[4280] – 1001

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – I) Examination, 2012
IT 11 : 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 **wherever** necessary.*

1. a) Draw and explain 16-bit (80286) architecture in detail. **10**

   b) Explain parallel processing concept. **5**

2. Convert the following : **(2×5=10)**
   a) $(17.25)_{10} = (?)_2$
   b) $(2343)_8 = (?)_{16}$
   c) $(AC4)_{16} = (?)_{10}$
   d) $(1101.1)_2 = (?)_{10}$
   e) $(107.125)_{10} = (?)_{16}$

3. What is addressing mode ? Explain any four addressing modes in detail. **10**

4. Draw and Explain memory hierarchy structure in detail. **10**

5. What is counter ? Draw and explain mod-10 counter in detail. **10**

6. What is Pipelining ? Explain various hazards in pipelining. **10**

7. Write short note on the following **(any three)** : **(3×5=15)**
   a) K-map
   b) Multiplexer
   c) Compiler and Interpreter
   d) Super scalar concept.

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[4280] – 1005

Seat No.	

M.C.A. (Semester – I) (Management Faculty) Examination, 2012
MT-11 : DISCRETE MATHEMATICS
(2012 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Question **1** is **compulsory**.*
*2) Attempt **any two** questions from the **remaining**.*
*3) Figures to the **right** indicate **full** marks.*
*4) Scientific calculators are **allowed**.*

1. a) Show the following implications : **5**

   i) $P \wedge Q \Rightarrow P \rightarrow Q$

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

   b) Obtain the PDNF for the following : **5**

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

   c) Define bijective function. Give an example. **5**

   d) Show that $\binom{n}{r} = \frac{nPr}{r!} = \frac{n!}{r!(n-r)!}$ **5**

   e) A box contains 10 pairs of shoes. Find the no. of ways in which 8 shoes are selected without forming any complete pair. **5**

   f) Define Monoid and Group. **5**

2. a) If P : Today is Monday

   Q : It is raining

   R : It is cold

   then convert the following formula in good English sentences. **5**

   i) $\neg Q \rightarrow (R \wedge P)$

   ii) $\neg (P \vee Q) \leftrightarrow R$

P.T.O.

b) Show that the following formula is contradiction or not. **5**

i) $(P \wedge \neg Q) \wedge (P \rightarrow Q)$

ii) $P \leftrightarrow (\neg Q \wedge R)$

c) Write the following sentences in predicate formula. **5**

i) All that glitters is not gold

ii) Some birds cannot fly.

d) Show that $\neg P$ is valid from $\neg(P \wedge \neg Q), (\neg Q \vee R)$ and $\neg R$. **5**

3. a) Let A = {a, b, c, d} and $R : A \rightarrow A$, where R = { (a, a), (a, c), (b, b), (b, c), (c, a), (c, d), (d, a), (d, b) }. Find the transitive closure of R. **5**

b) Let X = {1, 2, 3, 4, 5, 6, 7, 8, 9} and R = {(x, y) / x – y is divisible by 3}. Show that R is an equivalence relation and find the equivalence classes generated by R. **5**

c) Let A = {1, 2, 3} and $R : A \rightarrow A$ where R = {(1, 1), (1, 2), (2, 2), (2, 3), (3, 3)}. Find its complement and converse of R. **5**

d) Let X = {1, 2, 3, 4, 5} and

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

Find R and draw graph of R. **5**

4. a) 10 couples are attending a party. They have to be seated in a straight line such that **7**

i) Males and females alternatively

ii) Husband and wife sit together

Find the number of seating arrangements in each case.

b) At a gathering, there are 200 smokers, 300 hot beverage takers, 250 cold beverage takers. Also, 110 are smokers as well as cold beverage takers, 130 smokers and hot beverage takers and 140 who can take hot and cold beverages. There are 100 persons who are used to all the three habits. Find the number of persons at the gathering.

c) Find the coefficient of x^3yz^8 in the expansion of $(2x - 2y + 3z^2)^8$. Also state multinomial theorem. **6**

5. a) Generate the group codes from the given parity check matrix H. **8**

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

b) Define Group Homomorphism and Semigroup Homomorphism. **6**

c) Find the number of integer solutions for **6**

$x_1 + x_2 + x_3 = 21$ such that

$2 \leq x_1 \leq 4$, $5 \leq x_2 \leq 9$ and $x_3 > 0$.

[4280] – 101

Seat No.	

M.C.A. (Management Faculty) (Semester – I) Examination, 2012
IT 11 : 101 : COMPUTER ORGANIZATION AND ARCHITECTURE
(New) (2008 Pattern)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q. **1** and Q. **7** are **compulsory**.*
*2) Solve **any four** from the remaining.*
*3) Draw the **neat** diagrams **wherever** necessary.*
*4) Figures to the **right** indicates **full** marks.*

1. a) Draw and explain 64-bit Pentium Dual Core architecture in detail. **10**
   b) Define the term Software. Explain System Softwares and Application Softwares. **5**

2. What are Interrupts ? Explain all types of Interrupts. **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 Shift Register ? Explain any one type of Shift Register. **10**

5. What is DMA ? Explain DMA techniques using different DMA transfer modes. **10**

6. What is pipelining ? Explain instruction pipelining in detail. **10**

7. Write short note on (**any three**) : **(3×5=15)**
   a) Memory Hierarchy
   b) Parallel Processing
   c) Decoder and Encoder
   d) Programming Language Paradigm.

[4280] – 105

Seat No.	

M.C.A. (Mgmt. Faculty) (Semester – I) Examination, 2012
MT-11 : 106 : DISCRETE MATHEMATICS
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. a) Test the validity of the following argument :

I like meeting people. I like travelling also. If I like meeting people and travelling, then I am considered to be a nice person. Hence I am a nice person. **5**

b) Let A = {1, 2, 3, 4, 5, 6}. Let R = $\{\langle a, b\rangle / a \equiv b \bmod 2\}$. Is R an equivalence relation ? **5**

c) Let G = {a, a^2, a^3, a^4, a^5, a^6} be a multiplicative group, where $a^6 = e$ is the multiplicative identity. Find the order of each element of G. **5**

d) If a simple graph G with n vertices has more than $\frac{1}{2}(n-1)(n-2)$ edges, is G connected ? **5**

e) Obtain the Principal Conjunctive Normal Form (PCNF) for the following :

$((P \to Q) \vee (Q \to R)) \to (P \to R)$. **5**

f) Let f(x) = x + 2, g(x) = x – 2 and h(x) = 3x for $x \in R$, where R is the set of real numbers. Find i) foh ii) fog iii) fohog iv) gog. **5**

2. a) Show that the conclusion C is valid or invalid without constructing the truth table : **5**

$P_1 : (A \wedge B) \to D$, $P_2 : \neg D \vee E$, $P_3 : \neg E$, $C : \neg A \vee \neg B$.

b) Symbolise the following statements : **5**

i) All men are ambitious.

ii) Some teachers are dedicated.

P.T.O.

c) Check the following statement is equivalent or not : **5**

$(P \to R) \wedge (Q \to R) \Leftrightarrow (P \vee Q) \to R$.

d) Find the converse and contrapositive of the implication : **5**

i) If i will not study discrete mathematics then i will not be good in programming.

ii) If i am not in a good health, then I will go to a clinic.

3. a) Let A = {1, 2, 3, 4}. Compute the products **5**

i) (3 1 4 2) 0 (2 3 1)

ii) (4 2 1 3) 0 (3 1 2).

b) Find the transitive closure by using Warshall's algorithm :

$R = \{\langle 1, 1\rangle, \langle 1, 4\rangle, \langle 2, 2\rangle, \langle 2, 3\rangle, \langle 3, 2\rangle, \langle 3, 3\rangle, \langle 3, 1\rangle, \langle 3, 4\rangle\}$

on A = {1, 2, 3, 4}. **5**

c) Let A = {2, 3, 4, 6, 12, 36, 48} be a non-empty set and R be the partial order relation of divisibility defined on A. That is, if a, $b \in A$ then a divides b. Draw Hasse diagram of R. Is it totally ordered ? **5**

d) The compatibility relation on a set $\{x_1, x_2, ..., x_6\}$ be given by the matrix **5**

x_2	1				
x_3	1	0			
x_4	1	1	0		
x_5	0	1	0	0	
x_6	0	0	1	0	1
	x_1	x_2	x_3	x_4	x_5

Draw the graph and find the maximal compatibility blocks of the relation.

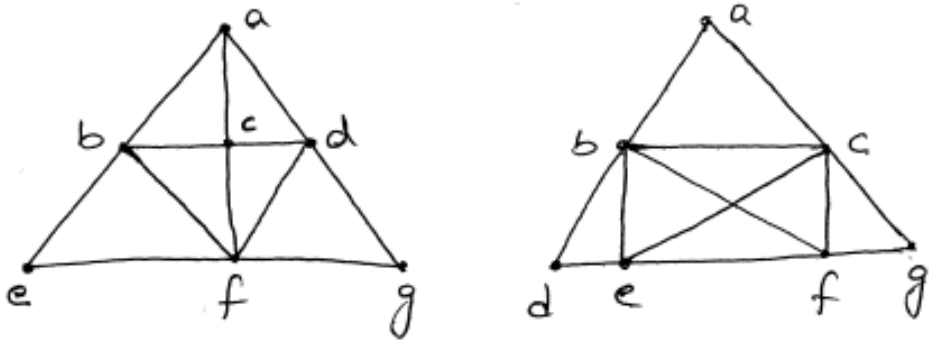
4. a) Let g be a homomorphism from a group $(G, *)$ to a group (H, Δ), and let K be the Kernel of g and $H' \subseteq H$ be the image set of g in H then $\frac{G}{K}$ is isomorphic to H'. **8**

b) Find the number of code words generated by the parity check matrix H, also find all the code words generated **7**

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

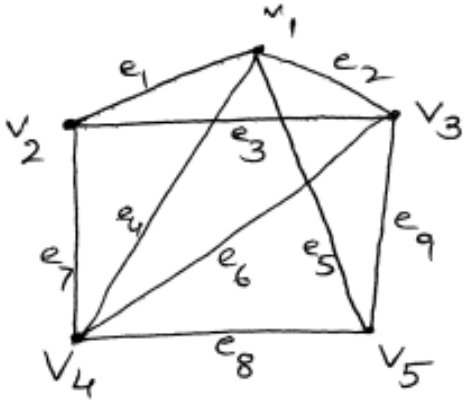
c) Let G be the group of integers under the operation of addition. Let $H = \{3K / K \in Z\}$. Is H a subgroup of G ? **5**

5. a) Verify whether the following graphs are isomorphic. **5**



b) Show that the maximum number of edges in a simple graph with 'n' vertices is $\frac{n(n-1)}{2}$. **5**

c) Obtain the incidence and adjacency for the following graph : **5**



d) Define : **5**

i) Connected graph

ii) Euler path

iii) Planar graph.

[4280] – 203

Seat No.	

M.C.A. (Management Faculty) (Semester – II) Examination, 2012
IT-23 : 203 : SOFTWARE ENGINEERING
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

***Instructions**: 1) **Q. 1** and **Q. 7** are **compulsory**.*
*2) Attempt **any three** from the remaining.*

1. A company dealing in spare parts would like to change the existing sales system to a web based application. The company has their products listed on the website through which they can receive enquiries. These enquiries are processed online. The delivery note and invoice is also sent by mail which is used for cross validation by the client.

   a) Draw a DFD for the above case. **10**

   b) Prepare SRS & system specification for the above case. **10**

2. "The primary goal of software engineering is to improving the quality of software". Elaborate the need of software engineering for software projects. **10**

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

   Design a data entry screen and also state input validations. **10**

4. Explain various tools available for project management support in case tool. **10**

P.T.O.

5. What is documentation ? Explain the importance of documentation in systems design. **10**

6. Explain method of estimating software maintenance cost. Give various components of legacy systems. **10**

7. Write short notes (**any four**) : **20**
   a) Code design
   b) Reverse Engineering
   c) Spiral model
   d) Decision Tree & Decision Table
   e) Types of requirements.

[4280] – 205

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – II) Examination, 2012
MT - 21 : 205 : PROBABILITY AND COMBINATORICS
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

***Instructions** : 1) Question No. **1** and Question No. **4** are **compulsory**.*
*2) Solve **any one** from question No. **2** and **3** and **any one** from Question No. **5** and **6**.*
*3) Figures to the **right** indicate **full** marks.*
*4) **Use** of calculator and statistical table is **allowed**.*

1. a) State and prove principles of Inclusion and Exclusion. **5**

   b) n persons are seated on n chairs at a round table. Find the number of ways that two specified persons are sitting next to each other. **5**

   c) 9 gentlemen kept their coats at the gatekeeper while entering a hall. The gatekeeper mixes the tokens and return the coats at random. In how many ways gentlemen will get their coats such that exactly 3 of them get their correct coats. **5**

   d) Solve the recurrence relation

   $a_n + a_{n-1} - 6a_{n-2} = 0$; $a_0 = 2$, $a_1 = 5$. **5**

2. a) Find the number of non-negative integer solutions of the equation. **7**

   $x_1 + x_2 + x_3 = 21$ if

   $2 < x_1 \leq 9$

   $4 \leq x_2 \leq 7$

   $6 \leq x_3 \leq 12$

   b) i) $\binom{r}{r}+\binom{r+1}{r}+\binom{r+2}{r}+\ldots+\binom{n}{r}=\binom{n+1}{r+1}$

   ii) $\binom{2n}{2}=2\binom{n}{2}+n^2$. **8**

   Prove the above equations by using combinatorial arguments.

P.T.O.

3. a) Find the coefficient of $w^3x^2yz^2$ in the expansion $(2w - x + 3y - 2z)^8$ and also find the number of terms. **7**

   b) Determine the discrete numeric function of generating function. **8**

$$A(z) = \frac{7z^2}{(1-2z)(1+3z)}$$

4. a) Define :

   i) Axiomatic approach of probability

   ii) State Baye's theorem. **5**

   b) A problem in statistics is given to three students A, B, and C whose chances of solving it are $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{5}$ respectively. Find the probability that the problem will be solved if they all try independently. **5**

   c) The following table represents the joint probability mass function of a discrete random variable (X, Y) : **5**

X \ Y	– 2	0	2
–1	2 K	4 K	6 K
0	4 K	6 K	8 K
1	6 K	8 K	10 K

   Find

   i) K

   ii) Marginal distributions

   iii) Conditional distribution of Y given X = – 1

   d) State and prove additive Property of Gamma distribution. **5**

5. a) Find mean and variance of Negative Binomial Distribution. **8**

   b) The following is the probability distribution function of a discrete random variable X

X :	– 3	– 1	0	1	2	3	5	8
P (X) :	0.1	0.2	0.15	0.05	0.25	0.15	0.05	0.05

. **7**

   Find

   i) Cumulative distribution function of X

   ii) P (X is even)

   iii) $P\left(X = 3 / X < 0\right)$

6. a) For the following joint probability density function

$$f(X, Y) = K\,(3x^2 + 2y^2) \; ; \; 0 \leq x \leq 3$$

$$2 \leq y \leq 4$$

$$= 0 \text{ otherwise}$$

   Find

   i) K

   ii) $f_X(x)$

   iii) $f_Y(y)$. **8**

   b) In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find the mean and standard deviation of the distribution. **7**

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[4280] – 35

Seat No.	

M.C.A. (Semester – III) Examination, 2012
IT 36 : OBJECT ORIENTED ANALYSIS AND DESIGN
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1)* ***First*** *question is* ***compulsory****.*
2) Solve ***any 5*** *out of remaining.*
3) Figures to ***right*** *indicate marks.*

1. a) A Premier Institute has well-stocked Library providing services to various members viz. students, research scholars, faculty members, visiting staff, staff. The Library has books, journals, periodicals, magazine, newspaper and CD's. A member can borrow a book for a period of one week, journals and periodicals for two day and CD for one day. A fine Rs. 5/- per day will be charged for not returning on time. The rules for issuing number of books are as following :

   Research scholars – 3 books

   Faculty members – 5 books

   Visiting Staff – 3 books

   Staff – 1 books

   To avail the additional books every members has to obtain a special Permission from their respective HOD. Draw the use diagram and Class diagram for the above case. **15**

   b) Discuss steps involved in designing data access layer. **5**

2. Explain various approaches for identifying classes. **10**

P.T.O.

3. Compare Grady Booch Methodology with OMT. **10**

4. a) Draw a sequence diagram for sending SMS to your friend. **5**

   b) Compare objects oriented versus relational database. **5**

5. Draw the activity diagram and class diagram for various operations done using ATM. **10**

6. Explain RUP process in detail. **10**

7. Write short notes on **(any two)** : **10**

   a) Aggregation and generalization

   b) Booch methodology

   c) Any two pattern

   d) CRC.

[4280] – 403

Seat No.	

M.C.A. (Semester – IV) (Mgt. Faculty) Examination, 2012
IT 43 : 403 : OBJECT ORIENTED ANALYSIS AND DESIGN
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. Newton's Institute offers various courses on various IT subjects. Teachers are assigned to maximum two courses. The subjects are allotted according to their area of specialization. There is a group of course coordinators in the institute who manage the courses including course contents, assigning subject to teacher and scheduling of lectures.

   Draw the following diagrams for above case :

   a) Use case diagram. **10**

   b) Class diagram. **10**

2. Explain RUP in detail. **10**

3. a) Draw a sequence diagram for changing the password of your E-mail Account. **5**

   b) Draw a collaboration diagram for retrieving the forgotten password of your E-mail Account. **5**

4. Explain characteristics of good test plan. **10**

5. Draw an activity diagram for the following : **10**

   Sending an e-mail to your friends from the contact list having a greeting card as an attachment.

6. Draw the state transition diagram for online shopping of books. **10**

7. Write a short note on (**any 2**) : **10**
   1) Approaches for identifying classes.
   2) Object relational mapping.
   3) Inheritance.
   4) Aggregation and composition.

[4280] – 406

Seat No.	

M.C.A. (Mgmt. Faculty) (Semester – IV) Examination 2012
BME 2 : FOUNDATION OF DECISION PROCESS (Elective) (New) (2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****.*
2) Solve ***any two*** *questions from the remaining.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) Use of Electronic Calculator is ***allowed****.*

1. a) Explain with suitable example different criterion in decision making. **10**

   b) Mr. Mehra had to decide whether or not to drill a well on his farm. In his village, only 40% of the wells drilled were successful at 200 feet of depth. Some of the farmers who did not get water at 200 feet, drilled further upto 250 feet, but only 20% struck water at 250 feet. Cost of drilling is Rs. 50 per feet. Mr. Mehra estimated that he would pay Rs. 18,000 during a 5-year period in the present value terms, if he continues to buy water from the neighbour rather than go for the well which would have a life of 5 years.

   Mr. Mehra has three decisions to make :

   1) Should he drill upto 200 feet and
   2) If no water is found at 200 feet, should he drill upto 250 feet.
   3) Should he continue to buy water from his neighbour ? **10**

   c) Arrival rate of cars to a certain service station is according to Poisson distribution with an average time of 50 minutes between the two consecutive arrivals. The length of service needed by a car is assumed to be exponentially distributed with mean of 25 minutes :

   1) Determine the probability that a car arriving at the station will have to wait.
   2) Average time spent by a car in a service station.
   3) Determine the probability that a car arriving at the station will have to wait for more than 10 minutes for the service.
   4) Find the flow rate of the cars if the average waiting time of the cars is 35 minutes. **10**

P.T.O.

2. a) Explain two person zero-sum game. Illustrate with example. **10**

   b) Western Travel agents have a touring van that requires a special grade of fuel. During the past few months the van's use has varied so much that the amount of fuel necessary for keeping the van operating has varied considerably. A study of past 200 days reveals that demand for the car has flactuated between 0 to 5 trips/week

Trips/week	0	1	2	3	4	5
Frequency	16	24	30	60	40	30

   Using the following random numbers, simulate the demand for a ten week period :

   26, 84, 21, 38, 36, 73, 16, 81, 59, 83

   Also find average demand per week for the car. **10**

3. a) An ice-cream retailer, buys ice cream at a cost of Rs. 5 per cup and sells it for Rs. 10 per cup; any remaining unsold at the end of the day can be disposed of at a salvage price of Rs. 3 per cup. Pas sales has ranged between 15 and 18 per day. **10**

Demand	15	16	17	18
Probability	0.10	0.20	0.40	0.30

   How many cups of ice cream retailer should kept in a stock so as to maximize its profit ? What is the optimum expected profit ?

   b) There are two companies A and B in a certain city. Both companies have similar reputation and the total number of customers is equally divided between two companies. Both the companies want to attract a greater number of customers by using different media of advertisement. By seeing the market trend, the company A constructed following pay-off matrix where numbers in the matrix a gain or loss of customers to it.

		Company B ↓		
Company A	**Newspaper**	**Radio**	**T.V.**	**Magazine**
↓		↓		
Newspaper	40	50	–17	80
Radio	10	25	–10	60
T.V.	100	30	60	90
Magazine	– 30	– 20	– 35	75

   Find optimal strategies for both the companies and also find value of the game. **10**

4. a) On January 1 (this year) Bakery A had 30% of its local market share while other two bakeries B and C had 40% and 30% respectively of the market share. Based upon a study by a marketing research firm the following facts were compiled. Bakery A retains 85% of its customers while gaining 5% of competitor B's customers and 15% of C's customers. Bakery B retains 90% of its customers. While gaining 8% of A's and 5% of C's customers. Bakery C retains 80% of its customers while gains 7% of A's customers and 5% of B's customers.

   What will each firms share be on January 1 next year ?

   What will each firms market share be at equilibrium ? **10**

   b) Write short notes on (**any two**) :
      1) Various queue models.
      2) Monte Carlo simulation.
      3) Utility theory in decision making. **10**

[4280] – 407

Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
BME – 3 : Elective : 413 : INFORMATION SYSTEM AUDIT AND GOVERNANCE
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Question No.* ***1*** *and Q. No.* ***6*** *is* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q.* ***2*** *to Q.* ***5****.*

1. You have been appointed as a lead auditor for auditing work of an Online Examination System. Perform following tasks : **20**
   a) Identify necessary security issues on basis of physical controls.
   b) Identify necessary security issues on basis of logical controls.
   c) Required validation controls.
   d) List of evidences.

2. Explain BCP Architecture in detail. **10**

3. Explain the role of DA and DBA in Auditing. **10**

4. Explain any two evidence collection techniques in detail. **10**

5. Explain Hardware and Software procurement controls in detail. **10**

6. Write short notes on (**any 4**) : **20**
   1) Application controls
   2) Internet security
   3) Segregation of duties
   4) ISACA
   5) Long term and short term plans.

[4280] – 408

Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
BME 4 : Elective : 414 : COLLABORATIVE MANAGEMENT
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Attempt **any five** questions.*

*2) Support your answers with **relevant** examples.*

*3) **All** the questions carry **equal** marks.*

1. "The scope of collaborative management methods used in the corporate environment is often determined by the nature of the business, the size of the management team, and the types of operational issues that are common to that particular business model". Discuss.

2. "One plus one makes three : this equation is the special alchemy of a merger or an acquisition". State the features of merger and acquisition.

3. "Environmental Threat and Opportunity Profile provides insight to the strategist to sense a favorable impact on the organization". Explain the study of sector based factors impact on the organization.

4. Write a detailed note on the role of Leadership style, Corporate Culture, Values and Ethics in effective implementation of strategy.

5. Elaborate the process of development of corporate strategies with the help of any industry example.

6. What are the behavioral and functional issues in strategy implementation ?

7. Write short notes on **any two** :

   a) Vision and Mission

   b) Project implementation

   c) The Mckinsey's 7s frame work model y

   d) GE 9 Cell Model.

[4280] – 42

Seat No.	

M.C.A. (Semester – IV) (Mgmt. Faculty) Examination, 2012
402 – BM-41 : SOFT SKILLS
(2005 Pattern)

Time : 2 Hours Max. Marks : 50

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****.*
2) Solve ***any three*** *questions out of remaining.*

1. Write short notes on **any two** of the following : **14**
   a) Signs and symbols
   b) Time management
   c) Eye contact
   d) Reading skills.

2. Define communication. Explain the process of communication with the help of a neat diagram. **12**

3. Discuss the importance of listening. What are the barriers to effective listening ? **12**

4. Write a job application. You are Mr. Ashok Patil applying for the post of Jr. Programmer in CibaSoft Ltd., Pune. Assume appropriate skill set. **12**

5. Define a Business Report. Discuss its importance. State how reports help managers. **12**

6. What is meant by Upward and Downward communication ? What are the methods used by organization for encouraging upward and downward communication. **12**

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Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
405 – Management Elective : BME – 3
INFORMATION SYSTEM AUDIT
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

***Instructions** : 1) Question No.**1** and **6** is **compulsory**.*
*2) Attempt **any 3** from Qs. from Q. **2** to Q. **5**.*

1. a) What is the need of evidence collection in Auditing ? Explain any two evidence collection techniques in detail. **10**

   b) Differentiate between Management Controls and Application Controls. **10**

2. Explain various procurement controls in detail. **10**

3. Explain auditors role in Hardware and Software Procurement. **10**

4. Explain various Input Validation Control. **10**

5. Explain various network controls for web based shopping system. **10**

6. Write short notes on (**any 4**) : **20**
   1) Risk Management.
   2) Information security.
   3) E-commerce Security Issues.
   4) Control flow chart.
   5) ISACA standards.

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Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
405-BME-4 : Management (Elective)
COLLABORATIVE MANAGEMENT
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

***Instructions** : 1) Attempt **any five** questions.*

2) Support your answers with relevant examples.

*3) **All** questions carry **equal** marks.*

1. Explain role of the BCG model in product life cycle theory with the help of suitable diagram.
2. Discuss the business strategy of merger and acquisition as a managerial tool for magnifying long-term profitability by expanding their operations.
3. "The GE matrix identifies the optimum business portfolio". Comment.
4. What are the structural and functional issues in strategy implementation ?
5. Elaborate the process of development of corporate strategies with the help of any industry example.
6. A value chain is a chain of activities for a firm operating in a specific industry. Explain the concept and discuss its competitive advantages.
7. Write short notes on **any two** :
   a) Porter's five forces framework
   b) Leadership style
   c) Core competencies
   d) Mckinsey's 7s frame work.

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Seat No.	

M.C.A. (Mgmt. Faculty) (Semester – IV) Examination, 2012
405 – Management – Elective : BME – 5 : DECISION SUPPORT SYSTEMS (Old)
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q. **1** and Q. **7** are **compulsory**.*
*2) Attempt **any four** out of remaining.*

1. List the major components of DSS and briefly define each of them. **10**

2. Explain traditional system development life cycle and state alternative development methodologies. **10**

3. Explain ES and the factors which are important for implementing ES. **10**

4. Explain the database organization and structure used in DSS. **10**

5. What is data mining ? Explain the various data mining techniques with example. **10**

6. Give a brief overview of DSS and state the differences between MIS and DSS. **10**

7. Write short notes on (**any four**) : **(4×5=20)**
   a) Supply chain management
   b) GIS
   c) Data warehouse
   d) Group DSS
   e) AI.

[4280] – 50

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2012
405 : Management Elective : BME-6 : INVESTMENT TECHNOLOGY
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Attempt **any five** questions.*
*2) **All** questions carry **equal** marks.*

1. What are mutual funds ? Describe the types of schemes offered by the mutual funds. **14**

2. Discuss the investment portfolio on diversified pattern. How it helps maximization of return on total investment ? **14**

3. Discuss the role of information technology to facilitate the investor. Elucidate with the help of suitable example. **14**

4. What is technical analysis ? How does it help the investors in various types of Investment proposals ? **14**

5. What are venture capital funds ? Comment on the venture capital scenario in India. **14**

6. Describe the products that you think are financially engineered. **14**

7. Write short notes on **any two** : **14**
   i) Markowitz theory
   ii) Valuation of Shares
   iii) Credit Rating.

[4280] – 503

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2012
IT- 53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

***Instructions**: 1) Question **1** and question **7** are **compulsory**.*

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

1. An IT company has its head office at Bangalore. It has 100 branches spread across Asia, Europe, America and Africa. All the branches and head offices are connected to each other through a stable network. As a network consultant, suggest a suitable BCP assuming the occurrence of threats to the branch offices and the head office in near future. **15**

2. Explain various electronic payment methods. How transactions are performed in E-banking. **10**

3. Explain supply chain management and E-logistics. **10**

4. What is GIS ? Explain various standards and its implementation. **10**

5. What is Biometric Identification in context of Information Security ? **10**

6. What is E-Governance ? Explain various strategies and tactics for implementation of E-Governance. **10**

7. Write short notes on (**any three**) : **15**
   a) E-Agriculture
   b) RFID
   c) ECS
   d) Digital Signature
   e) BPO.

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Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
ITE-1 : Elective : CYBER LAW AND IT SECURITY
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. A) Read the following case and explain in detail under which sections the case can be registered and what will be the charge or fine implied of the person ? **10**

Pune police have arrested a hacker by name Rakesh (name change) for hacking into a financial website. Although the hacker couldn't break into the main server of the financial institution, which was well secured by the financial institution. The accused person could make some addition to the home page of the financial website and has added a string of text to the news module of the home page of the website. Police were able to crack the case by following the trace left by the hacker on the web server of the financial institution. The financial institution has maintained a separate server for financial online transactions, for which utmost security has been taken by the financial institution. The website was hosted on a different server which comparatively had lesser security.

The hacker Rakesh (name changed) is a 10th Pass youngster of 23 years old. He has done computer courses like CCNA, MCSE etc. But he is a computer addict. He sits before the computer for almost 16 to 20 times each day. He has mostly used the readymade hacking tools, to hack into any website. He goes to a particular website on the web, which facilitates him to see the entire directory structure of that website. Then using various techniques, such as obtaining a password file, he gets into the administrator's shoes and hacks the website.

B) Explain establishment and composition of Appellate tribunal. **10**

P.T.O.

2. Explain intersection of domain name and the trademark law. **10**

3. Explain legal recognition of electronic record and digital signature. **10**

4. What is encryption ? How mathematical base is used in encryption. **10**

5. What is E-Governance ? Explain the application of E-Governance. **10**

6. What are the powers of adjudicating officer to impose penalty ? **10**

7. Write short notes **(any 4)** : **20**

   a) Digital signature and PKI

   b) Cyber squatting and reverse hijacking

   c) Certifying authorities

   d) Powers of controllers

   e) Genesis of cyber law

   f) RSA algorithm.

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Seat No.	

M.C.A. (Semester – V) Examination, 2012
(Management Faculty)
ITE – 2 : Elective : PROGRAMMING LANGUAGE AND PARADIGMS
(2008 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 program interpretation and execution in conventional computer with block diagram. **15**

2. Explain how the programming environment affects the language design. **10**

3. Explain analysis of source program with suitable diagram. **10**

4. Explain the layers of virtual computer for a web application. **10**

5. Explain the specification and implementation of elementary data types. **10**

6. Explain implicit and explicit sequence control with suitable constructs. **10**

7. Explain sub-program sequence control with example. **10**

8. Write note on (**any three**) : **(3×5=15)**
   a) Firmware computer
   b) Fixed and variable size elements
   c) Methods for parameter transmission
   d) Compiler and interpreter
   e) Features of C language.

[4280] – 53

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2012
IT-53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. As a RFID steering committee head, suggest a suitable RFID system implementation for an electronic toll collection, monitoring and receipt printing system for Maharashtra Government. The system will be implemented at 65 toll plazas throughout the State of Maharashtra. **15**

2. Explain various models of E-Governance. Which model is successfully implemented in India ? **10**

3. Explain components of embedded system with their functionality. **10**

4. What is E-Banking ? Suggest various securities required. **10**

5. Explain supply chain management and E-logistics. **10**

6. What is E-Commerce ? Discuss its advantages and disadvantages. **10**

7. Write short notes on **(any three)** : **15**
   a) Warehouse Management
   b) GPS
   c) E-Agriculture
   d) ECS
   e) Knowledge Management.

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Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
BM 51 : SOFTWARE PROJECT MANAGEMENT
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q. **1** is **compulsory**.*
*2) Solve **any five** from Q. **2** to Q. **8**.*

1. a) Draw a network diagram and find critical path. **10**

Activity	Predecessors	Duration
J	–	6
M	J	4
V	M	6
Y	V	8
L	J	2
Q	L	8
W	Y, Q	1
X	W	1

b) Explain in detail the process of Software Team Management. **10**

2. Illustrate the project cost estimation methods in detail. **10**

3. Explain the process of change management. **10**

4. Testing is crucial part in project – comment. **10**

5. Explain major factors involved in project success. **10**

6. Explain Risk Management in detail. **10**

7. Explain the involvement of users in project management. **10**

8. Write short note on (**any two**) : **10**
   1) Quality Assurance Vs Quality Control
   2) SDLC Vs Project Life Cycle
   3) MS-Project
   4) Group behaviour.

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Seat No.	

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2012
Management Elective : IT-4 : MOBILE COMPUTING
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Question No.* ***1*** *and* ***6*** *are* ***compulsory****.*
2) Attempt ***any three*** *from remaining.*

1. a) Define the following terms (**any five**) : **10**
   i) MAC ii) BSC
   iii) DCF iv) GPRS
   v) PRN vi) PIN
   b) Explain security layer of WAP. What problem does the WAP security layer causes ? **10**

2. What are the main benefits of a spread spectrum ? How can spreading be achieved ? **10**

3. What is a VLR database overflow and why is it a big issue ? Explain. **10**

4. Describe the main steps in inter-BS handoff procedure. **10**

5. a) What is hidden node problem ? How it is resolved ?
   b) Explain features of wireless network. **10**

6. Explain fisheye state routing. **10**

7. Write short notes (**any four**) : **20**
   a) HIPERLAN
   b) MMS
   c) CDMA
   d) Qos in wireless
   e) Blue tooth.
   f) Forward Error Correction (FEC)

[4280] – 61

Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
Management Elective : IT-7 : PARALLEL COMPUTING
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Question No.* ***1*** *is* ***compulsory****.*
2) Solve ***any four*** *questions from* ***remaining****.*

1. Discuss the following **(any two)** : **(2×5=10)**
   a) Gantt chart
   b) Hyper threading
   c) Communication latency
   d) Cluster computing

2. a) Discuss **any two** applications of parallel processing. **7**
   b) Discuss, what are the primary-attributes used to measure the performance of a parallel computer system ? **8**

3. Compare and contrast the following :
   a) Vector processing and array processing **7**
   b) Instruction pipelines and arithmetic pipelines. **8**

4. What is control flow computing and dataflow computing concept ? Explain with example. **15**

5. What is Plynn's classification of computer system ? List salient features of parallel systems. **15**

6. a) Write a program of PVM to give a listing of the "slave" or "spawned" program. **8**
   b) Write a shared memory program for parallel system, to add elements of an array using two processors. **7**

[4280] – 1002

Seat No.	

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

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 **whenever** necessary.*

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

i) Main ( )

```
{ int i, n;
  char * x = "Pune" ;
  n = str len (X) ;
  *x = X [n];
  for (i = 0; i < n; ++ i)
      { printf ("%s \n", X) ;
        X++;
      }
}
```

ii) main ( )

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

P.T.O.

iii)
```
# define square (x) x * x
main ( )
{  int i;
   i = 64/square (4) ;
   printf ("%d", i);
}
```

iv)
```
main  ( )
{   int i = 0, j = 0;
    if (i && j++)
        printf ("%d,%d", i ++, j) ;
        printf ("%d, %d", i, j) ;
}
```

v)
```
Main ( )
{   int i = 0;
    while (+ (+ i – – ) ! = 0)
          i – = i ++;
    printf ("%d", i) ;
}
```

2. a) Write a program to print following output. **5**

A
B C
D E F
G H I J.

b) Write a C program to sort numbers in ascending order using pointer. **5**

3. a) Write a C program to insert substring into a string. **5**

   b) Write a C program to find the highest common factor using recursion. **5**

4. Write a C program for ATM Transaction (Consider currencies Rs. 1,000, Rs. 500, Rs. 100 only). **10**

5. Create a structure that holds information like Employee Code, name and date of joining. Write a program to display the name of those employee whose tenure is 3 or more than 3 years. **10**

6. The X and Y co-ordinates of 10 different points are entered through the keyboard. Write a program to find the distance of last point from the first point (sum of distances between consecutive points). **10**

7. Write a program to read the source file and copy the same to target file by replacing all spaces with $. Use command line argument for accepting source and target file names. **10**

8. a) Write a C program to draw a following pattern. **5**

   b) Write short notes on : **5**

   Dynamic and static memory allocation in C.

[4280] – 1003

Seat No.	

M.C.A. (Semester – I) (Mgt. Faculty) Examination, 2012
IT – 13 : SOFTWARE ENGINEERING
(2012 Pattern) (New)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q.**1** and Q.**6** are **compulsory**.*
*2) Attempt **any three** from the **remaining**.*

1. Just Read .Com an online library makes books available to its registered members any time. For life time membership an amount of Rs.10,000/- has to be paid and annual membership costs Rs.1,000/-. A member can issue as many books he wants in a month, but at a time can avail maximum 2 books. Members need to deposit Rs. 1,000/- as caution money. A member cannot keep a book for more than a month. If so, a fine of Rs.10/-day will be charged. Home delivery facility is given by the organisation. The system should keep track of the following.
   1) Issue and Return of books. **10**
   2) The fine amount to be collected from the members, in case of late return.
      a) Draw DFD upto first level.
      b) Prepare SRS for the above case. **10**
2. Explain maintenance and the methods of estimating maintenance cost. **10**
3. Explain CASE tools with its components. **10**
4. Explain the relationship among software process, project and product. Elaborate the need of software engineering for software projects. **10**
5. Design an itemwise Sales Analysis Report on periodical basis which will be useful for an organisation for decision making. **10**
6. Write short notes on (**any four**) : **(4×5=20)**
   a) Spiral model
   b) Decision tree
   c) Reverse engineering
   d) Agile process
   e) Fact finding techniques.

[4280] – 1004

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – I) Examination, 2012
BM-11 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOR
(2012 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) What is Organisation ? Define principles of organization and classify the different organizational structures. Which organizational structure is suitable for large scale industries ? **15**

   b) "The needs of human beings change / alter continuously in a definite order" who was the management thinker who mapped these needs into motivational theory ? Explain with diagram. **10**

2. Why the theory of Modern management is valid in recent times also ? **15**

3. What roles do cohesiveness and norms play in shaping group performance ? **15**

4. Why decision making is important in the growth of the organization ? What are different environments of decision making ? **15**

5. What are the different ego states ? Explain use of transactional analysis for conflict management. **15**

6. Write short notes **any three** : **15**
   1) Centralisation Vs Decentralisation
   2) Planning
   3) Qualities of leader
   4) Delegation
   5) JOHARI window.

[4280] – 102

Seat No.	

M.C.A. (Management Faculty) (Semester – I) Examination, 2012
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. a) Find and explain the output of the following program. **10**

1)

```
void main ( )
{
    int i = –1, j = –1, k = 0, l = 2, m;
    m = i ++ && j ++ && k ++ !! l++;
    printf ("%d %d %d %d %d", i, j, k, l, m) ;
}
```

2)

```
# define FALSE –1
# define TRUE 1
# define NULL 0
void main ( )
{
   if (NULL) puts ("NULL") ;
   else if (FALSE)
          Puts ("TRUE") ;
   else
                puts ("FALSE");
}
```

P.T.O.

3) void main ( )

```
{
    char s [ ] = “man”;
    int i ;
    for (i = 0 ; s [i] ; i ++)
    {
        printf (“/n %c %c %c, %c”, s [i], * (s+i), * (i+s), i [s]);
    }
}
```

4) void change (int *p, int n)

```
{
    int i ;
    for (i = 0 ; i < n ; i ++)
    * (p + i) = * (p + i) + 5 ;
}
void main ( )
{
    int a  [ ] = {2, 4, 6, 8, 10} ;
    int  i ;
    change (a, 5) ;
    for (i = 0; i < =  4; i ++)
        printf (“%d”, a [i]) ;
}
```

2. Write a program which accepts the array of integers and find LCM and GCD. **10**

3. a) Write a program which will accept a number find whether the given number is perfect, deficient or abundant number. **5**

   b) Write short note on C- storage classes. **5**

4. Write a program to read 'C' program file and count the following in the complete C program. **10**
   i) Total number of statements.
   ii) Total number of opening brackets ([, (, {).

5. Write a program to read a character array and count number of vowels in it using pointer to array. **10**

6. Consider structure

```
Student
{ int. roll no;
  char name [ ];
  char course [ ] ;
}
```
10

   Accepts details of 100 students in array of structure. Display details of students in array of structure. Display details of students who are for MCA course.

7. a) Write a program to print the following pattern.

```
1
2  3
3  4  5
4  5  6  7
5  6  7  8  9
```
5

   b) Write a program for a moving car, the car can be drawn using rectangle and circle. **5**

8. Write a C program to append contents of one file to another file. Filenames should be accepted from the user through command line. **10**

[4280] – 103

Seat No.	

M.C.A. (Management Faculty) (Semester – I) Examination, 2012
BM – 11:- 103 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR
(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) Define management. State the features and functions of management. **15**

   B) "Leaders and managers carry diverse abilities"-Comment by enumerating the essential qualities of leader and styles of leadership. **10**

2. What are the different ego states ? Explain use of transactional analysis for conflict management. **15**

3. Why 'Scientific management' could not attract the promoters of behavioural approach ? On the other hand explain why the theory of Modern management is valid in recent times also ? **15**

4. "The needs of human being change/alter continuously in a definite order "who was the management thinker who mapped these needs into motivational theory ? Explain with diagram. **15**

5. Discuss the 5 stage Group development. What roles does cohesiveness and norms play in shaping group performance ? **15**

6. Write short notes **5** each : **15**
   1) Centralization Vs decentralisation
   2) Decision making environment
   3) Planning
   4) Conflict management
   5) delegation

[4280] – 104

Seat No.	

M.C.A. (Management Faculty) (Semester – I) Examination, 2012
IT – 13 : 104 : OPERATING SYSTEM CONCEPTS
(2008 Pattern)

Time : 3 Hours Total Marks : 70

Note : *1) Q. **1** and Q. **6** are **compulsory**.*
*2) Solve **any three** from remaining.*
*3) Draw **neat** diagrams **wherever** necessary.*

1. A) Explain process synchronization concept with the help of semaphore. **10**

   B) Explain page table implementation in the memory management. **10**

2. A) Differentiate between Internal and External Fragmentation. **5**

   B) Explain multiprocessing thread scheduling algorithm. **5**

3. How NFS differs from NTFS ? Explain in brief about directory structure. **10**

4. Explain features of NOS and compare it with GOS. **10**

5. Explain various disk scheduling algorithms with example. **10**

6. Write short notes (**any four**) : **(5×4=20 Marks)**
   a) Disk performance issues
   b) FCB
   c) States transition diagram
   d) RMI
   e) Context switching.

[4280] – 11

Seat No.	

M.C.A. (Semester – I) (Mgmt. Faculty) Examination, 2012
IT – 11 : INFORMATION TECHNOLOGY AND PROGRAMMING METHODOLOGIES
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

Note : *1) Q.**1** and Q.**6** are **compulsory**.*
*2) Attempt **any three** from the **remaining**.*

1. a) Draw basic block diagram of digital computer and explain the function of each component. **10**

   b) Solve the following : **5**

   i) $(20)_{10} \times (BAC)_{16} = (\ )_2$ ii) $(BABA)_{16} - (762)_8 = (\ )_8$.

   c) What is a logic gate ? Explain various logic gates. **5**

2. Explain various numbering and coding systems used in computers. **10**

3. What is a modem ? Explain its types with advantages and disadvantages. **10**

4. Define algorithm and flow chart. Write an algorithm to calculate factorial of any given number. **10**

5. a) Explain the types of software with examples. **5**

   b) Explain pre-test and post-test loop statements. **5**

6. Write short notes on **(any four)** : **(4×5=20)**

   a) Virtual memory.

   b) Binding.

   c) Input devices.

   d) BNF.

   e) Image file formats.

[4280] – 201

Seat No.	

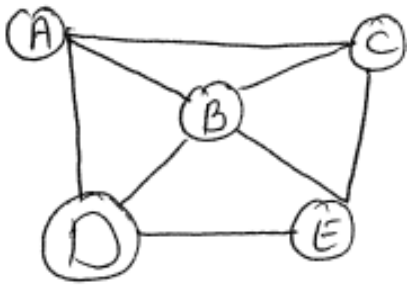
M.C.A. (Semester – II) (Management Faculty) Examination, 2012
IT-21-201 : DATA STRUCTURES USING C
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions: *1) Q. No. **1** is **compulsory**.*
*2) Solve **any four** from the **remaining**.*
*3) Make suitable assumptions if **necessary**.*
*4) Draw suitable diagrams if **needed**.*
*5) Figures to the **right** indicate **full** marks.*

1. A) A int array is defined as int array 1[250] [100] [30] [10] find the address of cell array 1 [100] [50] [10] [5]. **5**

   B) Consider the following graph : **4**



   a) Generate the output of BFS algorithm considering ‘A’ as the starting vertex.

   b) Generate the output of DFS algorithm considering ‘A’ as the starting vertex.

   c) Write adjacency matrix.

   d) Write adjacency list.

   C) Write a function to generate BFS output for a graph implemented using array. **5**

P.T.O.

2. A) Write a program for multiplication of two polynomial expressions using link list. **7**

   B) Write a function for insertion of a node in a threaded Binary Tree. **7**

3. A) Write a program to convert infix expression to postfix form. **7**

   B) Evaluate the following prefix expression : **7**

   – + AB – * C + DE

   where

   A = 14, B = 3, C = 2, D = 5, E = 6

   Show contents of stack at each step in a tabular form.

4. A) Write functions for insertion and deletion of a node in circular singally link list. **7**

   B) Write a program to create a Binary Search Tree using array. **7**

5. A) Write the functions for insert and delete elements in priority queue implemented using link list. **7**

   B) Write a function for non-recursive preorder traversal of a Binary Tree. **7**

6. A) Write a non-recursive function to find whether the Binary Tree is balanced or not. **7**

   B) Write short note on : **7**

   a) Expression Tree

   b) Time complexity.

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[4280] – 202

Seat No.	

M.C.A. (Management Faculty) (Semester – II) Examination, 2012
IT- 22 – 202 : DATABASE MANAGEMENT SYSTEM
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Note : *1) Q. No.* ***1*** *is* ***compulsory****.*
2) Solve ***any 5*** *from remaining questions.*
3) State assumptions ***wherever*** *necessary.*

1. a) Study the following purchase order details and normalize the data upto 3 Nf. **12**

Purchases Order				
				P.O. No. .....
				P.O. Dt .....
Supplier Name and Address		Supplier Quotation No. Supplier Quotation Dt.		
Sr. No.	Item No. & Description	Qty.	Rate	Amount
Terms & Conditions :				
Prepared by :				Approved by :

b) What is database schema ? Explain various types of database schema. **8**

P.T.O.

2. Explain generalization and aggregation. **10**

3. Explain various constraints in relational model. **10**

4. a) What are the desirable properties of transaction ? **6**

   b) What is time stamp ordering protocol ? **4**

5. a) What are various failures classifications ? **5**

   b) Explain log based recovery. **5**

6. a) What are types of storage devices ? **5**

   b) Explain RAID. **5**

7. Write short notes on **(any two)** : **10**

   a) Encryption

   b) Views

   c) Database users

   d) Deadlock.

[4280] – 204

Seat No.	

M.C.A. (Semester – II) (Mgmt. Faculty) Examination, 2012
BM 21 : 204 : SOFT SKILLS (2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Q.No.* ***one*** *is* ***compulsory****.*
2) Attempt ***any three*** *from the remaining questions.*

1. a) A committee was appointed by Director to look into problem of absenteeism of MCA second semester students. You as student representative in the committee, along with faculty members Prof. A.K. Singh and Prof. S.K. Kulkarni are required to draft your letter-report on investigation carried out by the committee. The report is to be submitted to the director. **15**

   b) Explain Do's and Don'ts in detail, of process of group discussion. **10**

2. Elaborate the 7 C's of communication. **15**

3. Define the process of communication. Discuss the importance of the choice of media of communication with suitable examples. **15**

4. What are the different elements of oral presentations ? What consideration deserve attention while making oral presentation ? **15**

5. Write short notes on **any three** of the following : **15**

   1) Minutes of meeting

   2) Managing Time

   3) e-mail etiquette

   4) Gestures and postures.

[4280] – 301

Seat No.	

M.C.A. Management Faculty (Semester – III) Examination, 2012
IT – 31-301 : WEB TECHNOLOGY (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**.*

1. Explain DOM and SAX purser with examples. **10**

2. Write ASP application for football club membership registration and display member - ID. (Assume any five suitable fields). **10**

3. What is CSS ? Explain different types of CSS with examples. **10**

4. Design a form to accept Reservation details of passengers validate any five fields using Javascript. **10**

5. a) Error handing in VB script. **5**

   b) Math object in Javascript. **5**

6. Explain Global.asa with suitable examples. **10**

7. Explain DOM objects in Javascript. **10**

8. Write short notes (**any two**) : **10**

   a) XML-DTD

   b) ASP Request object

   c) <IFRAME> & <META> tags.

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[4280] – 302

Seat No.	

M.C.A. (Management Faculty) (Semester – III) Examination, 2012
IT : 32 – 302 : DATA COMMUNICATION AND COMPUTER NETWORKS
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. a) Justify with **true** or **false** (not more than **60** words) : **10**
   i) HTTP is a stateless protocol.
   ii) Error detection and correction is control by physical layer of a network.
   iii) IP datagram is a fixed length datagram.
   iv) FTP uses a single connection between the client and server computers.
   v) Packet-switched networks provide both connection-oriented and connectionless services.

   b) What do you mean by "hostid" and "netid" ? How does a netid differ from a network address ? What is the purpose of subnetting ? How is masking related to subnetting ? **10**

2. Define and explain transport layer services. What are the advantages of UDP over TCP ? **10**

3. a) Explain domain name space and domain name tree with example. **5**

   b) When DHCP is most appropriate ? Describe the operation of DHCP. **5**

4. What is the limitations of network and host of class–A, class– B and class-C IP addresses ? Determine the network address for the following IP -addresses. **10**

   a) 84.42.58.11

   b) 144.62.12.9

   c) 194.38.14.13.

P.T.O.

5. Explain Carrier sense multiple access with collision defection and Carrier sense multiple access with collision avoidance protocol. **10**

6. What are the components of SNMP ? Explain the working of SNMP. What are the problems with SNMP and how to overcome the problems ? **10**

7. Define VPN. What are the different advantages of using VPN ? Explain the working of VPN. **10**

8. Write short notes (**any two**) : **10**

   a) MIME

   b) ATM Traffic Management

   c) X.25 Network

   d) Fire wall.

[4280] – 303

Seat No.	

M.C.A. (Management Faculty) (Semester – III) Examination, 2012
IT-33-303 : OBJECT ORIENTED PROGRAMMING USING C++ (New)
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Question **1** and **8** are **compulsory**.*
*2) Solve **any four** from question No. **2** to **7**.*
*3) Figures to the **right** indicate **full** marks.*

1. I) Answer the following. **10**

Explain what will be the output of following program ?

a)
```
#include<iostream.h>
class base
{
        public:
        int bval;
        base( )
        { bval=0;}
};
class deri:public base
{
        public:
        int dval;
        deri( )
        { dval=1;}
};
```

```
void SomeFunc(base *arr , int size)
{
        for(int i=0; i<size; i++,arr++)
        cout<<arr->bval;
        cout<<endl;
}
int main( )
{
        base BaseArr[5];
        SomeFunc(BaseArr,5);
        deri DeriArr[5];
        SomeFunc(DeriArr,5);
        return 0;
}
```

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

c)
```
class opOverload{
        public:
        bool operator= =(opOverload temp)
        {
          if(*this == temp)
          {
          cout<<“The both are same objects\n”;
          return true;
          }
```

```
            else
            {
            cout<<"The both are different\n";
            return false;
            }
           }
};
void main()
{
            opOverload a1, a2;
            a1 = =a2;
}
```

d)
```
int main()
{
        float a = 12.5;
        printf("%d\n", a);
        printf("%d\n", *(int *)&a);
        return 0;
}
```

e)
```
void main()
{
        cout.setf(ios::left,ios::adjustfield);
        cout.width(9);
        cout.fill('#');
        cout.precision(5);
        cout<<-9.99;
        cout<<"\n";
        cout.setf(ios::right,ios::adjustfield);
        cout.width(9);
        cout.fill('$');
        cout.precision(5);
        cout<<-9.99;
}
```

II) What is function overloading ? Explain with suitable example. **5**

2. a) What is a friend function ? Explain with suitable example. **5**

   b) What is a dynamic constructor ? Explain with suitable example. **5**

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

   For example : stringtemp = examination stringtemp - 5 = examin. **10**

4. a) What is virtual base class ? Explain with suitable example. **5**

   b) What is RTTI ? Write a program illustrating reinterpret_cast, static_cast and typeid(). **5**

5. a) How do you achieve the following : **5**

      i) Catching all possible exceptions.

      ii) Restricting exceptions.

   b) Explain any five manipulators with suitable example. **5**

6. What is class template ? Write a program illustrating function templates overloading. **10**

7. Write a program to display the size of a file by accepting a filename as a command line argument. **10**

8. Write short notes on the following : **15**

   a) Virtual Destructors

   b) Stream based I/O in C++

   c) Nested Namespace.

[4280] – 304

Seat No.	

M.C.A. (Semester – III) (Management Faculty) Examination, 2012
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 to the **right** indicate marks.*

1. Explain spatial data management. Explain various indexing techniques of spatial data management. **10**

2. Explain in brief parallel database architecture. **10**

3. Explain in brief two-phase commit protocol. **10**

4. Explain Apriori algorithm in data mining. **10**

5. What is OLAP ? What are types and operations of OLAP servers ? **10**

6. What is XML ? Explain DTD in detail. **10**

7. Write short note on **(any four)** : **(5×4=20)**

   a) OID

   b) SOAP

   c) Knowledge Base System

   d) Machine learning

   e) Data preprocessing

   f) Multimedia database.

[4280] – 305

Seat No.	

M.C.A. (Semester – III) (Management Faculty) Examination, 2012
BM : 31 : 305 : MANAGEMENT SUPPORT SYSTEMS & ITS SECURITY
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. Explain in detail information requirements for marketing function using systems approach. **10**

2. Define Expert System and describe how it works with neat diagram. **10**

3. Define DSS. Explain various components of DSS in detail. **10**

4. Explain in brief the need for auditing Information Systems. Describe different audit methodologies. **10**

5. What are the different decision-making environment of an organisation ? Explain Herbert-Simon Model in detail. **10**

6. Explain the need of EIS. State the software and hardware required for implementing EIS. **10**

7. Write short notes (**any 4**) : **(4×5=20)**
   a) Negative Feedback Control.
   b) Quality of information.
   c) Deterministic and Probabilistic Systems.
   d) Simulation.
   e) Sensitivity analysis.

[4280] – 31

Seat No.	

M.C.A. (Semester – III) (Management Faculty) Examination, 2012
IT -31 : WEB SUPPORTING TECHNOLOGIES (2005 Pattern)

Time : 3 Hours Max. Marks : 70

Note : *1) Q.**1** is **compulsory**.*
*2) Solve **any four** from the remaining.*
*3) Figures to the **right** indicate **full** marks.*

1. Explain client and server side Image mapping with examples. **10**

2. A) Explain DOM objects in Java Script. **8**

   B) Explain types of CSS with suitable examples. **7**

3. A) Design HTML form for accepting book publishers details. Validate any four fields using Java Script (Assume suitable structure). **8**

   B) Explain Three-tier architecture with suitable examples. **7**

4. A) Write VB script code for accepting the information of Telephone customers. Validate any four fields. **8**

   B) Differentiate between DTP and schema. **7**

5. A) Error handing in VB script. **8**

   B) Create DTP for club members information like member_ID, Name, address, contact, E mail and member_type. **7**

6. Write short notes on following **(any 3)** : **15**

   a) Math object in Java Script

   b) <IFRAME> and <SPAN>

   c) Web publishing

   d) Classes in CSS.

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[4280] – 32

Seat No.	

M.C.A. (Semester – III) (Management Faculty) Examination, 2012
IT-32 : COMPUTER NETWORKS
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. a) Explain HTTP communication; Request and response messages in detail. **10**

   b) Explain OSI reference model in detail. **10**

2. Explain different transmission protocols used in LAN. **10**

3. What is MIME ? Explain its purpose and format in detail. **10**

4. What is VPN ? Explain IPSec Protocol role in VPN Communication. **10**

5. Define DHCP. Explain DHCP scope resolution with example. **10**

6. Explain various IP addressing scheme with example. **10**

7. Short notes (Solve **any four**) : **20**

   a) ISDN

   b) X.25 network

   c) IP routing

   d) Fire wall

   e) ATM Traffic Management

   f) Ethernet.

[4280] – 33

Seat No.	

M.C.A. (Semester – III) (Mgt. Faculty) Examination, 2012
IT-33 : MANAGEMENT SUPPORT SYSTEM
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks :70

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

1. Explain in detail information requirement for marketing function using system approach. **10**

2. What do you mean by Feedback control ? Explain application feedback control. **10**

3. Explain structure of M.I.S. based on organizational functions. **10**

4. Explain with a neat diagram characteristics and capabilities of DSS. **10**

5. Explain steps in Decision Making Process. **10**

6. Explain with a neat diagram working of Expert System. **10**

7. Write short note on (**any 4**) : **20**
   a) Types of systems.
   b) Value of Information.
   c) MIS Vs Data Processing.
   d) Heuristic Programming.
   e) Newell Simon Model.

[4280] – 34

Seat No.	

M.C.A. (Management Faculty) (Semester – III) Examination, 2012
IT-34 : OBJECT ORIENTED PROGRAMMING USING C++
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. I) Answer the following. **8**

What will be the output of following program ?

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

b)
```
int main()
{
  int cnt = 5, a;
  do {
     a/=cnt;
  } while (cnt --);

  printf ("%d\n", a);
  return 0;
}
```

P.T.O.

c)
```
int main()
{
    int i = 23;
    printf("%d\n",printf("%d",printf("%d,"i")));
    return 0;
}
```

d)
```
class base
{
        private:
            int i;
};
class derived : public base
{
        private : int j;
}
void main()
{
        cout<<sizeof(derived)<<sizeof(base);
        derived d;
        base b;
        cout<<sizeof(d)<<sizeof(b);
}
```

II. Explain the use of new and delete operators. **2**

2) a) Explain Class Template with suitable example. **5**

b) Explain constructor overloading with suitable example. **5**

3) What is private inheritance ? Explain protected inheritance with suitable example. **10**

4) a) Illustrate virtual base class with sample program. **5**

b) What is namespace ? Explain unnamed namespace with suitable example. **5**

5) a) Write a program to accept two numbers and perform basic mathematical operation on it. Handle the exception like zero_divide_error. **5**

b) What are containers ? Compare its types. **5**

6) Define a class String. Overload **10**

i) = = operator to compare two strings.

ii) + operator to concat two strings.

Include constructors and appropriate access functions.

7) What are file input and file output streams ? Explain seekg(), seekp(), tellg(), tellp(). **10**

8) Explain **(any two)** : **10**

a) Exception Handling Mechanism

b) RTTI

c) User Defined Manipulator.

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[4280] – 401

Seat No.	

M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
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 : **10**
   1) What are Inner classes ?
   2) What is reflection API ? How are they implemented ?
   3) What are Runtime exceptions ?
   4) What is the difference between string and string buffer ?
   5) What are Wrapper classes ?

2. Write JDBC application for examination registration. (Assume suitable table structure). **10**

3. a) Write Java client side socket programme to accept filename from user and send it to server. **5**
   b) Write Java server side socket programme to accept filename from client and display the file contents in uppercase if file exists. **5**

4. What is RMI ? Explain RMI Architecture in detail. **10**

5. Write an applet to display scrolling text from left to right in an applet window. **10**

6. Write a program to design GUI to accept marriage registration details. Throw Invalid-Age-Exception, if age < 18 for girl and < 21 for a boy. **10**

7. a) What are the different types of layouts ? **5**
   b) What is thread synchronization ? **5**

8. Write short notes on **any two** : **10**
   a) EJB Architecture
   b) Serialization
   c) URL.

[4280] – 402

Seat No.	

M.C.A. (Mgmt. Faculty) (Semester – IV) Examination, 2012
IT 42 : 402 : SOFTWARE TESTING AND QUALITY ASSURANCE
(2008 Pattern)

Time : 3 Hours Max. Marks :70

Note : *i) Q. **1** and Q. **6** are **compulsory**.*
*ii) Solve **any three** from remaining.*

1. Prepare detail test plan for web based Railway reservation system having following features :
   a) Train information search with respect to train number, route.
   b) Reservation availability and fair information.
   c) Online booking and cancellation of tickets.

   system must ensure the security with reference to online transactions. **20**

2. What do you mean by structural testing ? How you can perform it using statement, code and branch coverage ? **10**

3. Explain testing life cycle in detail. **10**

4. What do you mean by testing strategies ? Explain each strategy in detail. **10**

5. Calculate cyclomatric complexity of code which accepts 3 integer values from user as input and sort them in ascending order ? Find path and design test cases. **10**

6. Write short note on **any four** : **20**
   a) ISO
   b) Verification techniques
   c) Test automation
   d) Testing of object oriented application
   e) Usability testing.

[4280] – 404

Seat No.	

M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
MT-41 – 405 : OPTIMIZATION TECHNIQUES
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Question No.**1** is **compulsory.***
*2) Attempt **any two** questions from the **remaining**.*
*3) Figures to the **right** indicate **full** marks.*
*4) **Use** of electronic calculator and statistical table is **allowed.***

1. A) A project has the following activities and other characteristics : **9**

Activity	Preceding Activity	Time Estimates (weeks)		
		Optimistic	Most likely	Pessimistic
A	–	4	7	16
B	–	1	5	15
C	A	6	12	30
D	A	2	5	8
E	C	5	11	17
F	D	3	6	15
G	B	3	9	27
H	E,F	1	4	7
I	G	4	19	28

i) Draw the PERT network diagram.

ii) Determine the mean project completion time.

iii) Find the probability that the project is completed in 36 weeks.

B) Find the optimum integer solution to the following linear programming problem using Gomory's cutting plane method.

Max $Z = -3x_1 + x_2 + 3x_3$

Subject to the constraints

$$-x_1 + 2x_2 + x_3 \leq 4$$

$$2x_2 - 3/2\, x_3 \leq 1$$

$$x_1 - 3x_2 + 2x_3 \leq 3$$

$x_1, x_2 \geq 0$; x_3 non-negative integer. **9**

C) A road transport company has one reservation clerk on duty at a time. He handles information of bus schedules and makes reservations. Customers arrive at a rate of 8 per hour and the clerk can service 12 customers on an average per hour. After stating your assumptions, answer the following :

i) What is the average number of customers waiting for the service of the clerk ?

ii) What is the average time spent by a customer in the system before getting service ?

iii) What is the average waiting time for a customer in the queue ? **6**

D) Solve the following assignment problem : **6**

		Tastes				
		1	**2**	**3**	**4**	**5**
Employees		25	55	60	45	30
		45	65	55	35	40
		10	35	45	55	65
		40	30	70	40	60
		55	45	40	55	10

2. a) Find the optimal solution for the following transportation problem (Use VAM method for Initial solution) : **9**

		Warehouse			
		W_1	**W_2**	**W_3**	**Supply**
Factory	**F_1**	16	20	12	**200**
	F_2	14	8	18	**160**
	F_3	26	24	16	**90**
	Demand	**180**	**120**	**150**	

b) A company has 800 equipments of a certain items. The cost of replacing the item is Rs. 5 and cost of replacing all items simultaneously is Re.1 per item. The failure probability of items is as follows : **6**

Week	Probability
1	0.1
2	0.2
3	0.15
4	0.25
5	0.3

i) Find the average, replacement cost (per item).

ii) Find the interval of group replacement and its average cost.

c) Draw a network diagram for the project : **5**

Activity	Predecessor Activity
A	–
B	A
C	A
D	B
E	B,C
F	E
G	D,F
H	G

3. A) Use Two-phase simplex method to solve the following LPP : **9**

Min $Z = 5x_1 + 3x_2$

Subject to the constraints

$2x_1 + 4x_2 \leq 12$

$2x_1 + 2x_2 = 10$

$5x_1 + 2x_2 \geq 10$

$x_1, x_2 \geq 0$

B) A trading company buys and sells 10,000 bottles of pain-balm every year. The cost per bottle is Rs. 2 and the company's cost of placing an order of pain-balm is Rs.100. The company's standard annual rate of return on working capital funds is 15%. The cost of physical storage of the pain-balm is fixed.

i) Determine the optimum order quantity.

ii) How many orders should be placed each year ?

iii) Find the total annual inventory cost. **6**

C) Describe the characteristics of queuing system. **5**

4. a) The following is a table showing details of a project : **9**

Activity	Normal		Crash	
	Time	Cost (Rs.)	Time	Cost
1– 4	10	20	7	30
1– 2	8	15	6	20
2 – 4	5	8	4	14
2 – 3	6	11	4	15
3 – 4	0	0	0	0
2 – 5	8	9	5	15
5 – 6	5	5	4	8
4 – 6	12	3	8	4

Indirect cost is Rs. 400 per day.

Find the optimum duration and the associated minimum project cost.

b) Write the dual of the following primal LP problem : **6**

Min $Z = x_1 + x_2 + x_3$

Subject to constraints

$x_1 - 3x_2 + 4x_3 = 5$

$x_1 - 2x_2 \leq 3$

$2x_2 - x_3 \geq 4$

$x_1, x_2 \geq 0$

c) Express the following assignment problem as LPP : **5**

		Operators				
		I	**II**	**III**	**IV**	**V**
Machines	**A**	10	5	13	15	16
	B	3	9	18	3	6
	C	10	7	2	2	2
	D	5	11	9	7	12
	E	7	9	10	4	12

[4280] – 409

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2012
BME-5 Elective : 415 : DECISION SUPPORT SYSTEMS
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. What is Data Mining ? Explain the classification of data mining tools and techniques. **10**

2. Explain how EIS helps top management in better decision making. **10**

3. Compare and contrast value chain and supply chain. Also give the major problems that could develop along the supply chain. **10**

4. Explain traditional system development life cycle and state alternate development methodologies. **10**

5. Enumerate and briefly explain the various tools that are used for DSS development. How would you choose a DSS development tool ? **10**

6. Explain Enterprise Resource Planning and its benefits. **10**

7. Write short notes on (**any four**) : **(4×5=20)**
   a) Organizational DSS.
   b) Virtual Reality.
   c) Risk factors in end user developed DSS.
   d) Knowledge based export system.
   e) Business Intelligence.

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M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
401– IT-41 : JAVA PROGRAMMING (2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

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

1. Answer the following questions with justification. **10**
   a) Types of Lay outs.
   b) What are Inner classes ?
   c) Differentiate between throw and throws.
   d) What is Thread ? Explain Thread class.
   e) Explain Marshaling and unmarshaling.

2. a) Write an applet to change the color of text after every 5 seconds. **8**
   b) Explain servlet life cycle. **7**

3. a) Write JDBC application to display coursewise placed student list for training and placement department. **8**
   b) Explain RMI Architecture. **7**

4. a) Write client server socket program client will send a string to server. Server program checks if string is palindrom or not and sends the response back to the client. **8**
   b) What are Java Beans ? Explain the types of Java beans. **7**

5. a) Write a JAVA program to accept the directory name, if directory exist, display names of files in given directory. **8**
   b) Explain Event- delegation model. **7**

6. Write short notes on **(any three)** : **15**
   a) JDBC drivers.
   b) Applet life cycle.
   c) URL class.
   d) Explain try, catch, finally.

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Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
BME – 6 : Elective : 416 : ENTERPRISE RESOURCE MANAGEMENT
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

***Instructions** : 1) Q. **1** and Q. **6** are **compulsory**.*
*2) Solve **any three** questions from Q. **2** to Q. **5**.*
*3) Figures to **right** indicate **full** marks.*

1. 'Indian Steel' is a medium size organization. They implemented an ERP system three years back to support their expanding operations in India and abroad. Now after three years the management perceives that they have not received the expected benefits from it. They have hired you as an ERP consultant to look into the matters. You have to perform a post evaluation study and prepare a detailed plan to rectify the situation. **20**

2. a) List and briefly explain the various components of an ERP system. **5**
   b) Discuss the architecture of a generic Management Information System (MIS). **5**

3. Discuss the following modules of an ERP system in detail : **10**
   a) Finance Module
   b) Production Planning, Control and Management.

4. Discuss in detail the various steps involved in evaluation and selection of an appropriate ERP package. **10**

5. a) How to provide the End User Training in an organization undergoing ERP implementation process ? **5**
   b) Is it mandatory for an organization to purchase an ERP package which is available in the market ? Discuss in brief. **5**

6. Write short notes on **any four** of the following : **20**
   a) Business Process Reengineering
   b) Data Mining
   c) Decision Support System
   d) Applications of On-Line Analytical Processing
   e) Supply Chain Management.

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Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
403 – IT-43 : SOFTWARE ENGINEERING
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. Sneha Gas is a firm engaged in distribution of LPG cylinders to their customers. The proprietor of the firm has decided to develop computerised system for the routine day to day transactions. He wants to provide quick service and response to the customers. He is also interested to get various reports required to take decision.

   Prepare SRS and system specification for the above case. **20**

2. Explain software review process in detail. **10**

3. Explain various tools available for Project Management Support in CASE Tool. **10**

4. Design a form layout to accept the order details for, the new or existing customers like order number, date, quotation number, probable delivery date, place to make delivery, details of ordered items, terms and conditions etc. Use suitable validation controls. **10**

5. Explain methods of estimating software maintenance cost. Give various components of legacy system. **10**

6. Write short notes on **(any four)** : **20**

   a) Agile Process

   b) Types of Feasibility study

   c) Software Acquisition

   d) RAD

   e) WIN-WIN spiral model.

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Seat No.	

M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
404 – MT-41 : OPTIMIZATION TECHNIQUES
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

N.B. : *1) Q. No. **1** is **compulsory**.*
*2) Attempt **any two** questions from Q. **2, 3** and **4**.*
*3) Use of electronic calculator and statistical table is **allowed**.*

1. a) Following table lists the data for PERT Network. **9**

Activity	t_o	t_m	t_p
1–2	2	4	6
1–3	6	6	6
1–4	6	12	24
2–3	2	5	8
2–5	11	14	28
3–4	15	24	45
3–6	3	6	9
4–6	9	15	27
5–6	4	10	16

i) Draw the Network Diagram and find the critical path.

ii) Find the expected Project Duration.

iii) What is the probability that the project duration will exceeds 60 days.

P.T.O.

b) Solve the Integer Programming Problem using Gomory's Cutting Plane Algorithm. **9**

Max : $Z = 3x_1 + 4x_2$

Subject to : $2x_1 + x_2 \leq 6$

$2x_1 + 3x_2 \leq 9$

$x_1, x_2 \geq 0$ and are integers.

c) In a clinic, patients arrive in poisson manner at the rate of 20 per hour. The waiting room does not accommodate more than 14 patients. Examination time per patient is exponential with mean rate of 30 per hour. **6**

i) What is the probability that the arriving patient will not wait ?

ii) What is the expected waiting time a patient spent in the clinic ?

d) Solve the following assignment problem and write all possible assignments. **6**

		Jobs				
		A	**B**	**C**	**D**	**E**
Men	**1**	2	9	3	7	1
	2	6	8	7	6	1
	3	4	6	5	3	1
	4	4	2	7	3	1
	5	5	3	9	5	1

2. a) Find the initial solution by NWCR, and solve for optimal solution for the following transportation problem. **9**

		Distribution Centres				
		A	**B**	**C**	**D**	**Supply**
Plants	**1**	2	3	11	7	6
	2	1	0	6	1	1
	3	5	8	15	9	10
	Demand	7	5	3	2	

b) A firm is thinking of replacing a particular machine whose cost price is Rs. 12,200/-. The scrap value of this machine is only Rs. 200/-. The maintenance costs are found to be as follows : **6**

Year	1	2	3	4	5	6	7	8
Mainteance cost	220	500	800	1200	1800	2500	3200	4000

Determine when the firm should replace the machine.

c) Define the following : **5**

i) Optimal solution

ii) Infeasible solution

iii) Objective function

iv) Total float

v) Free float

3. a) Solve the following LPP by Big-M method. **9**

Max : $Z = 5x_1 - 2x_2 + 3x_2$

Subject to : $2x_1 + 2x_2 - x_3 \geq 2$

$x_2 + 3x_3 \leq 5$

$x_1, x_2, x_3 \geq 0$

b) A company uses 1200 units per month of an electronic component, each costing Rs. 2.00. Placing each order costing is Rs. 50/- and the carrying cost is 6% per year of the average inventory **6**

i) Find EOQ

ii) Annual inventory cost

iii) Total cost

c) Write notes on various replacement models. **5**

4. a) The table below provides cost and time estimates of seven activities of a project. **9**

Activity	Time (in weeks)		Cost (in Rs. '000)	
	Normal	Crash	Normal	Crash
1–2	2	1	10	15
1–3	8	4	15	21
2–4	4	2	20	25
3–4	1	1	7	7
3–5	2	1	8	15
4–6	5	3	10	15
5-6	6	2	12	32

i) Draw the Project Network based on Normal time.

ii) Find the critical path, Normal Duration and Normal Cost.

iii) Crash the activities to obtain optimum project cost and duration.

b) Describe the various characteristics of Queuing Theory. **6**

c) Obtain the dual of the following LPP. **5**

Max : $Z = 4x_1 + 5x_2 + 12x_3$

Stc : $2x_1 + x_2 + x_3 \leq 4$

$3x_1 - 2x_2 + x_3 = 3$

$x_1 + 4x_2 - 2x_3 \geq 1$

$x_1, x_2 \geq 0$ x_3 unrestricted.

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Seat No.	

M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
Management Elective : 405
BME 1 : MIS FRAMEWORK AND IMPLEMENTATION
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q.**1** and Q.**7** are **compulsory**.*
*2) Solve **any four** from remaining questions.*
*3) Figures to **right** indicate **full** marks.*

1. Elaborate with suitable examples, how information technology is improving the way customer relationship are maintained. **10**

2. Who are different types of users of IT infrastructure ? How IT infrastructure caters to the needs of different users ? **10**

3. Explain the architecture of DSS with a diagram and its role in an organizational decision making. **10**

4. Define MIS with its features and limitations. **10**

5. What are different socio-economic factors to be considered while designing information systems ? Illustrate the same with reference to the e-Governance applications. **10**

6. Explain the importance of information system to handle challenges global scenario. **10**

7. Write short notes on **(any four)** : **20**
   a) Expert systems
   b) Critical success factors in implementing IT applications
   c) IT policy
   d) Cost-Benefit analysis of Information systems
   e) GDSS.

Seat No.	

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M.C.A. (Management Faculty) (Semester – IV) Examination, 2012
BME-2 : FOUNDATIONS OF DECISION PROCESSES
405 : Management – Elective
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Question No.**4** is **compulsory**.*
*2) Solve **any two** questions from the **remaining**.*
*3) Figures to the **right** indicate **full** marks.*
*4) **Use** of Electronic Calculator is **allowed**.*

1. a) Explain Monte-Carlo simulation and random numbers. **10**

   b) A producer of boats has estimated the following distribution of demand for a particular kind of boat.

Demand	0	1	2	3	4	5	6
Probability	0.14	0.27	0.27	0.18	0.09	0.04	0.01

   Each boat costs him Rs. 7,000 and he sells them for Rs. 10,000 each. Any boats that are left unsold at the end of the season must be disposed off for Rs. 6,000 each. How many boats should be in stock so as to maximize his expected profit ? **10**

2. a) State the axioms of utility. Explain the use of utility theory in Decision Making. **10**

   b) The buying habits of customers were studied which revealed : Those buying brand X today 60% continue with brand X, 30% shift to brand Y and 10% shift to brand Z in the next quarter. Those buying brand Y today 50% continue with brand Y, 40% shift to brand X and 10% shift to brand Z in the next quarter. Those buying brand Z today 70% continue with brand Z, 20% shift to brand X and 10% shift to brand Y in the next quarter.

   The market shares of brands X, Y and Z are 20%, 50% and 30% today. Determine their market shares in steady state condition. **10**

P.T.O.

3. a) An offer is made to all the bank customers with the objective of preventing the most desirable customers from moving their accounts to a competitor's bank. We assume a negligible cost is associated with making offer.

The probability that customers are good is 90% with an offer chance that good customers stay is 90% and with no offer 80%.

We estimate 93% of bad customers will stay if offer is made and 90% if the offer is not made.

A customer who stays and is a good customer, produces a net profit of Rs. 120 to the bank whereas a bad customer results in a loss of Rs. 1,000/-

Using Decision tree determine whether the bank should make an offer to prevent the customers from moving their accounts to the competitor's bank. **10**

b) Solve the following game : **10**

Player B / Player A	B1	B2	B3
A1	10	5	7
A2	6	7	5
A3	7	6	7

4. A book store wishes to carry a particular book in stock. Demand is probabilistic and the replenishment of stock takes 2 days (i.e. if an order is placed on March 1, it will be delivered at the end of the day on March 3). The probabilities of demand are given below :

Demand (daily)	0	1	2	3	4
Probability	0.05	0.10	0.30	0.45	0.10

Each time an order is placed, the store incurs an ordering cost of Rs. 10 per order. The store also incurs a carrying cost of Rs. 0.5 per book per day. The carrying cost is calculated on the basis of stock at the end of each day. The manager of the book store wishes to compare two options for his inventory decision.

A : Order 5 books when the inventory at the end of the day plus outstanding is less than 8 books.

B : Order 8 books when the inventory at the end of the day plus outstanding is less than 8 books.

Currently (beginning of 1st day) the store has a stock of 8 books plus 6 books ordered two days ago and expected to arrive next day. Using Monte Carlo simulation for 10 cycles recommend which option the manager should choose. The random numbers are :

89, 34, 78, 63, 61, 81, 39, 16, 13, 73. **30**

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Seat No.	

M.C.A. (Semester – V) (Management Faculty) Examination, 2012
IT 51 : HUMAN COMPUTER INTERFACE
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Note : *1) Question No. **1** is **compulsory**.*
*2) Answer **any five** from the remaining.*
*3) Figure at **right** hand indicate **full** marks.*

1. Answer **any four** : **(5×4=20)**
   a) What are the goals of System Engineering ?
   b) What are the guidelines for data display ?
   c) Explain hypertext and hypermedia.
   d) What are the benefits of touch screen input ?
   e) Explain the principle “Recognize the diversity”.

2. Explain WIMP interfaces with example. Also explain the four levels of icon design. **10**

3. Discuss participatory design. State its advantages and disadvantages. **10**

4. Discuss any two specification methods in detail. **10**

5. What is usability testing ? What is its purpose ? How it is conducted ? **10**

6. Discuss OAI model for website design. **10**

7. Write short notes on **(any two)** : **10**
   a) Comment on “Use of Natural language”.
   b) Image browsing.
   c) Information visualization.

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Seat No.	

M.C.A. (Management Faculty)(Semester – V) Examination, 2012
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.* ***8****.*

1. a) ABC institute of management has decided to opt for automated Library management system. As an expert, You are asked to list the major modules to be considered and estimate the cost of library management system. **10**

   b) Draw a network diagram and calculate critical path. **10**

Activity	Predecessors	Time (in days)
A. Select steerting committee	–	15
B. Develop requirement list	–	40
C. Develop system size estimates	–	10
D. Determine vendors	–	2
E. Form evaluation team	A	5
F. Issue request for proposal	B,C,D,E	4
G. Bidders conference	F	1
H. Review submissions	G	25
I. Select vendor short list	H	3
J. Check vendor reference	I	3
K. Vendor demonstration	I	20
L. User's site visit	I	3
M. Select vendor	J,K,L	3
N. Volume sensitive test	M	10
O. Negotiate contracts	M	10
P. Cost Benefit Analysis	N,o	2
Q. Obtain Board of directors approval	P	5

P.T.O.

2. Explain the term project management and elaborate project management life cycle. **10**

3. What are different software quality standards ? Explain in detail SEI-CMM and its significance with software projects. **10**

4. What do you mean by software configuration management ? Explain importance of version and release management. **10**

5. Explain software team structure and discuss about the team communication. **10**

6. List the various users of software project. Also explain their role in project management. **10**

7. Explain the process of Risk management in software project management. **10**

8. Write a short note on **(any two)** :

   a) MS Project

   b) Role of Testing

   c) Request For Proposal (RFP)

   d) WBS. **10**

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Seat No.	

M.C.A. (Semester – V) (Management Faculty) Examination, 2012
IT-55 : ADVANCED INTERNET TECHNOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. What is E- Commerce ? Explain the concept of Cryptography. **15**

2. Write a servlet program to accept online registration details of users for Dancing Competition. Assume suitable table structure. **10**

3. Write a JSP code, to generate area wise, product sales report, for cosmetic company. Display the report in proper format. **10**

4. Write a PHP code for online shopping of books using sessions. At the end display details of books added in shopping cart. **10**

5. Explain pattern matching in PERL with example. **10**

6. Explain with example cookies in PHP. **10**

7. Write short notes on (**any three**) : **15**
   a) JSP directives.
   b) CGI Architecture.
   c) Thread safe servlets.
   d) Loops in PHP.

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Seat No.	

MCA (Management Faculty) (Semester – V) Examination, 2012
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) BSC
   II) MSC
   III) MSRN
   IV) SIM
   V) IMEI
   VI) WTP

   b) How GSM frequency allocation are done ? Explain the importance and impact of framing and logical channels. **10**

2. What is DHCP ? How does DHCP supports dynamic address allocation ? **10**

3. Explain functions of each layer in WAP architecture. **10**

4. Explain frequency hopping with its advantages and disadvantages. **10**

5. Explain how does the dynamic rource routing handle the rource routing with example. **10**

6. What is SIP ? How does SIP handle call setup teardown of calls ? Explain. **10**

7. Write short notes **(any four) :** **20**
   I) Mobile agents
   II) Mobile-IP
   III) SPIN
   IV) 802.11
   V) Push-Pull protocol
   VI) Indirect TCP.

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Seat No.	

M.C.A. (Semester – V) (Management Faculty) Examination, 2012
ITE-5 : Elective : DISTRIBUTED DATABASE MANAGEMENT SYSTEM
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Note : *1) Q.No. **7** is **compulsory**. Solve **any 5** from the **remaining**.*
*2) State assumptions **wherever** necessary.*
*3) Draw suitable diagram when **needed**.*
*4) Give suitable examples if **required**.*

1. What is DDBMS ? Explain its advantages and disadvantages in detail. **10**

2. Define transaction. Explain the goals of transaction management. **10**

3. Explain client-server reference architecture in detail. **10**

4. Explain Concurrency control for distributed database systems. **10**

5. Explain object caching, object clustering and object migration. **10**

6. Explain various distribution design issues. **10**

7. Write short notes on following **(any four)** : **(4×5=20)**

   a) RDBMS

   b) Horizontal Fragmentation

   c) Cold restart

   d) Two phase commit protocol

   e) Homogeneous and Heterogeneous DDBMS.

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Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
IT-51 : SOFTWARE TESTING AND QUALITY ASSURANCE
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions: *1) Q.**1** and Q.**6** are **compulsory** and of **20** marks **each**.*
*2) Solve **any three** from **remaining**.*
*3) State assumptions **if any**.*
*4) Figures to the **right** indicate marks.*

1. a) An online railway booking system designed by XYZ software firm wants to perform a complete testing for the booking module of the system to ensure that : **15**
   i) System supports the booking and cancellation of tickets.
   ii) General booking opens with 90 days in advance.
   iii) System supports the tatkal booking prior to 3 days of journey excluding the date of commencement of journey.

   Prepare a test plan stating the scope, strategies, coverage, environment and other desired details.

   b) Differentiate functional and structural testing. **5**

2. How inspection differs from Walk through ? Explain the formal review process in detail. **10**

3. Explain in detail V and V life cycle. **10**

4. An application receives an integer value as input between 6 and 50 (inclusive of 6 and 50). The application calculates the area of a circle, of an equilateral triangle and of a square and accordingly displays the message. Draw the flow graph, find the cyclometric complexity and design the test a cases for this code. **10**

5. Define Product and Process Standards. Explain CMM in detail. **10**

6. Write short notes **(any four)** : **(4×5= 20)**
   a) Six sigma.
   b) Cleanroom software engineering.
   c) BVA.
   d) Web Based Application Testing.
   e) Quality Metrics.

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Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
IT-52 : ADVANCED INTERNET TECHNOLOGY (2005 Pattern)

Time : 3 Hours Max. Marks : 70

Note : *1) Q. **1** is **compulsory**.*
*2) Solve **any 3** questions from remaining.*

1. What is E-commerce ? Explain Benefits of e-commerce with example. **10**

2. a) Write ASP code to accept complaint number and if complaint is register display status of complaint (Assume suitable table structure). **10**

   b) Explain JSP Implicit Objects with example. **10**

3. a) Write PHP code to accept citizen registration details. Assume suitable table structure. **10**

   b) Describe CGI architecture and environment variables in CGI. **10**

4. a) Write JSP code to display list of blood donors with details for particular blood group. Assume suitable table structure. **10**

   b) Explain Application and Session objects in ASP with example. **10**

5. a) Write a perl code to display number of vowels and consonants in given file. **10**

   b) What are cookies ? Explain with example cookies in PHP. **10**

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Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
Management Elective IT-2
(2005 Pattern)
ARTIFICIAL INTELLIGENCE

Time : 3 Hours Max. Marks : 70

***Instructions**: 1) Q.**1** is **compulsory**.*
*2) Solve **any five** questions from Q.**2** to Q.**7**.*
*3) Figures to **right** indicate **full** marks.*
*4) Draw **neat** and suitable diagram **wherever** necessary.*

1. a) Discuss the concept of AI in brief with an appropriate example. **5**
   b) Discuss the concept of knowledge representation in brief. **5**
   c) Write short notes on **any two** of the following : **10**
      i) 8-Queens Problem
      ii) Traveling Salesman Problem
      iii) Missionary and Cannibals Problem.

2. Discuss the Depth First Search algorithm along with an appropriate example. **10**

3. Discuss the resolution principle in brief along with an appropriate example. **10**

4. a) What is an Associative Network ? **5**
   b) Construct the semantic net for the following statement : **5**
      "Sachin Tendulkar gave an autograph to Satish".

5. What is semantic analysis ? Discuss in detail along with appropriate examples. **10**

6. a) What is an Expert System ? Explain in brief. **5**
   b) Discuss the architecture of an Expert System in brief. **5**

7. Write short notes on **any two** of the following : **10**
   a) PROSPECOR b) Neural Network
   c) Probabilistic Reasoning.

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Seat No.	

M.C.A. (Semester – V) (Management Faculty) Examination, 2012
Management Elective : IT-6 : HUMAN COMPUTER INTERFACE
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. a) What are the goals of system engineering ? **10**
   b) Explain eight golden rules of interface design. **10**
2. Explain different types of menus. **10**
3. a) What is participatory design ? Explain. **5**
   b) What are the benefits of direct manipulation ? **5**
4. a) Explain coordination of multiple windows. **5**
   b) Discuss guidelines for data entry. **5**
5. Explain various types of keyboards. Explain Response time and display rate. **10**
6. Discuss LUCID in detail. **10**
7. Write short notes (**any four**) : **(4×5=20)**
   a) WIMP interface
   b) Hypermedia and Hypertext.
   c) LTM and STM.
   d) Speech recognition.
   e) Image Browsing.

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Seat No.	

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
Management Elective : IT – 9 : PROGRAMMING LANGUAGES AND PARADIGMS (2005 Pattern)

Time : 3 Hours Max. Marks : 70

Note : *1) Q.* ***8*** *is* ***compulsory****.*
2) Solve ***any 5*** *from the remaining.*

1. Explain procedural, functional and logic programming paradigms with example. **10**
2. Explain the process of translation of a program from source program to object program. **10**
3. What is software simulation ? How a language is actually implemented it ? **10**
4. What is binding ? Explain classes of binding times. **10**
5. Explain sequencing with arithmetic expression with example. **10**
6. Explain attributes of data control. **10**
7. Explain Heap storage management with suitable example. **10**
8. Write note on **(any four)** : **20**
   a) Parameter Transmission
   b) Elementary Data Types
   c) Static and Dynamic scope
   d) Perl Overview
   e) Vector and arrays
   f) Abstraction.
