Seat
No.

M.C.A. (Mgt. Faculty) (Semester – I) Examination, 2012
IT-11   COMPUTER ORGANIZATION AND ARCHITECTURE
(New 2008 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.
                 4) Figures to the **right** indicates **full** marks.

1. a) Draw and explain 32-bit (80486) architecture in detail.   **10**

   b) Define the term Software. Explain types of Softwares.   **5**

2. What is pipelinining ? Explain instruction pipelining in detail.   **10**

3. Convert the following :   **(2×5=10)**

   a) $(27.625)_{10} = (?)_2$
   b) $(4226)_8 = (?)_{16}$
   c) $(FA3)_{16} = (?)_{10}$
   d) $(1011.11)_2 = (?)_{10}$
   e) $(175.125)_{10} = (?)_8$.

4. Explain Multiplexer and Demultiplexer in detail.   **10**

5. Draw memory hierarchy and explain all types of memory.   **10**

6. What is Interrupt ? Explain various types of Interrupts in detail.   **10**

7. Write short notes on following (**any three**) :   **(3×5=15)**

   a) Parallel Processing
   b) Full Adder
   c) Compilers and Interpreters
   d) DMA.

Seat
No.

**M.C.A. (Semester – II) (Management Faculty) Examination, 2012**
IT21 : DATA STRUCTURE USING C
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

Note : 1) Solve ***any 7*** questions.

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

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

1. Write a C code for linked list implementation of stack with PUSH, POP and DISPLAY functions. **10**

2. Convert infix to postfix form. Represent operator in stack and expression at each step. **10**

   $A * (B + C \wedge D) - E \wedge F * (G / H) \#$

3. Write a programme for INSERT and DELETE operations in circular queue. **10**

4. Generate DFS, BFS for node E, adjacency matrix, adjacency list for following graph. Also write algorithm for DFS & BFS. **10**
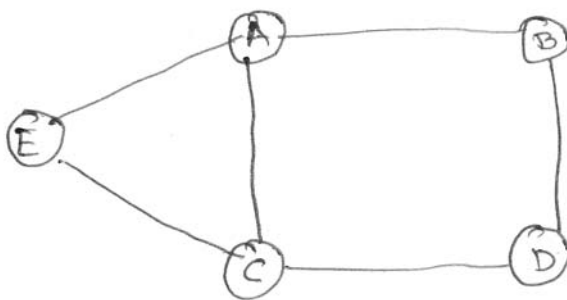
5. a) Draw B tree of order 3 created by inserting the following data arriving in sequence

   92, 24, 6, 7, 11, 8, 22, 4, 5, 16, 19, 20, 78. **5**

   b) Write Pseudo code for creation of expression tree from infix expression. **5**

6. Write a programme for traversal, insertion and deletion in Linear Single Linked List. **10**

7. Construct AVL tree for the following

   8, 15, 1, 19, 16, 4, 25, 12, 23, 20, 17

   Start with empty tree. Label rotations according to the type. **10**

8. a) Draw binary search tree that result from inserting into an initially empty tree records with the key given below in order.

   E, R, S, Y, Q, U, E, S, T, I, O, N and then delete the queue. (Allow duplicate nodes). **5**

   b) Write Pseudo code for insertion and deletion on priority queue. **5**

9. Write short note on **any two** : **10**
   a) Sparse matrix
   b) Post order traversal
   c) Abstract Data type.

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Seat No.	

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

Time : 3 Hours   Max. Marks : 70

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

1. a) Normalize the following document to 3NF. **12**

ABC Hospital	
Patient Registration No. :	Bill No. : Bill Date :
Name :	
Address :	
Date of Admission : Discharge date : Room No. :	
Treated by Doctor :	

Sr. No.	Particulars	Quantity	Rate	Amount (Rs.)
				Less advance (Rs.) :
				Total amount (Rs.) :
Signature				

b) Explain various characteristics of DBMS. **8**

2. a) Explain various Database users. **6**

   b) Explain structure of relational database. **4**

3. Explain E.F. Codd's Rule in detail. **10**

4. Explain various keys in relational data model. **10**

5. Explain Log-based recovery techniques in detail. **10**

6. What is a lock ? Explain the types of locks. Explain two-phase locking protocols for concurrency control. **10**

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

   1) RAID

   2) Database security

   3) Functional dependencies

   4) Encryption.

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Seat
No.

M.C.A. (Semester – III) (Management Faculty) Examination, 2012
IT-31 : WEB TECHNOLOGIES
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

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

2) Solve **any 5** from Q. **2** to Q. **7**.

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

1. Explain cookies and session objects in ASP with suitable example.   **10**

2. Design a form to accept UID information from citizens and validate fields with javascript. Assume suitable fields.   **10**

3. Store different background colors based on user choice into a cookie and change it accordingly when user logs in (e.g user A-Background white, B-Background Green etc.) using ASP.   **10**

4. What is CSS ? Explain border and font properties with suitable example.   **10**

5. Write DTD program for online information submission to PAN card application (Take suitable elements)

   a) Looking at DTD create XML file and

   b) Convert XML file into HTML format with header and footer.   **10**

6. Explain SAX and DOM parsers with suitable example.   **10**

7. a) Explain HTTP, W3C & WWW.   **5**

   b) Explain client-side & Server-side scripting.   **5**

8. Write short notes on (**any 2**) :   **10**

   a) Global·asa

   b) Math & Array objects in VBScript

   c) <Frameset> & <Map>.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

Note : 1) Q. **1** is **compulsory**.

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

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

4) Make suitable assumption **wherever** necessary.

1. Write outputs with explanation :   **(2×5=10)**

   a) Const int size = 5;

       void print (int * ptr) {

          cout << ptr [0];

       }

       void print (int ptr [ ]){

          cout << ptr [0];

       }

       void main ( )

       {

          int a [size] = {1, 2, 3, 4, 5};

          int *b = new int (size);

          print (a);

          print (b);

       }

b) void main ( )
  {
      int a = 65;
      int * const p = &a;
      cout << char (*p);
      *p = 66;
      cout << char(*p);
      (char*) p++;
      cout << char(*p);
  }

c) Class point
  {
      private :
      int x, j;
      Public :
      Point (int i, int j);
  };
  Point :: Point (int i = 0, int j = 0)
  {
      x = i;
      y = j;
      cout << "Constructor called";
  }
  Void main ( )
  {
      Point t1, *t2;
  }

d)
```
int & fun ( )
{
    static int a = 10;
    return a;
}
int main ( )
{
    int & y = fun ( );
    y = y+30;
    cout << fun ( );
    return 0;
}
```

e)
```
Class sample
{
    int a;
    Public :
    explicit sample (int i)
    {
        a = i;
    }
    Void Display ( )
    {
        cout << "Value of A : "<<a;
    }
};
int main ( )
{
    sample S = 25;
    S.display ( );
    return 0;
}
```

2. a) What is name conflict problem ? How can it be solved using namespaces ? **5**

b) List the difference between set and map containers. **5**

3. Design a class degree and Fahrenheit to store temperature in degree and Fahrenheit. Both the classes should have member functions. So that use should be able to write statement like d1 = f1 and f1 = d1 through C++ main ( ). Where d1 is object of degree class and f1 is object of Fahrenheit class ?
(t = 32 + 1.8 C). **10**

4. a) Draw a comparison between different casting operators. **5**

b) What is polymorphism ? What is the difference between compile time and runtime polymorphism ? **5**

5. a) What is unexpected ( ) function ? Give an example. **5**

b) What is the need of virtual base classes ? Give an example to illustrate the need for virtual base class. **5**

6. Create a class student (roll_no, name).Derive two classes science (maths, physics, computer) and commerce (account, stuts). Accept details of 10 students dynamically, they could be science or commerce students. Display the details of all the student in same order of acceptance. **10**

7. a) Write a program for bubble sort using templates. **5**

b) Write a C++ program to read a text file and counts number of vowels (i.e. a, e, i, o, u). **5**

8. Write short notes on (**any two**) : **(2×5)**

a) Constant pointer and pointer to constant

b) Static data member and member function

c) Friend function and Friend Class.

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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 remaining.

1. a) What is DNS ? Explain Resource Records and SOA Records in DNS.   **10**

   b) What are the different classes of transport layer ? Define and explain.   **10**

2. What is VPN ? Explain IP Sec protocol's role in VPN communication.   **10**

3. Explain DHCP scope resolution with example.   **10**

4. Compare the following :

   a) Connectionless and connection oriented networks.   **5**

   b) Explain TCP is reliable protocol.   **5**

5. What is VSAT ? What is VSAT Networks ? What are the VSAT access
   Technologies ?   **10**

6. Explain various components used in building LAN.   **10**

7. Write short notes (**any four**) :   **20**
   a) ISDN
   b) X.25 Network
   c) Firewall
   d) ATM Traffic Management
   e) IP-Addressing
    f) SNMP-Network Management
   g) SMTP
   h) HTTP.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

Instructions : 1) *Question No.* ***1*** *is* ***compulsory***.
                         2) *Solve* ***any two*** *questions from question numbers* ***2, 3*** *and* ***4***.
                         3) *Use of electronic calculator and statistical table is* ***allowed***.

1. a) The following table gives different activities and relevant data :

Activity	Immediate Predecessor	Duration (days)		
		Most Likely	**Optimistic**	**Pessimistic**
A	–	5	4	6
B	–	12	8	16
C	A	5	4	12
D	B	3	1	5
E	D, A	2	2	2
F	B	5	4	6
G	C, E, F	14	10	18
H	G	20	18	34

   i) Draw PERT network for the project.
   ii) Find expected project duration and variance.
   iii) What is the probability that the length of the critical path does not exceed
        60 days ?   **9**

   b) Solve the following problem by using Gomory cutting plane method :   **9**
      Maximize $Z = 7x_1 + 9x_2$
      Subject to the constraints
      $-x_1 + 3x_2 \le 6$, $7x_1 + x_2 \le 35$, $x_1, x_2 \ge 0$ and integers.

   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.   **6**

Find :

i) Average number of customers waiting for the service.

ii) Average time a customer has to wait before getting service.

iii) Average queue length.

d) The marketing director of a multi-unit company is faced with a problem of assigning 5 senior managers to 6 zones. From past experience he knows that the efficiency percentage judged by sales, operating costs etc., depends on manager-zone combination. The efficiency of different managers is given below :

		ZONES					
		I	II	III	IV	V	VI
M A N A G E R	A	73	91	87	82	78	80
	B	81	85	69	76	74	85
	C	75	72	83	84	78	91
	D	93	96	86	91	83	82
	E	90	91	79	89	69	76

Find out which zone will be managed by a junior manager due to non-availability of a senior manager. **6**

2. a) Obtain optimum solution for the following transportation problem : **9**

		MARKET				
		I	II	III	IV	SUPPLY
W A R E H O U S E	A	5	2	4	3	22
	B	4	8	1	6	15
	C	4	6	7	5	8
DEMAND		7	12	7	9	

b) Define the following terms with illustration : **6**

  i) Feasible solution in LPP.

  ii) Unbalanced Assignment Problem.

  iii) PERT.

c) A machine owner finds from his past records that the costs per year of maintaining a machine whose purchase price is Rs. 6,000 are as given below : **5**

Year :	1	2	3	4	5	6	7	8
Maintenance Cost (Rs.) :	1000	1200	1400	1800	2300	2800	3400	4000
Resale Price :	3000	1500	750	375	200	200	200	200

3. a) Solve the following Linear Programming Problem by two-phase method : **9**

Maximize $Z = 5x_1 + 8x_2$

Subject to the constraints

$3x_1 + 2x_2 \geq 3$, $x_1 + 4x_2 \geq 4$, $x_1 + x_2 \leq 5$ and $x_1, x_2 \geq 0$.

b) Describe the following queueing system : **6**

(M/M/C) : (FCFS/∞/∞)

c) A manufacturing company purchases 9,000 parts of a machine for its annual requirements, ordering one month usage at a time. Each part costs Rs. 20. The ordering cost per order is Rs. 15 and the carrying charges are 15% of the average inventory per year.

Find :

  i) EOQ

  ii) Order interval. **5**

4. a) The time and cost estimates of different activities are given below :   **9**

Activity	Time (weeks)		Cost (Rs.)	
	Normal	**Crash**	**Normal**	**Crash**
1 – 2	3	2	8,000	9,000
1 – 3	8	6	600	1,000
3 – 5	6	4	10,000	12,000
3 – 6	5	2	4,000	10,000
2 – 5	13	10	3,000	9,000
2 – 4	4	4	5,000	5,000
4 – 5	2	1	1,200	1,400
5 – 6	6	4	3,500	4,500
4 – 6	2	1	700	800

    Find : Project duration with minimum cost also draw the network diagram.

b) Formulate the given transportation problem as a Linear Programming Problem :   **6**

		MARKET				Supply
		P	**Q**	**R**	**S**	
W A R E H O U S E	A	6	3	5	4	22
	B	5	9	2	7	15
	C	5	7	8	6	8
Demand		7	12	17	9	

c) Explain the following :   **5**
  i) Running cost
  ii) Item cost
  iii) Present worth of money.

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

Time : 3 Hours   Max. Marks : 70

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

1. a) A glass factory specializing in crystal is developing a substantial backlog
and the firm's management is considering three courses of action : Arrange
for sub-contracting (S_1), begin overtime production (S_2) and construct new
facilities (S_3). The correct choice depends largely upon future demand which
may be low, medium or high. By consensus, management ranks the respective
probabilities as 0.10, 0.50 and 0.40. A cost analysis reveals effect upon the
profits that is shown in the table below :   **15**

Demand	Probability	Course of Action		
		S_1 (Sub-Contracting)	S_2 (Begin Overtime)	S_3 (Construct Facilities)
Low (L)	0.10	10	-20	-150
Medium (M)	0.50	50	60	20
High (H)	0.40	50	100	200

Show this situation in the form of decision tree and indicate the most preferred
decision and corresponding expected value.

b) Explain the principle of dominance and solve the following game : **15**

		Player B				
		B₁	**B₂**	**B₃**	**B₄**	**B₅**
Player A	**A₁**	2	4	3	8	4
	A₂	5	6	3	7	8
	A₃	6	7	9	8	7
	A₄	4	2	8	4	3

2. a) Explain the MaxiMax, MaxiMin, Laplace and MiniMax Regret Criterions in decision making process. **10**

b) The management of a company is considering the problem of marketing a new product. The investment or the fixed cost required in the project is Rs. 25,000/-. There are three factors that are uncertain-selling price, variable cost and the annual sales volume. The product has a life of only one year. The management has the past data regarding the possible levels of the three factors. **10**

Unit Selling Price (Rs.)	Probability	Unit Variable Cost (Rs.)	Probability	Sales Volume (units)	Probability
40	0.30	20	0.10	3000	0.20
50	0.50	30	0.60	4000	0.40
60	0.20	40	0.30	5000	0.40

Using Monte-Carlo simulation technique determine the average profit from the said investment on the basis of 20 trials. Use the following random numbers.

73   60   10   65   37   93   63   46   25   47

6   26   54   84   40   24   67   12   20   59

3. a) Discuss the Monte-Carlo method of solving a problem illustrating it by outlining a procedure to solve a specified problem of your choice by the same. **10**

   b) A warehouse has only one loading dock manned by a three person crew. Trucks arrive at the loading dock at an average rate of 4 trucks per hour and the arrival rate is Poisson distributed. The loading of a truck takes 10 minutes on an average and can be assumed to be exponentially distributed. The operating cost of a truck is Rs. 20 per hour and the members of the loading crew are paid @ Rs. 6/- each per hour. Would you advise the truck owner to add another crew of three persons ? **10**

4. a) A retailer purchases every morning at Rs. 50 a case and sells them for Rs. 80 a case. Any case remaining unsold at the end of the day can be disposed of next day at a salvage value of Rs. 20 per case (thereafter they have no value). Past sales have ranged from 15 to 18 cases per day. The following is the record of sales for the past 120 days. **10**

Cases sold	15	16	17	18
Number of days	12	24	48	36

   Find how many cases the retailer should purchase per day to maximize his profit ?

   b) Explain the characteristics of Single Server Waiting Line Models. **10**

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Seat No.

M.C.A. (Semester – V) (Management Faculty) Examination, 2012
IT-52 : SOFTWARE IT PROJECT MANAGEMENT
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : i) Q. No. **1** is **compulsory**.
ii) Solve **any five** from Q. No. **2** to **7**.

1. a) Draw network diagram for the following and calculate CPM. Also indicate critical path. **10**

Activity	Predecessor	Duration
A	–	1
B	A	4
C	A	17
D	B	70
E	C	10
F	D	30
G	E	25
H	E	20
I	F	25
J	G, H	20
K	I, J	25

b) List out the different cost estimation technique. Explain Cocomo Model in detail. **10**

2. Explain risk Management in detail. **10**

3. Explain documentation standard in detail. **10**

4. Explain Defect Management in detail. **10**

5. Explain difference between :
   i) QC and QA
   ii) SCM and CM. **10**

6. Explain IT infrastructure Management in detail. **10**

7. Write a short note on following (**any 2**) : **10**
   i) FTR
   ii) MS project
   iii) User role in team management.

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[4180] – 506

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2012
ITE 2 – Elective : PROGRAMMING LANGUAGES PARADIGMS (New)
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

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

1. Explain different paradigms of programming language with example. **15**

2. Explain General Syntactic Criteria. **10**

3. Explain synthesis of object programme with diagram. **10**

4. Explain implicit and explicit sequence control. **10**

5. Explain implementation of recursive function call. **10**

6. Explain the role of compiler, interpreter and assembler. **10**

7. Explain different methods for transmitting parameters by calling procedure. **10**

8. Write short note on (**any three**) : **15**
    a) Type checking and type conversion
    b) Composite data type
    c) Non-Arithmetic Expression
    d) Heap storage management
    e) Features of C++.

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Seat No.

M.C.A. (Management Faculty) (Semester – V) Examination, 2012
ITE5 – Elective : DISTRIBUTED DATABASE
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

Note : 1) **Full** marks are indicated to the **right** of **each** question.
         2) Draw suitable diagram when **needed**.
         3) Give suitable examples if **required**.
         4) **Whenever** necessary state assumptions.
         5) Q. **7** is **compulsory.** Solve **any 5** from remaining.

1. Explain the distributed DBMS architecture.   **10**

2. Explain the factors governing query optimization.   **10**

3. Write definition of transaction and explain the properties of transaction. **10**

4. Explain distributed object management model with suitable example.   **10**

5. Explain data recovery techniques in case of data failures.   **10**

6. Explain the concept of mobile database systems.   **10**

7. Write short notes (**any 4**) :   **20**
   1) Central and distributed databases
   2) Role of DBA
   3) Advantages of DDBMS
   4) Deadlock prevention and recovery
   5) Log for database recovery.

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[4180] – 52

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 questions.

1. What are the types of e-commerce ? Explain with examples. What are the
   benefits of e-commerce ?   **10**

2. a) Write ASP code to accept student details for online examination registration
      and store it in student table. (Assume suitable table structure).   **10**

   b) Explain JSP implicit objects with examples.   **10**

3. a) Explain CGI architecture and various features of PERL.   **10**

   b) Write JSP code to accept product details and store in database table. If the
      product is already inserted, display the appropriate message to insert another
      product. (Assume suitable table structures).   **10**

4. a) Write PHP code to display employees belong to sales department and age is
      between 30-40 and store found records in another table. (Assume suitable
      table structures).   **10**

   b) Explain error handling in ASP with example.   **10**

5. a) Explain JSP actions with example.   **10**

   b) Explain superglobals in PHP.   **10**

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Seat
No.

M.C.A. (Mgmt. Faculty) (Semester – V) Examination, 2012
Elective IT6 : HUMAN COMPUTER INTERFACE
(2005 Pattern)

Time : 3 Hours   Max. Marks : 70

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

1. Answer **any four** :   (5×4=20)

   a) Explain the concept of Direct Manipulation Programming.

   b) Describe any two specification methods in detail.

   c) Explain Display. State the various display technologies.

   d) Compare online help with offline help.

   e) Explain Object Action Interface model for website design.

2. Comment – use of Natural languages in computing.   **10**

3. What are 8 Golden rules as Interface design. Explain implementation of any
   three with proper example.   **10**

4. Describe usability testing. Also explain the steps involved in usability testing. **10**

5. Explain various guidelines for form filling.   **10**

6. Explain three Pillars of Interface Design.   **10**

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

   a) Need of item presentation sequence

   b) Windows Manager

   c) Quality of services.

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Seat
No.

M.C.A. (Semester – I) (Mgmt. Faculty) Examination, 2012
IT 12 : C PROGRAMMING
(2008 Pattern) (New)

Time : 3 Hours   Max. Marks : 70

Instructions :   1) Question **1** is **compulsory**.
                      2) Solve any **6 (six)** questions from Q. **2** to Q.**8**.
                      3) Assume suitable data **wherever** necessary.

1. Find and explain output of following programme.   **10**

   i) Void main ( )
      {
         static int x[ ] = {50, 60, 70, 80, 90};
         static int *y[ ] = {x, x+1, x+3, x+4, x+2};
         int **P;
         p = y;
         **p++;
         Printf(" % d % d % d", P – Y, *p – x, **p);
      }

   ii) int main(void)
      {
         unsigned int y = 10;
         int x = – 4;
         if (x > y)
         Printf("x is greater");
         else
         Printf ("y is greater");
         getch ( );
         return (0);
      }

iii) void main( )

```
{
    char str[ ] = "Anna Hajare";
    int i ;
    for (i = 0; str[i]; i++)
    Printf ("% C% C% C", str[i], *(str + i), i[str]);
}
```

iv) # define CUBE (x) (x*x*x)

```
void main ( )
{
    int a, b = 3, c = 4 ;
    a  = CUBE (b++ *++C);
    Printf("\n % d % d % d", a, b, c);
}
```

2. a) Accept a number from user and display the same by skipping zero's **5**

   Ex: Suppose number is 50330

   After skipping zero number should be 533.

   b) Write a program to convert given number to word **5**

   Ex: If input is 653 then output will be six five three.

3. a) Write a program which read number and print prime devisor or prime factor. **5**

   b) Write a program to accept a number and display its equivalent binary number. **5**

4. a) Write a program to compare two strings without using built in string function. **5**

   b) Write a program to calculate series.

   $$\left(\frac{1}{1!}\right) + \left(\frac{1}{3!}\right) + \left(\frac{1}{5!}\right) + \left(\frac{1}{7!}\right) \ldots \left(\frac{1}{n!}\right).$$ **5**

5. Create a structure of bank account holder as account number, name, balance, write only one function for withdrawing and depositing the amount and display balance. **10**

6. Write a program to read the source file and calculate the occurrence of given character in the file. Accept source file calculate the occurrence of given character in the file. Accept source file name and character through command line argument. **10**

7. Write a C program that fills 5×5 matrix as follows :

   Upper left corner with +1's

   Lower left corner with – 1's

   Right to left diagonal with 0's **10**

8. a) Write a program which draw concentric circles. **5**
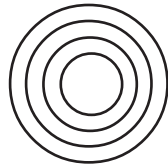
   b) Write short notes on preprocessor directives. **5**

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Seat No.	

M.C.A (Semester – I) (Management Faculty) Examination, 2012
BM-11 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOR
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

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

1. A) Define OB. Explain the Foundations of OB. Discuss in details the emerging challenges in OB with reference to Globalization and its impact on people management ?   **15**

     B) Leadership is the most intangible phenomenon. Discuss with reference to the qualities of a successful leader.   **10**

2. Explain the pyramid of 'level of management'. Which level according to you needs to be closely connected to vision and mission of the organization ?   **15**

3. Decision making is a essential function of management. Discuss the steps of decision making process.   **15**

4. Motivation of employees is the most critical need of the industry today : explain with reference to IT industry. Discuss Meslow's need hierarchy theory.   **15**

5. Define group dynamics ? How effective teams play vital role in organisational effectiveness.   **15**

6. Short notes (**any three**) :   **15**

     1) Managerial Skills

     2) Levels of management

     3) McGregor's X and Y theory

     4) Line and staff organization

     5) Ego states.

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Seat No.

M.C.A. (Semester – I) (Management) Examination, 2012
IT-13 : OPERATING SYSTEM CONCEPTS
(2008 Patterns) (New)

Time : 3 Hours   Max. Marks : 70

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

1. a) What is the need of synchronization ? Explain n-process solution for critical section problem, giving the proof that it satisfies all the three necessary condition for synchronization. **10**

    b) Explain NOS architecture in detail. **10**

2. Explain Deadlock algorithm in detail. **10**

3. Explain any two disk scheduling algorithm with example and proper diagram. **10**

4. What are various scheduling criteria's ? Explain one non preemptive and one preemptive scheduling algorithm with example. **10**

5. Given memory partitions of 250 K, 50 K, 100 K, 300 K and 400 K (in order). How would each of the first fit, worst fit and best fit algorithm places processes 40 K, 212 K and 400 K.Specify which algorithm makes the most efficient use of memory and how much amount of memory is wasted in each algorithm. **10**

6. Write short notes on (**any four**) : **20**
    a) Context Switching
    b) RAID
    c) Virtual machine
    d) Demand Paging
    e) System Calls.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

Instructions : 1) Question no. **1** is **compulsory**.
2) Attempt **any two** questions from Question no. **2**, **3**, **4** and **5**.
3) Figures to the **right** indicate **full** marks.

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

   If I like Mathematics, then I will study either I don't study or I pass Mathematics.
   If I don't graduate, then I didn't pass Mathematics.

   ∴ If I like Mathematics, then I will graduate.   **6**

   b) Let A = {1, 2, 3, 4, 5} R = { <1, 1>, <1, 2>, <2, 1>, <2, 2>, <3, 4>, <4, 3>, <3, 3>, <4, 4>, <5, 5> }. Is R an equivalence relation ?   **6**
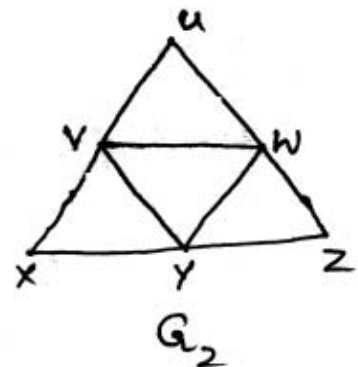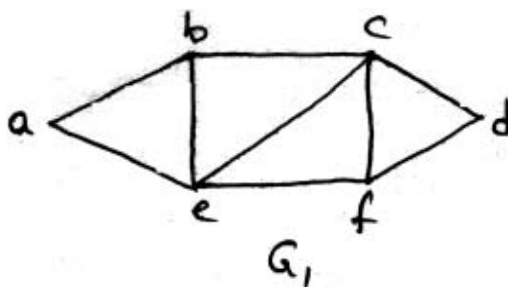
   c) The Kernel of a homomorphism g from a group $(G, *)$ to (H, Δ) is a subgroup of $(G, *)$.   **6**

   d) Verify whether the following graphs are isomorphic or not.   **6**

e) Show that the following statements are equivalent or not by using Truth Tables :

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

ii) $P \to (Q \vee R) \rightleftarrows (P \to Q) \vee (P \to R) \Leftrightarrow T$. **6**

2. a) Obtain the principle disjunctive normal form (PDNF) of

$$\left(\rceil P \to R \right) \wedge \left(Q \rightleftarrows P \right)$$ **5**

b) Find the converse and inverse of the following statement : **5**

"If it is cold weather, then I wear swetter".

c) Prove that $(\exists x)(P(x) \wedge Q(x)) \Rightarrow (\exists x)P(x) \wedge (\exists x) Q(x)$. **5**

d) Without constructing truth table, determine whether the conclusion C follows logically from the premises H_1, H_2 and H_3.

$H_1 : \rceil P \vee Q \quad H_2 : \rceil (Q \wedge \rceil R) \quad H_3 : \rceil R \quad C : \rceil P$ **5**

3. a) Let R be a relation on A = {1, 2, 3, 4} with

$$M_R = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$ **5**

Find the relation R and the matrix of transitive closure by Warshall's method.

b) Let R = { <1, 2>, <3, 4>, <2, 2> } and S = { <4, 2>, <2, 5>, <3, 1>, <1, 3> }. Find

i) $R \circ (S \circ R)$ ii) $S \circ S$. **5**

c) Let f : A → B a function and A = {1, 2, 3, 4}, B = {a, e, i, o} and f = {(1, a), (2, i), (3, e), (4, 0)}. Is f^{-1} a function ? **5**

d) Let X = {2, 3, 6, 12, 24, 36} and the relation $\leq$ be such that X $\leq$ Y if X divides Y. Draw the Hasse diagram of < X, $\leq$ >. **5**

4. a) Determine the code words generated by the following parity check matrix : **8**

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

How many errors will be detected by this code word ?

b) Show that $(N, *)$ is a semigroup where $x * y = \min \{x, y\}$ for any $x, y \in N$. Is $(N, *)$ a monoid ? **6**

c) Let G be a group with identity e. Show that if $x^2 = x$ for some x in G, then x = e. **6**
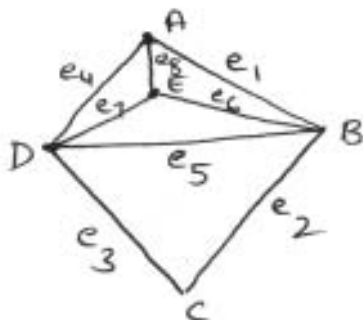
5. a) Define :

   i) Bipartite graph

   ii) Regular graph with examples. **5**

   b) Check whether the graph is Euler or not. **5**

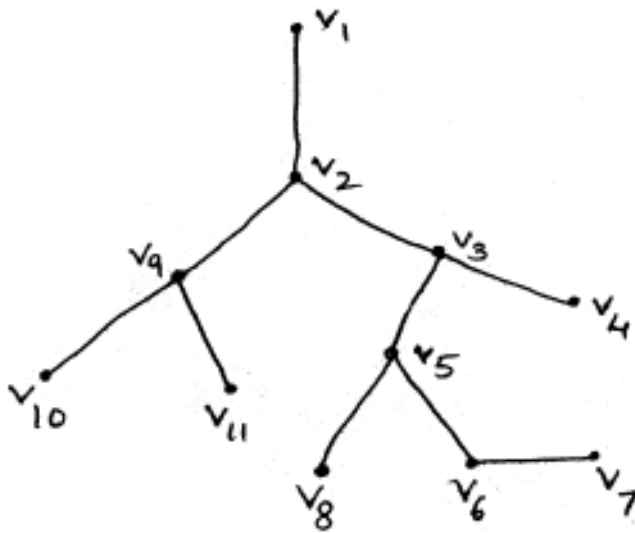   c) Obtain the adjacency and incidence matrix for the following graph : **5**

d) For the given tree below find : **5**

   i) Distance

   ii) Pendant vertices

   iii) Children of V_2

   iv) Root vertex.

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[4180] – 11

Seat
No.

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

Time : 3 Hours   Max. Marks : 70

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

1. a) What is an OS ? Explain various types of OS.   **10**

   b) Solve the following :   **5**
      i) $(BABA)_{16} - (762)_8 = (\ )_8$
      ii) $(27)_8 \times (89FC)_{16} = (\ )_8$

   c) What is binding ? Explain its types.   **5**

2. Explain different types of memories used in computers.   **10**

3. Draw Parse tree for the equation $A = B + C \times A$ and explain whether H is ambiguous grammar or not.   **10**

4. Discuss various file organisations and accessing techniques.   **10**

5. Write definition of algorithm and flow chart. Draw flowchart calculate factorial of any given number.   **10**

6. Write short notes on (**any four**) :   **(4×5=20)**
   a) Computer virus
   b) De Morgans Theorem and Duality theorem
   c) Fire walls
   d) Compiler Vs Interpreter
   e) Modem.

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Seat	
No.	

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

Time : 3 Hours   Max. Marks : 70

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

1. Front office of Star Inn Hotel is responsible for room reservations, room allocations and final settlement of bills. Any company or person can reserve rooms for their future stay. They have to indicate the period for which they need the room and the number of rooms required. Sometimes the reservations could be cancelled or the dates or number of rooms changed. For reservation; cancellation or modification of rooms, customer receives an acknowledgement from the hotel.

   a) Prepare SRS and system specification for the above system. **10**

   b) Draw context level and first level DFD for the above case. **10**

2. Explain maintenance and the methods of estimating maintenance cost. **10**

3. Describe the phases of SDLC in detail. **10**

4. Design a GUI form for opening a saving account in a bank. **10**

5. What are CASE Tools ? Explain its advantages and disadvantages. **10**

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

   a) Prototyping

   b) Reverse engineering

   c) Agile process

   d) Role of System Analyst

   e) Structured charts.

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Seat
No.

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

Time : 3 Hours Max. Marks : 70

Instructions : i) Q.No. **1** is **compulsory**.
 ii) Solve **any 3 (Three)** from Q. **2** to Q. **6**.
 iii) Figures in the **brackets** indicate **marks**.

1. a) Write a covering letter and resume in response to the following position
 advertised in the Times of India dated 13th March 2012. You are Ms. Anitha Patil. **15**

 Company : Wintech systems, 473, Wilson Garden, D.P.Road, Pune 411007
 requires.

 Java Programmes : Java/ J2EE, JSP/ Servlets, XML, XSLT,
 Webservices.

 Work Experience : 1 Yr. – 3 Yrs.

 Qualifications : MCA/ BE (Comp.)

 b) Write a brief note on the following meeting documents.

  i) Notice

  ii) Agenda

  iii) Minutes. **10**

2. What is the difference between hearing and listening process ? Write down the
 steps for listening process with few tips for effective listening. **15**

3. Explain the principles of communication. **15**

4. Distinguish between formal and Informal communication. How and why do they occur ? **15**

5. What is Body Language ? Describe giving suitable examples. **15**

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

   a) Time Management.

   b) Written communication – Advertisement.

   c) Public speaking.

   d) Telephone manners.

   e) Negotiations.

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[4180] – 205

Seat No.	

M.C.A. (Mgt. Faculty) (Semester – II) Examination, 2012
MT – 21 : 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 questions **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**.

SECTION – I

1. Solve the following :

   a) State and prove principle of Inclusion – exclusion for n sets.   **5**

   b) Find the number of arrangements of the letters of the word 'PASSWORD' so that   **5**

      i) Two A's are together

      ii) Vowels occupy even positions.

   c) 10 gentlemen check their coats at the gatekeeper while entering a hall. The gatekeeper mixes the tokens and returns the coats at random. In how many ways gentlemen will get their coats such that exactly 4 of them get their correct coats.   **5**

   d) Find coefficient of $x^4 y^3 z^6$ in the expansion of $(x^2 - 3y + 4z^3)^7$.   **5**

2. Attempt the following :

   a) Prove the following binomial identities using combinatorial arguments.   **8**

      i) $\binom{n}{0} + \binom{n}{1} + \ldots + \binom{n}{n} = 2^n$

      ii) $\binom{n+1}{r} = \binom{n}{r} + \binom{n}{r-1}$

   b) Find the number of integer valued solutions of $x_1 + x_2 + x_3 = 24$ subject to $x_1 \geq 0, \ x_2 > 2, \ x_3 \geq 5$.   **7**

3. Solve the following :

   a) Find discrete numeric function corresponding to the following generating function. **8**

   $$A(z) = \frac{1 + 2z^2}{12 - 7z + z^2}$$

   b) Solve the following recurrence relation

   $a_n - 6a_{n-1} + 9a_{n-2} = 3.4^n$; $a_0 = 1$ $a_1 = 3$ **7**

SECTION – II

4. Attempt the following :

   a) Define the following terms. **5**

   i) Classical definition with illustration.

   ii) Probability density function.

   b) Following is the joint probability mass function of r.v. (X,Y) **5**

Y\X	0	1	2
−1	k	2k	3k
0	3k	k	2k
1	2k	4k	3k

   Find : i) $P(X+Y \leq 1)$ ii) $E(X)$

   c) The p.d.f. of univariate random variable X is $f(x) = c\, x^2$; $-1 \leq x \leq 1$. Find variance of X. **5**

   d) Probability that A, B, C becomes manager is $\frac{1}{5}, \frac{1}{2}, \frac{3}{10}$ respectively. Probability that certain policy will be introduced if A, B, C became manager is 2%, 5% and 4% respectively. The policy was introduced find the probability it was introduced by manager B. **5**

5. Solve the following.

a) Prove that Poisson distribution is a limiting case of Binomial distribution. Also find M.G.F. of Poisson distribution. **8**

b) Joint p.d.f. of bivariate random variable is $f(x, y) = C[x^2 + 2xy]$; $O \leq x \leq 1$

$$-1 \leq y \leq 2.$$ **7**

Find : i) C

ii) Marginal p.d.f. of X.

6. Attempt the following :

a) Find mean and variance of Gamma distribution. **8**

b) Average number of units of a product sold by a shop per day is 69 with variance 9. Find the probability that sale of the product in units on a particular day is between 64 and 75. Also find the probability that on a particular day the sale is less than average sales. (Assume sales follow normal distribution). **7**

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

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

1. a) Justify (not more than **60** words) with **true** or **false** :   **8**

   i) The Physical Layer of network, controls error detection and correction.

   ii) 5-4-3 rules specifies not more than five repeaters.

   iii) Loop back address is to test LAN.

   iv) Domain name system is a distributed data base.

   B) Explain Email procedure using message structure, addressing, Sending and
   receiving.   **7**

2. Define physical layer wiring standards of following : 10 Base 2, 10 Base 5,
   100 Base F and 1000 Base T.   **10**

3. Explain internet layer of TCP/IP Protocol Model.   **10**

4. What are the advantages of using virtual path in ATM. Explain traffic Mgmt. in
   ATM.   **10**

5. Draw and explain IP address Format for Class A, Class B, Class C, Class D
   using suitable example.   **10**

6. What is Fire Wall ? What are different types of Fire wall ? Explain policies and
   rules of Fire wall.   **10**

7. A) Define VPN. Explain point to point tunneling protocol (PDTP). **5**

   B) Define and explain proxy server. **5**

8. Write short notes (**any three**) : **15**

   i) IPV$_6$

   ii) Topologies

   iii) SOA – Records

   iv) SNMP problem

   v) Wireless – LAN.

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Seat No.

M.C.A. (Semester – III) (Management Faculty) Examination, 2012
IT-34 : ADVANCED DATABASE MANAGEMENT SYSTEMS
(New) (2008 Pattern)

Time : 3 Hours　　　　　　　　　　　　　　　　　　　　　Max. Marks : 70

Note : 1) Q. **1** and Q. **6** are **compulsory**.
　　　　2) Solve any **3** from remaining.

1. A) Describe the web based architecture with suitable example. **10**

   B) What do you understand by OODBMS ? Explain the features of OODBMS. **10**

2. How is concurrency managed in distributed database management system? **10**

3. What do you understand by term Machine learning. Elaborate with proper example ? **10**

4. Why do we need to preprocess the data in data warehouse ? Explain the steps in data preprocessing. **10**

5. Explain the features of XML and also differentiate XML with HTML. **10**

6. Write short notes (**any 4**) : **20**
   1) Spatial databases
   2) I/O parallelism
   3) Expert database management system.
   4) K means algorithm
   5) Descriptive dataming
   6) OLAP.

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[4180] – 305

M.C.A. (Semester – III) (Mgt. Faculty) Examination, 2012
BM-31 : MANAGEMENT SUPPORT SYSTEM AND ITS SECURITY
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 70

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

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

2. Explain the application of law of requisite variety with a business example. **10**

3. Define MIS and explain structure of MIS based on management functions. **10**

4. Explain the characteristics and limitations of human information processing. **10**

5. 'Simulation is imitation of reality'. Justify. **10**

6. Discuss how ESS/EIS can help senior managers make better decisions. **10**

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

   a) MIS Vs. DSS

   b) Value of information

   c) DSS characteristics (any 5)

   d) Need of IS Auditing

   e) Static and Dynamic models.

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

1. What is parser. Explain XML SAX and DOM parser. **10**

2. a) Write a code for creating following external style sheet. **8**
    i) Text having arial font, font-size 20, Italic style
    ii) Border of paragraph must be blue color
    iii) Set hyperlink without underline
    iv) Character spacing 10 pixels.

   b) Explain Javascript Dom in Detail. **7**

3. a) Design HTML code for Ration card form. Write Javascript code to validate any four elements. **8**

   b) Explain string and date objects of Javascript. **7**

4. a) Design given form using HTML with validation and perform the appropriate operation on click event of respective buttion [Hint : Use VB Script] **8**

   Enter No .1 : [ ]
   Enter No. 2 : [ ]
   Result   : [ ]

   [+] [–] [*] [/]

   b) Explain Error handling in VB Script. **7**

5. a) Explain following tags with example. **8**

    i) < Frameset >

    ii) < Textarea >

    iii) < Select >

    iv) < Form >

   b) Differentiate between DTD and schema. **7**

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

   a) Server side image mapping

   b) Web publishing

   c) SOAP

   d) Classes in CSS.

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M.C.A. (Semester – III) (Mgt. Faculty) Examination, 2012
BM – 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 requirements for production function using systems approach. **10**

2. What do you mean by feedback control ? Explain the application of negative feedback with an example. **10**

3. Define MIS. Explain structure of MIS based on management activity. **10**

4. Define Expert System. Differentiate between expert system and conventional system. **10**

5. List and describe the stages in decision-making. **10**

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

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

　a) Value of information

　b) Types of systems

　c) Simulation

　d) Sensitivity analysis

　e) MIS Vs Data processing.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

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

1. Explain output of the following programs If errors, correct it.   **(2×5=10)**

   1) # include <iostream.h>

   # include <conio.h>

   int m = 10;

   main ( )

   {

   int m = 20;

   {

    int k = m ;

       int m = 30;

       cout << "k=" <<k<<"\n";

        cout <<"m=" <<m<< "\n";

        cout <<"::m=" <<::m<<"\n";

   }

    cout << "m=" <<m<<"\n";

    cout << "::m=" << ::m <<"\n";

   }

```
2)  # include <iostream.h>
    # include < conio.h>
    class base
    {
       Public :
                void base ()
                  {
                       cout << "A";
                  }
                void ~base ()
                  {
                       cout << "B";
                  }
    };
    void main ()
    {
       clrscr  ();
       base ();
    }

3)  # include < iostream. h>
    class Base
      {
          Public :
             Base () {cout << "In creating Base..." ; }
             ~ Base () { cout << "In Deleting Base..."; }
    };
    class Derived : Public Base
    {
          Public :
             Derived () {cout <<"Increating Derived..."; }
             ~ Derived () { cout << "In Deleting Derived..."; ?
    };
    int main ()
    {
       Derived Di;
       Derived *dptr = new Derived
       Base *bptr = new Derived;
       delete bptr;
       return 0;
    }
```

4) # include <iostream.h>

include <string.h>

void main( )

{

   Char str [30]= "Object oriented";

   int m = strlen (str);

   int n = sizeof (str);

   cout << m;

   cout << n;

}

5) # include < iostream.h>

class base

{

   private: int i ;

};

class derived : public base

{

   private :int j;

};

void main ()

{

      cout <<endl << sizeof (derived) << endl<<< sizeof (base);

      derived dobj

      base bobj ;

      cout << endl<< sizeof(dobj) << endl << sizeof (bobj);

}

2. a) What is parameterized constructor ? Explain mechanism of passing parameters to the base class constructor in multilevel inheritance. Explain with example. **5**

   b) Write a program to display the number of objects created using static data member. **5**

3. Design a string class and overload. **10**

   1) + operator to concat two strings

   2) < and > to compare two strings.

4. Write a program which reads a text file and copies every alternate character in another file using command line arguments. **10**

5. Write a program to demonstrate the use of friend function to swap the private data members of two classes. **10**

6. Write a program for implementation of a Queue. Write suitable exception handling routine when Queue is empty or full. **10**

7. a) What is RTTI ? Explain dynamic _cast and reinterpret-cast in detail. **5**

   b) Write a generic program for implementation of stack class using templates. **5**

8. Write short notes on (any **2**) : **(2×5=10)**

   1) Named and Unnamed Namespaces.

   2) Standard Template Library

   3) Managing output with manipulators.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

Note : *a) First question is* **compulsory.**
   b) Solve **any 5** *out of remaining.*
   c) Figures to **right** *indicate marks.*

1. a) A Ticket Vending Machine (TVM) dispenses tickets to passengers at a railway station. Passengers use the front panel to specify their Boarding and destination place, details of passenger (number of adults and children) and date of travel. The machine displays the fare for the requested ticket. The passenger then deposits cash in the bin provided and presses 'accept cash'. The machine checks the cash, if it is more, the balance cash is paid out. And the ticket requested is printed. The system is also used by the operator who might want to know the cash held in the machine, the break-up of small change available in the machine, withdraw or deposit cash when needed. And the report options also include the detailed report of transactions, summary report of the number of tickets sold for each destination, opening balance, cash collected, cash dispensed and current balance in the machine. Draw the use case and class diagram for the above case study. **15**

   b) Discuss Benefit of pattern. **5**

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

3. Explain Object Modeling Technique. **10**

4. a) Draw a sequence diagram for Storing contacts to your friend. **5**

   b) Explain Object Persistence. **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) Requirement Engineering

   b) Booch methodology

   c) White Box Testing

   d) CRC.

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Seat
No.

M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
IT-41 : 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 question :   **10**

   a) What is Thread synchronization ?

   b) Differentiate between this and super keywords.

   c) What are adapter classes ?

   d) Explain throws clause with example.

   e) What is stub and skeleton ?

2. Write a JDBC application to display resolved complaints details for Telephone
   Department for given date. (Assume suitable table structure).   **10**

3. a) Write a Java Socket Program that runs on client and sends a file name to
       server. The program should display appropriate message returned by
       server.   **5**

   b) Write a Java Socket Program that runs on server, accepts file name from
       client of checks file exists and returns file contents to client.   **5**

4. Write RMI application for currency conversion from Rupees to Dolar.   **10**

5. Explain the term, event handling with example.　　　　**10**

6. Write a program to accept file name from user, display number of character's words and lines.　　　　**10**

7. a) Explain prepared statement.　　　　**5**

   b) Explain thread methods is Alive ( ) and join ( ).　　　　**5**

8. Write short notes on (**any two**) :　　　　**(2×5=10)**

   a) Flow layout

   b) Static keyword

   c) Beans properties.

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Seat No.

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

Time : 3 Hours   Max. Marks : 70

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

1. Write a detailed test plan for University result declaration system, which provides the facility to view students result (sem/year) wise, system should have facility to apply for rechecking/re-evaluation with payment. Your plan should include the desired test documents, test cases and test strategies.   **20**

2. Explain how V-V model ensure the correctness of a software product.   **10**

3. Define Testers Workbench. Explain 11 steps of testing life cycle in brief.   **10**

4. Explain different types of reviews involved in static testing.   **10**

5. Write a 7-8 point checklist for testing non-functional aspects of on-line shopping website.   **10**

6. Write short notes **(any 4)** :   **(4×5)**

   1) SEI-CMM

   2) Quality Factors

   3) CAST

   4) Static Testing

   5) Clean Room Software Development.

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

Time : 3 Hours　　　　　　　　　　　　　　　　　　　Max. Marks : 70

Instructions : 1) Q.**1** is **compulsory**.
　　　　　　　　2) Solve **any five** from **remaining**.

1. A system is to be designed for a "Medical Store". Different suppliers supply medicines to this store. The customer purchases different medicines prescribed by the doctor. The system should check the manufacture date, expiry date etc. If the expiry date is over the medicines are sent back to the supplier. For each medicine the customer has to pay (4% of) local tax extra. The system should keep the record of all medicines. It should also check for re-order level, danger level. The customer gets bill which is generated by the system.

    Draw the following diagrams for above case :

    a) Use case diagram　　　　　　　　　　　　　　　　　　　**10**

    b) Class diagram.　　　　　　　　　　　　　　　　　　　**10**

2. Explain any two object oriented methodologies.　　　　　　**10**

3. a) Draw sequence diagram for ordering an item through online shopping system.　**5**

    b) Draw collaboration diagram for searching an item.　　　　**5**

4. Explain in detail guidelines for preparing test plan.　　　　　**10**

5. Draw activity diagram for uploading college details for approval on AICTE website.　**10**

    College representative should register online. AICTE intimates username and password. College details, faculty details, student and non teaching details, lab and library details etc are uploaded after login. Related documents are scanned and uploaded and AICTE verifies them and shows non-compliance details.

6. Draw the state transition diagram for vacuum cleaner. The cleaner can operate in two modes dry and wet. In dry mode it can be set to high or low sucking capacity. If the cleaner is overloaded with dust alarm is fired and switched off.　**10**

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

   a) RUP phases

   b) CRC

   c) Object persistence

   d) Layered approach to s/w development.

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M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
BME – 1 Elective : MIS FRAMEWORK AND IMPLEMENTATION
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

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

               2) Attempt **any 4** questions from Q. **2** – Q. **6**.

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

               4) Draw **neat** labelled diagrams **wherever** necessary.

1. Discuss with suitable example, role of security in implementing IT projects. **10**

2. Elaborate different benefits IT applications can provide through office
   automation. **10**

3. In the phase of recession, it is crucial to justify investments in IT. Explain how
   information systems can help in justifying investments in IT. **10**

4. Design and discuss a MIS Framework for e-learning applications. **10**

5. Discuss role of DSS to gain competitive advantage in volatile scenario in
   businesses. **10**

6. Explain various socio-economic issues associated with implementation of on line
   banking. **10**

7. Write short notes on (**any 4**) : **20**
   a) CSFs in IT applications.
   b) Experts systems.
   c) Difference in MIS and EIS.
   d) Collaborative systems.
   e) Components of DSS.

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Seat No.	

M.C.A. (Mgmt. Faculty) (Semester – IV) Examination, 2012
BME – 2 : FOUNDATION OF DECISION PROCESS
(Elective) (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 different criteria of decision making. **10**

   b) Arrival rate of telephone calls at a telephone booth are according to Poisson distribution with average time of nine minutes between two consecutive arrivals. The length of telephone call is assumed to be exponentially distributed with mean 3 minutes.

   1) Determine the probability that a person arriving at a booth will have to wait.

   2) Find the average queue length.

   3) The company will install a second booth when convinced that an arrival would expect to have to wait at least four minutes for the phone. Find increase in flow of arrival, which will justify a second booth. **10**

   c) A retailer deals in a perishable commodity. The daily demand and supply are variable. The data for past 500 days show the following demand and supply.

Supply		Demand	
Availability (kgs)	**No. of days**	**Demand (kgs)**	**No. of days**
10	40	10	50
20	50	20	110
30	190	30	200
40	150	40	100
50	70	50	40

The retailer buys the commodity at Rs. 20 per kg and sells it at Rs. 30 per kg. Any commodity remaining at the end of the day has no saleable value. More

P.T.O.

over, the loss on any unsatisfied demand is Rs. 8 per kg. Given the following pairs of random numbers, simulate six days sales, demand and profit.

(31, 18) (63, 84) (15, 79) (07, 32) (43, 75) (81, 27)

The 1st random number in the pair is for supply and the 2nd random number is for demand. **10**

2. a) Discuss single channel, single server queuing model. **10**

   b) Shruti Ltd. has developed a sales forecasting function for its products and the products of its competitors, Purnima Ltd. There are four strategies S_1, S_2, S_3 and S_4 available to Shruti Ltd. and 4 strategies P_1, P_2, P_3 and P_4 to Purnima Ltd. The pay-offs corresponding to all the combinations of the strategies are given below. State what would be optimal strategies for both the players ? What is the value of game ? Is the game fair ?

   The following pay-off matrix is shruti's pay-off matrix

   Purnima's Strategies

	P_1	P_2	P_3	P_4
S_1	3	2	4	0
S_2	3	4	2	4
S_3	4	2	4	0
S_4	0	4	0	8

   Shruti's Strategies (rows above)   **10**

3. a) An Oil drilling company considering the purchase of mineral rights on a property of Rs. 100 lakhs. The price includes tests whether the property has type A geographical formation or type B geographical formation. The company will be unable to tell the type of geographical formation until the purchase is made. It is known, however that 40 percent of the land in this area has type A formation and 60 percent type B formation. If the company decides to drill on the land it will cost Rs. 200 lakh. If the company does drill it may hit an oil well; gas well or a dry hole. Drilling experience indicates that probability of striking an oil is 1.4 on type A and 0.1 on type B formation. Probability of hitting gas is 0.2 on type A and 0.3 on type B formation. The estimated discount cash value from an oil well is Rs. 1000 lakh and from gas well is Rs. 500 lakh. This includes everything except cost of mineral rights and cost of drilling. Use the decision tree approach and recommend whether the company should purchase the mineral rights. **10**

b) In a city, only two brands of Cola are sold AA and BB. If buyer bought cold AA last time, there is 0.75 chance that he would buy the same cola in the next purchase. Similarly it is known that if a buyer bought brand BB last time, the probability for him to buy the brand AA next time is 0.40.

a) Using this information develop the transition probability matrix.

b) Find proportion of customer after two and three periods of two brands. If the current market shares of two are as follows – Cola AA : 60%, Cola BB : 40%.   **10**

4. a) The manager of a firm has two alternatives to choose from for the next quarter.

i) To take a contract to supply an item to a company which would result in a sure profit of Rs. 20,000.

ii) To make and introduce a new product in the market. The likely profit /loss possibilities along with the likely probabilities are also given. Also shown are the utility values associated with the various profit levels.

Profit/loss :	– 20,000	0	20,000	40,000	80,000
Probability :	0.1	0.2	0.3	0.3	0.1
Utility (Utils) :	– 0.50	0	0.45	0.70	1.20

Determine which course of action would be prefered by the manager when he wanted to maximize :

1) The EMV, and   2) the expected utility.   **10**

b) Write short notes on (**any two**) :

1) Monte -Carlo Simulation.

2) Elements of queuing system.

3) Dominance method and Algebraic method for solving Game theory problem.   **10**

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

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

1. As being an external auditor, perform the auditing of a network firm. You have to explain various physical and logical network controls implemented by the firm for handling network issues. Prepare your report with list of evidences.   **20**

2. Explain Audit standards in detail.   **10**

3. What is 'code of professional ethics' ? Explain.   **10**

4. Explain various steps involved in Risk Assessment Process.   **10**

5. Discuss in brief various IT crimes along with security and privacy issues.   **10**

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

   a) BCP

   b) HR Policies

   c) e-governance

   d) Managerial Controls

   e) Performance Measurement Tools.

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Seat
No.

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

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. "Collaborative management is used to describe various management techniques that promote a sense of unity and teamwork among managers and supervisors within a business organization". Elucidate the statement.

2. Discuss the assessment of Profiles of products/businesses and the development cycles of products through BCG matrix.

3. Leadership style, corporate culture, values and ethics plays crucial role in effective implementation strategy. Comment.

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

5. A value chain is a chain of activities for a firm operating in a specific industry. Explain the concept and discuss its competitive advantages.

6. Elaborate Porter's five forces framework with the help of suitable examples.

7. Write short notes on **any two** :
   a) SWOT Analysis.
   b) Value chain.
   c) Mckinsey's 7s frame work.
   d) Core competencies.
   e) Symptoms of malfunctioning of strategy.

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Seat No.	

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

Time : 3 Hours   Max. Marks : 70

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

1. Give a short overview of DSS and diagrammatically depict the structure of Model Base Management Subsystem.   **10**

2. Explain Enterprise Support System with an example and enumerate ESS characteristics and capabilities.   **10**

3. Differentiate between MIS and DSS across applications, decision capabilities, type of information generated, database and highest organisational level served with the help of an example   **10**

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

5. Explain with help of examples how Data Mining can be helpful in identifying business opportunity to create sustainable competitive advantage.   **10**

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

7. Short notes on (**any four**) :   **(4×5=20)**
   a) Data Marts
   b) Intelligent DSS
   c) OLAP
   d) GIS
   e) Supply Chain Management.

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Seat No.

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

Time : 3 Hours   Max. Marks : 70

Instructions : 1) Q. **1** is **compulsory**.
2) Solve **any 4** from Q. **2** to Q. **6**.

1. Answer the following with justification. **10**

   1) Differentiate between method and constructor.

   2) Explain the concept of overloading.

   3) Explain Run Time Exceptions.

   4) Give the life cycle of Java Servlet.

   5) Explain wrapper classes.

2. a) Write an applet program to display smiling face after every 5 second change in crying face. **8**

   b) Explain random access file class. **7**

3. a) Write a client-server-socket programme client programme will accept message from user and send it to server. Server will send current date and time to the client. **8**

   b) Explain RMI architecture. **7**

4. a) Write a JDBC application using servlet for project tracking system. Display the completed projects by date. Assume suitable table structure. **8**

   b) Explain with suitable example two ways of thread creation. **7**

5. a) Write a java program to 1 concatenate two text files sequentially into single file. Accept file name from command line arguments. **8**

   b) Explain four types of JDBC Drivers. **7**

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

   a) Java beans

   b) Inner classes

   c) Session tracking in servlets

   d) Garbage collection.

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[4180] – 410

M.C.A. (Semester – IV) (Management Faculty) Examination, 2012
BME – 6 : ELECTIVE :ENTERPRISE RESOURCE PLANNING (New)
(2008 Pattern)

Time : 3 Hours   Max. Marks : 70

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

2) *Solve **any three** questions from **2** to **5**.*

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

1. Write detailed report on integration of various business modules by using ERP system. Also explain functional technical modules and sub-modules. **20**

2. a) What do you mean by integrated software ? Discuss in detail need of integrated software. **5**

   b) What is BPR ? Discuss in detail significance in ERP system. **5**

3. a) What is CRM ? Give the importance of CRM in business organisation. **5**

   b) What is data mining ? How OLAP is useful for the data analysis. **5**

4. a) Explain critical success factors for ERP implementation. **5**

   b) List and explain various factors for vendor selection. **5**

5. a) Explain the ERP implementation methodology in brief. **5**

   b) Explain end-uses training and going live stage of ERP implementation. **5**

6. Write short note (**any four**) : **(5×4=20)**
   a) Data warehousing
   b) ESS
   c) GAP analysis.
   d) ERP vendor
   e) ERP Training.

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Seat
No.

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

Time : 2 Hours   Max. Marks : 50

Instructions : i) Q. No. **1** is **compulsory**.
ii) Solve **any three** from Q. **2** to Q. **7**.
iii) Figures in the bracket indicate marks.

1. Write short notes on (**any two**) : **14**
   a) Time management.
   b) Rapid Reading skills.
   c) Silence as a mode of communication.
   d) Electronic media of communication.

2. Define communication. Explain any four principles of communication giving suitable examples. **12**

3. Distinguish between written and oral communication. **12**

4. "Group discussion is a technique of involving and evolving." Discuss. **12**

5. What is the importance of listening and what are the barriers to effective listening ? **12**

6. Write a covering letter and resume in response to the following advertisement in Indian Express dated 13th March, 2012. You are Ms Asha Patel

   Company : Planet Technologies, Karve Road, Pune.

   Post : JAVA Programmers.

   Work experience : 0 – 2 yrs.

   Qualification : MCA/BE. **12**

7. Explain the role of sign boards and symbols in Non-verbal communication. **12**

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| Seat |
| No. |

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

Time : 3 Hours   Max. Marks : 70

Note : 1) Q. **1** and **6** are **compulsory**.
2) Attempt **any 3** from the remaining.

1. a) Centralized purchase system collects requisitions from other departments. Suppliers send their quotations according to the requirements given supplier is short listed and purchase order is released on him.

    As a consultant prepare SRS and system specification for the above system.   **20**

2. Explain object oriented methodology.   **10**

3. Explain maintenance and the methods of estimating maintenance cost.   **10**

4. Explain the role of CASE Tools with its advantages throughout software development life cycle.   **10**

5. Design a GUI form for opening a saving account in a bank.   **10**

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

    a) Inspection process

    b) Agile process

    c) Legacy system

    d) Re engineering

    e) Structured charts.

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

Time : 3 Hours   Max. Marks : 80

Instructions *:i)* *Solve* ***any four*** *questions.*

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

                 iii) *Figures on* ***right*** *indicate* ***full*** *marks.*

                 iv) ***Use*** *of Electronic calculators and Statistical tables is* ***allowed***.

1. a) Solve the following LPP by two phase method.

   Min $z = 4x_1 + x_2$

   subject to

           $3x_1 + x_2 = 3$

           $4x_1 + 3x_2 \geq 6$

           $x_1 + 2x_2 \leq 3$

           $2x_1, x_2 \geq 0.$ **10**

   b) Explain dual Simplex method for an LPP.   **10**

2. a) Solve the following :

   Max $z = 200\, x_1 + 300\, x_2$

   subject to

           $2x_1 + 4x_2 \leq 17$

           $3x_1 + 3x_2 \leq 15$

           $x_1, x_2 \geq 0$ and integer.   **10**

b) Find out the initial solution of the following transportation problem using

  1) North west corner method

  2) Least cost method

  3) Vogel's approximation method.   **10**

Sources \ Destination	1	2	3	Supply
X	10	3	9	400
Y	12	10	5	300
Z	8	11	12	300
Demand	200	300	500	

3. a) Describe EOQ and economic lot size models for the economic lot site model. Production rate is finite. Both models do not allow shortages.   **10**

  b) A manufacturer uses 45,000 units of an item annually. No shortages are allowed and supply is instantaneously. Cost of ordering is Rs. 50/- per order and inspection cost of items is Rs. 15/- per order. The holding cost is Rs. 0.65 per unit per year

  Calculate

   i) EOQ

   ii) Order interval.

   iii) If the lead time is 5 days, calculate the reorder level. Assume year of 300 days.   **10**

4. a) Describe the characteristic of the queuing model given below.

  (M/M/C) : (FCFS/∞/∞)   **10**

  Giving the formula for relevant quantities.

  b) Assume that at a bank teller window, customer arrives at a rate of twenty per hour according to a poisson distribution. Assume also that the bank teller spends an average of two minutes per customer to complete a service and service time is exponential. Customers are served on first come first serve basis and there is no limit on queue length.

   1) What is the expected waiting time in the system per customer ?

   2) What is the mean number of customers waiting in the system ?

   3) What is the probability that there is no customer in the system ?

   4) Utility factor of system.   **10**

5. a) Describe different replacement models for the system that deteriorate with time. **10**

   b) An electronic assembly contains 1600 units of a particular component failure of any of them stops from the functioning of that assembly and hence the failed components need immediate replacement when failure occurs.

   The mortality pattern of these components based on past data is as follows

Month end :	1	2	3	4	5	6
% failure by month end	5	25	45	70	85	100

   The individual replacement cost is Rs. 10 and group replacement cost is Rs. 7 per unit. Find if it is better to have group replacement. **10**

6. a) Bring out the differences between the following pairs
   i) PERT and CPM.
   ii) Critical path and critical activity.
   iii) Earliest start and latest start. **10**

   b) The following table gives data of time and cost. Solve the following to find minimum duration of the project and the cost of project **10**

Activity	Duration		Cost	
	Normal	Crush	Normal	Crush
1 – 2	3	2	300	450
2 – 3	3	3	75	75
2 – 4	5	3	200	300
2 – 5	4	4	120	120
3 – 4	4	1	100	190
4 – 6	3	2	90	130
5 – 6	3	1	60	110

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Seat
No.

M.C.A. (Mgmt. Faculty) (Semester – IV) Examination, 2012
(Elective) (BME – 1)
MIS FRAMEWORK & IMPLEMENTATION
(2005 Pattern)

Time : 3 Hours   Max. Marks : 70

Instructions : 1) Q. **1** and Q. **7** are **compulsory**.
2) Attempt **any 4** questions from Q. **2** – Q. **6**.
3) Figures to **right** indicate **full** marks.
4) Draw **neat** labelled diagrams **wherever** necessary.

1. Explain with suitable example, how information systems influence organizational planning and control functions. **10**

2. What are Expert systems ? Compare and contrast Expert systems with DSS and EIS. **10**

3. How information systems can provide competitive advantage in the era of global business ? List down any five visible effects of this competitive advantage. **10**

4. How need and format of information differs for managers at different levels ? **10**

5. Explain components of DSS with suitable diagram. **10**

6. What are critical success factors ? Explain the same with reference to e-Governance applications. **10**

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

   a) Information Technology Policy.

   b) Significance of MIS.

   c) Executive Information Systems.

   d) Socio-Economic factors in MIS framework.

   e) IT infrastructure.

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Seat No.

M.C.A. (Semester – IV) (Mgmt. Faculty) Examination, 2012
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** questions from Q.**2** to Q.**5**.*

1. a) Describe major steps involved in IS Audit.   **10**

    b) Explain BCP process in detail.   **10**

2. Explain the role of data base in Audit process.   **10**

3. Explain the performance measurement tools used by auditor for auditing an ERP
    system.   **10**

4. Explain audit process in detail.   **10**

5. Explain auditors responsibilities for long term and short term plan.   **10**

6. Write short notes on (**any 4**) :   **20**

    1) IT crimes

    2) Segregation of duties

    3) Validation controls

    4) Audit charter

    5) Hardware and software procurement.

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Seat
No.

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

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 Mckinsey's 7s frame work model is most often used as a tool to assess and monitor changes in the internal situation of an organization. Elaborate.

2. Write an essay on merger and acquisition.

3. Explain BCG matrix. How is the GE nine Cell different from BCG matrix ?

4. "Environmental Threat and Opportunity Profile provides a clear picture to the strategist about which sectors and different factors in each sector have a favorable impact on the organization. Elucidate the statement.

5. Explain the features of collaborative management with the help of suitable examples.

6. What are the various types of Leadership style ? How do these styles play a crucial role in effective implementation of strategy ? Comment.

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

a) Synergy and dysergy

b) Project implementation

c) Symptoms of malfunctioning of strategy

d) Core competencies.

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Seat No.	

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

Time : 3 Hours   Max. Marks : 70

N.B. : 1) *Question No.* **1** *and* **7** *are* **compulsory**.
2) *Solve* **any four** *from the remaining.*

1. Explain prototyping. Discuss why prototyping is used as a methodology for DSS development. **10**

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

3. Discuss Enterprise Resource Planning (ERP) and its benefits. **10**

4. Explain the database organisation and structures used in DSS. **10**

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

6. Explain Enterprise Support System and enumerate its characteristics and capabilities. **10**

7. Write short notes on (**any four**) :   (**4×5=20**)
   a) OLAP
   b) Data Mining
   c) Business Intelligence
   d) Data Visualisation
   e) Knowledge Based Expert System.

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**Seat
No.**

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

Time : 3 Hours   Max. Marks : 70

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

1. "Mutual fund provides stability to share prices, safety for investors and resources to prospective entrepreneurs" – Discuss.

2. Explain in detail the different tools of information technology available to the investors in India.

3. What are ventures capitals funds ? What are the different stages in funding by these funds ?

4. Explain in details the Treynor Jenson measures used in portfolio theory.

5. Is fundamental analysis is more important than technical analysis ? Explain in detail.

6. What are the factors to be considered while building an investment portfolio ?

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

   a) Usefulness of credit rating

   b) Kinds of mutual funds

   c) Concept of estimating earning and risk

   d) Martingle methods

   e) Capital market money.

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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) Assume **suitable** data **wherever** necessary.
4) Figures at **right** hand indicate **full** marks.

1. Answer **any four** :   **20**
   a) Explain the Pillars of User Interface Design.
   b) What are the benefits and problems of voice recognition input ?
   c) Explain the different characteristics of good Web Page design.
   d) Describe the concept of Direct Manipulation Programming.
   e) Explain the different form filling guidelines.

2. Explain the various interaction styles with their drawbacks and benefits.   **10**

3. What five methods might be used as part of an expert review ? Describe any 3
   methods in brief.   **10**

4. List down in 5 phase frame work to clarify user interfaces for textual search.
   Explain each of them in detail.   **10**

5. Explain 8 Golden rules of Interface design with example of each rule.   **10**

6. State various video input devices. Explain response time and display rate
   importance in video input.   **10**

7. Write short notes on **any 2** of the following :   **10**
   a) Online Vs Printed Manuals.
   b) Error Messages Guidelines.
   c) Short Term and Long Term memory.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

Instructions : i) Question No. **1** and **7** are **compulsory**.
ii) Attempt **any four** from remaining.

1. Diamond University has its Head Office at Pune. It has 20 branches spread across Asia, America, Europe and Africa. All branches and Head Office are connected to each other through a sound and stable network. As a network consultant, suggest a suitable BCP assuming the occurance 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 Knowledge Management and Knowledge Management-tools. **10**

4. What is Embedded System ? Explain components and its various advantages. **10**

5. What is Knowledge Management ? Explain Knowledge Management Architecture. **10**

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

7. Write short note on (**any three**) : **15**
   a) Knowledge Management Cycle
   b) Types of E-Learning
   c) Palm Devices
   d) Warehouse Management
   e) E-Agriculture.

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

Time : 3 Hours   Max. Marks : 70

Note : *1) Question **1** and **5** are **compulsory**.*
*2) Solve **any 2** questions from **remaining** questions.*
*3) Figures to **right** indicate **full** marks.*

1. a) Why e-commerce ? Explain benefits of e-commerce.   **5**

   b) Explain HTTP request and response messages.   **5**

2. a) Write a servlet code to do the following :

   i) Get user ID and password parameters from Login.html file and set or
   create cookies of it.

   ii) Retrive these set cookies and verify the user validity from the table.
   (Assume suitable table structure).   **10**

   b) Write a JSP code to search a student placement details from the placement
   database by student.Id. (Assume suitable table structure).   **10**

3. a) Explain CGI architecture. Write a PERL program to create a file and insert
   data in it.   **10**

   b) Explain S-REQUEST super global. Write PHP code to demonstrate
   S-SESSION.   **10**

4. a) Write PHP code to accept name of the file from user. Store all the details of the file like file type, location etc. to the database table. (Assume suitable table structure) **10**

b) Explain JSP actions with example. **10**

5. Write short note on (**any four**) : **20**

i) E-check

ii) Compare CGI and servlet

iii) Default objects in JSP

iv) PHP error handling

v) Servlet life cycle.

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Seat
No.

**M.C.A. (Management Faculty) (Semester – V) Examination, 2012
CYBER LAW AND IT SECURITY (IT-E 1) (Elective)
(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) Explain the Encryption technique in detail.   **10**

    b) Explain use of IT Act 2000 in E-Commerce.   **10**

2. What is digital signature ? How the digital signature is use for security purpose ?   **10**

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

4. What are different types of certificates ?   **10**

5. Explain the concept of domain name with the reference to cyber law.   **10**

6. Explain the scope of IT Act 2000.   **10**

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

    a) Cyber Squatting

    b) Reverse Hijacking

    c) Framing

    d) Spamming

    e) Power of Controllers

    f) RSA algorithm.

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Seat
No.

M.C.A. (Semester – V) (Management Faculty) Examination, 2012
ITE 3 : ADVANCED UNIX (Elective)
(2008 Pattern)

Time : 3 Hours

Max. Marks : 70

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

1. Explain the following system calls : **(5×2=10)**

   a) malloc ()

   b) link ()

   c) chdir ()

   d) fork ()

   e) stat ().

2. Explain the concept of semaphore. Describe the various system calls related to semaphores. **10**

3. What are signals ? How are they generated ? Explain signal handling in detail. **10**

4. Write a program to create a file with a hole. **10**

5. Explain the term "Environment variables". Describe the functions to access and manipulate them. **10**

6. What is Race condition ? How can it be avoided ? **10**

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

   a) Record Locking

   b) Zombie Processes

   c) Real User ID and effective User ID

   d) File types

   e) Buffering.

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Seat
No.

M.C.A. (Semester – V) (Mgt. Faculty) Examination, 2012
(Elective) ITE4 : MOBILE WIRELESS COMPUTING
(2008 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) BSS
    ii) SIM
   iii) 802.11
    iv) Bitrate
     v) HLR
    vi) VLR.

   b) Explain functions of each layer in WAP architecture.   **10**

2. Describe the main steps in inter – BS hand off procedure.   **10**

3. Explain indirect TCP with its advantages.   **10**

4. What is MAC ? Compare and Contrast different types of MAC with examples.   **10**

5. Explain the importance of framing and logical channels in GSM.   **10**

6. Write short notes on (**any four**) :   **20**
   a) PUSH-PULL
   b) Features of WLAN
   c) Quality of Service in wireless network
   d) Access Technologies
   e) AdHoc networks
   f) Mobile Agents.

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M.C.A. (Semester – V) (Mgmt. Faculty) 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**.
        2) Solve **any three** from **remaining**.

1. a) Write a test plan with scope of testing, risks, strategy, schedule, pass/fail
   criteria for a online shopping system. **15**

   b) Describe SQA activities. **5**

2. Explain V & V model in detail, with suitable diagram. **10**

3. Differentiate (**any two**) : **(5×2)**
   a) Alpha vs Beta Testing
   b) Functional vs Non Functional Testing
   c) Static vs Dynamic Testing.

4. Explain bug life cycle in detail. **10**

5. Define need of reviews in testing process, explain different types of reviews
   with suitable examples. **10**

6. Write short notes (**any four**) : **(4×5)**
   1) Performance testing
   2) Cyclomatic complexity
   3) CMM
   4) CAST
   5) Equivalence partitioning.

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

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

1. A co-operative Bank has Head Office and 7 branches in the city. All the branches and Head Office are computerized and connected to each other through network. As a system consulting suggest suitable BCP. **15**

2. What is E-banking ? What are the different securities required in E-banking ? **10**

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

4. What are the various E-learning models ? Explain in detail. **10**

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

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

7. Write short note (**any three**) : **15**

   a) Knowledge management

   b) RFID

   c) Embedded systems

   d) E-commerce

   e) ATM.

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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

Instructions : 1) Q. **7** is **compulsory**.
　　　　　　　　 2) Solve **any five** from Q. No. **1** to **6**.

1. Explain different type of cost estimation. Explain FPA in detail.　　**10**

2. What is maintenance ? Explain different types of maintenance.　　**10**

3. Describe the factors that influence the quality of software product.　　**10**

4. Explain recruitment process of IT personnel.　　**10**

5. Explain Ms-Project in detail and difference between CPM/PERT.　　**10**

6. What is the difference between software engineering and SPM ? Explain PDLC
   in detail.　　**10**

7. Write short note (**any 4**) :　　**20**
    i) Gantt chart
   ii) Version control
  iii) LOC
   iv) Quality standards
    v) Software configuration management.

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Seat
No.

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2012
IT-1 : DISTRIBUTED DATABASE MANAGEMENT SYSTEMS
(2005 Pattern) (Elective)

Time : 3 Hours   Max. Marks : 70

Note :   1) **Full** marks are indicated to the **right** of **each** question.
2) Draw suitable diagrams when needed.
3) Give suitable examples if required.
4) **Whenever** necessary state assumptions.
5) Q. **7** is **compulsory**. Solve **any five** from remaining.

1. Explain how concurrency control is managed in distributed data bases.   **10**

2. What are the different types of fragmentation ? Explain with suitable examples
   on allocation criteria.   **10**

3. Explain architecture of distributed database management systems.   **10**

4. Explain the salient feature of DDBMS.   **10**

5. Explain query optimization, query execution and access plan with suitable
   example.   **10**

6. What is transaction, and its various types.   **10**

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

   a) Types of failures in DDBMS.

   b) Fundamental object management issues.

   c) Distributed Database Administration.

   d) 2-Phase commit protocol.

   e) DBMS and DDBMS.

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M.C.A. (Semester – V) (Management Faculty) Examination, 2012
(2005 Pattern) Elective (IT – 2)
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 the **right** indicate **full** marks.
          4) Draw **neat** and **suitable** diagram **wherever** necessary.

1. a) Define AI. Explain various AI applications. **10**

   b) Describe in detail tower of Hanoi. **10**

2. a) Explain depth first search algorithm with the help of suitable example. **5**

   b) What is problem decomposition ? Explain. **5**

3. a) Explain the problem spaces and search. **5**

   b) List and explain problem characteristics of heuristic search. **5**

4. a) How parse tree helps in understanding language ? Discuss with an example. **5**

   b) What is knowledge management ? Discuss various approaches of knowledge representation. **5**

5. a) Illustrate the branch and bound with example. **5**

   b) What is expert system ? Give the importance of expert system in business organisation. **5**

6. Illustrate Mini-Max search for the tic-tac-toe game, with initial position. **10**

7. Write short note **(any two)** : **(2×5=10)**
   a) Fuzzy Logic.
   b) Frame
   c) Robotics.

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Seat No.

MCA (Management Faculty) (Semester – V) Examination, 2012
Elective IT 3 : NETWORK SECURITY
(2005 Pattern)

Time : 3 Hours　　　　　　　　　　　　　　　　　　　　Max. Marks : 70

Instructions : 1) Q. **1** and Q. **6** are **compulsory**.
　　　　　　　　 2) Solve **any three** from Q. **2** to Q. **5**.
　　　　　　　　 3) Give appropriate examples **wherever** necessary.

1. a) Explain how Chinese Wall Policy is different than Clark-Wilson Access Control Model. **10**

   b) Explain Digital Signature and Digest. How nonrepudiation can be provided in digital signature. **10**

2. Explain IPSec as IP encapsulating security protocol. **10**

3. Differentiate between SSL and TLS Web Security protocols. **10**

4. Explain working of packet-filter firewall with suitable example. **10**

5. Explain with example Encryption, Decryption and Restriction in RSA cryptography. **10**

6. Write short notes (**any four**) : **(4×5=20)**
   a) International Data Encryption Algorithm (IDEA)
   b) Passive and Active attacks
   c) Cryptanalysis
   d) ACL in Proxy
   e) HRV
   f) Secure Hash.

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

Time : 3 Hours   Max. Marks : 70

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

1. a) Define the following terms (**any five**) :   **10**
   i) Wireless TCP
   ii) Frame Error Rate
   iii) Visitor Location Register
   iv) Mobile Management Function
   v) UMTS
   vi) GSM.

   b) Explain the features of wireless network. What are the advantages and disadvantages of wireless networking ?   **10**

2. i) What is cell breathing ?   **3**

   ii) List and explain any four functions of base station controller used in GSM.   **3**

   iii) What is Hidden node problem and how it is resolved in 802.11 ?   **4**

3. What is a WAP gateway ? What are its functions ? Explain.   **10**

4. i) Why cells are in hexagonal shape and what are its advantages ?   **5**

   ii) For GSM explain importance of framing and logical channels.   **5**

5. How can DHCP be used for mobility and how it support to mobile IP ? Explain.   **10**

6. i) What is Handoff ? How do you perform Handoff during roaming ? **5**

   ii) Compare DSSS and OFDM. **5**

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

   a) SIM

   b) Distributed computation

   c) CDMA

   d) RTC-CTS protocol

   e) IMT-2000

   f) Adhoc-network.

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Seat
No.

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2012
(2005 Pattern)
Elective IT – 5 : VISUAL PROGRAMMING USING C++

Time : 3 Hours   Max. Marks : 70

Instructions : 1) Que. *1* is **compulsory**.
2) Attempt **any three** questions from the remaining Que.
3) Figures to the **right** indicate **full** mark.

1. a) Design a class 'employee' having empid, name and salary are the data members. Write a menu driven programme to do following task using the concept file i/o in C++. **10**

   1) Add employee record

   2) View employee record

   3) Delete employee record

   b) Write a programme to demonstrate pointer arithmetic. **10**

   c) What is EDI ? What are EDI objects available in SDK. **5**

2. a) Define a class 'time' with suitable constructor method. Write a member function to swap two 'time' objects. Write a function to validate the 'time'. **10**

   b) What is virtual function ? Explain with suitable example. **5**

3. a) Design C++ class to implement singly linked list. **10**

   b) Write short note on MDI and SDI. **5**

4. a) What is Function overloading ? Write C++ program to overload a function named 'substraction'. The 'substraction' function take following parameters. **10**

   1) Two integer

   2) Two values

   3) Two string

   b) Write Note on Scope Operator. **5**

5. a) Design C++ class string and overload < and > operator. **10**

   b) Explain abstract class with suitable example. **5**

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Seat
No.

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

Time : 3 Hours   Max. Marks : 70

Instructions: *1) Question No.**1** is **compulsory**.*
*2) Solve **any five** from Q. **2** to Q. **8**.*

1. Discuss the following (**any four**) :   **(5×4=20)**
   a) Grid Computing
   b) Gantt chart
   c) Cluster Computing
   d) Parallel Virtual Machine
   e) Multithreading
   f) Communication latency.

2. State and explain different fundamental Parameters required for the analysis of
   Parallel algorithm.   **10**

3. What is pipeline processing. Draw and explain the architecture of pipeline
   processing.   **10**

4. Explain Tightly coupled and loosely coupled system with examples.   **10**

5. Write a program for PVM (Parallel Virtual Machine), to give listing of the "Slave"
   or Spawned program.   **10**

6. Differentiate between control flow computing concept and data flow computing
   concept with example.   **10**

7. What is Flynn's classification ? Explain different parallel systems with example. **10**

8. Differentiate : vector processing and scalar processing concept.   **10**

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Seat
No.

M.C.A. (Mgmt. Faculty) (Semester – V) Examination, 2012
Elective IT – 8 : ADVANCED UNIX
(2005 Pattern)

Time : 3 Hours   Max. Marks : 70

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

1. A) Explain memory management routines in UNIX.   **10**

    B) Explain in detail about the structure of UNIX operating system.   **10**

2. What are message queues ? How do they help in message transmission ?   **10**

3. Explain the various ways by which a process can be terminated.   **10**

4. Explain pipes. How to create a pipe ? Explain with suitable example.   **10**

5. Explain the different system calls associated with file I/O.   **10**

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

    a) Semaphores

    b) Orphan process

    c) File permissions

    d) Signals

    e) Sessions.

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

Time : 3 Hours   Max. Marks : 70

Note :   1)   Q. **8** is **compulsory**.

2)   Attempt **any five** from remaining.

1. Explain the attributes of good language.   **10**

2. Write down evaluation of C language.   **10**

3. Explain abstraction and encapsulation with example.   **10**

4. What is translator ? Explain stages in translation with block diagram.   **10**

5. Explain syntatic elements of language.   **10**

6. Distinguish between Sequential and Direct Access Files.   **10**

7. Explain structured sequence control with example.   **10**

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

   a) Composite data types.

   b) Vector and arrays.

   c) Static scope.

   d) Variable size elements in storage management.

   e) Call by value, call by reference.

   f) Recursive sub program control.

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