
 - a) Request and response object in ASP.
 - b) Session in PHP.
 - c) Arrays in Perl.
 - d) Default objects in JSP.
 - e) Sending mail in PHP.



[4380] – 53

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – V) Examination, 2013
IT – 53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2005 Pattern)**

Time : 3 Hours

Max. Marks : 70

Note : 1) Question No. 1 and No. 7 are **compulsory**.
2) Solve **any 4** from remaining.

1. The core area of Warahi Software Solution is software product development. This company has four corporate offices located at four major cities across India. As a Business Development head, you are advised to suggest a suitable Business Continuity Plan structure [BCP]. 15
2. What is e-commerce and explain e-commerce process models in brief. 10
3. What is an ATM and explain its benefits. 10
4. What is video conferencing and how does it work ? 10
5. Discuss strategies and tactics for implementation of E-Governance. 10
6. What is GIS ? How does GIS works ? 10
7. Write short notes on **any three** : 15
 - 1) RFID.
 - 2) Components of Embedded System.
 - 3) Spatial objects in GIS.
 - 4) Knowledge management tools.
 - 5) E-logistics.



[4380] – 55

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
Management Elective : IT-1 – DISTRIBUTED DATABASE
MANAGEMENT SYSTEM
(2005 Pattern)

Time : 3 Hours

Max. Marks : 70

- Note :** 1) **Full** marks are indicated to the **right** of **each** question.
2) **Whenever** necessary, state assumptions.
3) Give examples if **required**.
4) Q. No. 7 is **compulsory**, solve **any five** from remaining.

1. Explain the need for DDBMS and its advantages and disadvantages. **10**
2. What are the different types of fragmentations ? **10**
3. Explain query optimization, query execution and access plan with suitable example. **10**
4. Discuss data recovery in case of node and link failure. **10**
5. Discuss the architecture of Heterogeneous DDBMS. **10**
6. Discuss various concurrency control methods in DDBMS. **10**
7. Write a short note on (any 4) : **20**
 - a) Client server database
 - b) Distributed Data Administrator
 - c) Mobile Database
 - d) Distributed Deadlock
 - e) Components of DDBMS.



[4380] – 56

Seat
No.

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
Management Elective IT-2 (2005 Pattern)
ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Question 1 is **compulsory**.
2) Solve **any five** questions from question 2 to 7.

1. a) Define AI. Explain significance of AI. List and explain various applications of it. **10**
b) Discuss the concept of knowledge representation in brief. **10**
2. Illustrate Mini-Max search for the tic-tac-toe game, with final position. **10**
3. A) Explain natural language processing and its importance in AI. **5**
B) Explain the concept of forward and backward reasoning. **5**
4. A) Explain n-queens problem and illustrate it with an example. **5**
B) What is an associative network ? Explain. **5**
5. What is semantic analysis ? Discuss in detail along with appropriate examples. **10**
6. Explain heuristic search technique. List and explain its drawbacks. **10**
7. Write short notes on **any two** : **10**
 - i) Fuzzy logic
 - ii) Expert system
 - iii) Probabilistic reasoning.



[4380] – 57

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
Management Elective : (2005 Pattern)
IT3 : NETWORK SECURITY

Time : 3 Hours

Max. Marks : 70

- Note :** 1) Q.1 and Q.6 are **compulsory**.
2) Solve **any three** from Q. 2 to Q. 5.
3) Figure at **right** indicate marks.
4) Give appropriate examples **wherever** necessary.

1. a) Explain with example Encryption, Decryption and Restriction in RSA cryptography. 10
b) Explain Kerberos Protocol and operations in it. Why is it called as three headed dog? 10
2. Explain IPsec as IP encapsulating security protocol. 10
3. Explain various protocols for web security. 10
4. Explain Clark-Wilson Access Control Model. 10
5. Explain with example Secure Hash and Key Management in Cryptosystems. 10
6. Write short notes (**any four**) : (4×5=20)
 - a) Stream Cypher
 - b) MIME
 - c) Access Matrix
 - d) IP Sec
 - e) ACL in Proxy.



[4380] – 59

Seat No.	
-------------	--

**M.C.A. (Management Faculty) (Semester – V) Examination, 2013
(2005 Pattern)
Management
IT-5 : VISUAL C++
(Elective)**

Time : 3 Hours

Max. Marks : 70

Instructions : 1) *Que. 1 is compulsory.*

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

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

1. a) Write a source code for simple windows application which creates and displays a window and displays messages. **10**
- b) Write a program using SDK to draw freehand drawing. **10**
- c) Explain virtual function with example. **5**
2. a) Using the window controls write a program to display a dialog box with Item details. **10**
- b) Explain Error handling with suitable example. **5**
3. a) Design C++ class to implement singly linked list and methods to Implement various operations. **10**
- b) Explain abstract class with suitable example. **5**
4. a) Write C++ program to read a text file and print vowels from file. **10**
- b) Explain Scope Operator with example. **5**
5. Write short notes (**any three**) : **(3×5=15)**
 - a) Vector Array
 - b) MDI
 - c) Device Independent Graphics interface
 - d) Common dialog control.



[4380] – 60

Seat No.	
-------------	--

**M.C.A. (Semester – V) (Mgt. Faculty) Examination, 2013
Management Elective :IT – 6 : HUMAN COMPUTER INTERFACE
(2005 Pattern) (Old)**

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Solve **any five** from Question No. 1 to 6.
2) Question 7 is **compulsory**.
3) Figures to **right** indicate **full** marks.

1. Explain Design Guidelines for form-filling and Dialog Boxes. **10**
2. List down phases in 5-phase framework and explain each of them in detail. **10**
3. Explain the goals of computer supported co-operation. **10**
4. Describe Differences and Similarities between STM and LTM. **10**
5. Explain OAI model in detail. **10**
6. Explain the concept of Individual and Multiple Window and what do you mean by coordination multiple windows ? **10**
7. Write short notes on (**any four**) : **(5×4=20)**
 - a) Goals of SE
 - b) Acceptance Testing
 - c) Error Message Guidelines
 - d) Expert reviews
 - e) LUCID.



[4380] – 62

Seat No.	
-------------	--

M.C.A. (Management Faculty) (Semester – V) Examination, 2013
Management Elective : IT – 8 : ADVANCED UNIX
(2005 Pattern)

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Q.1 and Q.6 are **compulsory**.
2) Solve **any three** from **remaining**.

1. a) Explain Binary I/O with suitable example. 10
b) Explain the concept of file descriptor duplication. 10
2. Explain different system calls associated with file I/O. 10
3. What are signals ? Explain how to end particular process using signal ? 10
4. What do you mean by file permission ? Explain it with suitable example. 10
5. Explain memory management routines in UNIX. 10
6. Write short note on (**any four**) : 20
 - a) Semaphores
 - b) Message queue
 - c) Buffering
 - d) Session
 - e) Multitasking.