[3880] – 503

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
IT-53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

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

2. Explain E-Logistics and Supplier Chain Management. **10**

3. What is E-Banking ? Explain various security techniques in E-Banking. **10**

4. What is E-Learning ? Explain various models of E-Learning. **10**

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

6. Explain Knowledge Management and Knowledge Management System Architecture. **10**

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

   a) Call Center Ethics

   b) ERP Packages

   c) Spatial objects

   d) Palm devices.

B/II/10/2,805

[3880] – 508

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
ITE – 5 : CYBER LAW AND IT SECURITY (Elective)
(2008 Course)

Time : 3 Hours | Max. Marks : 70

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

1. a) Explain object and scope of the IT Act. **10**

   b) Explain the encryption techniques. **10**

2. Explain the technology behind the digital signature. **10**

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

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

5. What are the offences related to digital signature certificate ? **10**

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

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

   a) Certifying authority

   b) Genesis of cyber law

   c) Framing

   d) Spamming

   e) Jurisdiction in trademark dispute

   f) Types of certificate.

B/II/10/640

[3880] – 509

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
IT – 55 : ADVANCED INTERNET TECHNOLOGY (Elective)
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. What are JSP actions ? Explain error handling in JSP with example. **15**

2. Write ASP program to accept name and birth date of the user and display calendar of birth – month in the client's browser. **10**

3. What is thread safety in Servlets ? Write a Servlet which will display the count of number of times a client has accessed it. **10**

4. Write PHP code for displaying details of patients stored in the database. (Assume suitable table structure). **10**

5. Write a PERL program to accept name of text file from user. The file will contain short listed candidate records. Each row has cand no. : name : qualification : specialization. Display names of computer specialization candidate from the file. **10**

6. Explain Session and Cookies in PHP. **10**

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

   a) HTTP Request and Response

   b) E Commerce Architecture

   c) CGI Architecture

   d) Arrays in PHP.

B/II/10/2,805

[3880] – 51

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
IT-51 : SOFTWARE TESTING AND QUALITY ASSURANCE
(2005 Pattern) (Old)

Time : 3 Hours | Max. Marks : 70

Instructions *: 1) Q.* ***1*** *and Q.* ***6*** *are* ***compulsory****.*
2) Attempt ***any 3*** *from the remaining.*
3) State assumptions ***if any****.*
4) Draw ***neat*** *labeled diagrams* ***where*** *necessary.*
5) Figures to ***right*** *indicate* ***marks****.*

1. Write a test plan with scope of testing, risks and contingencies, strategy, schedule, staffing, and training, deliverables, item pass/fail criteria for a web based 'E-learning' application which facilitates in learning advanced courses based on subject entered by student. **10**

2. a) Explain path, statement, branch and decision coverage in structural testing. Give suitable example for each. **8**

   b) Define quality. What is clean room software engineering ? **7**

3. a) 'Software quality metrics helps to give quantitative view of software quality'. Comment. **7**

   b) Explain regression testing with suitable example. **8**

4. a) Write test case for functional testing of book data entry screen that accepts unique book id, title, authorname, publisher, ISBN No, price, edition. **8**

   b) Explain 'V' model with reference to its advantages over waterfall model. **7**

5. a) Compare functional testing and non-functional testing with examples. **8**

   b) Write the 7-8 point checklist for testing non-functional aspects of a JOB PORTAL.

6. Write short notes on **(any 3)** : **15**
   i) BVA technique for black-box-testing
   ii) Code coverage
   iii) CAST
   iv) Software review.

B/II/10/350

[3880] – 102

M.C.A. (Semester – I) (Management faculty) Examination, 2010
IT-12 : 102 : 'C'-PROGRAMMING
(2008 Pattern) (New)

Time : 3 Hours | Total Marks : 70

Instructions : *1) Question No. **1** is **compulsory**.*
*2) Solve **any six** from Q. No. **2** to Q. No. **9**.*
*3) **Use** comments **wherever** necessary.*
*4) Figures to the **right** indicate **full** marks.*

1. Find and explain output of the following : **10**

A)
```
int f( )
main( )
{
    f(1);
    f(1,2);
    f(1,2,3);
}
f(int a, int b, int c)
{ printf ("%d %d %d", a,b,c);}
```

B)
```
#define lee(a,b,c) avg (a,b,c) <=60
#define des(a,b,c,d) (d= =1 ? geq(a,b,c) : lee(a,b,c))
void main(void)
{
    int num = 70;
    char ch = '0';
    float f = 2.0;
if des (num, ch, f, o) puts ("lee");
    else puts ("geq");
}
```

P.T.O.

C) Void main( )

```
{
    int x = 0×1234;
    int y = 0×5678;
    x = x & 0×5678;
    y = y | 0×1234;
    x = x ^ y;
    printf ("%x\t", x);
    printf ("%x\t", y);
}
```

D) Void main ( )

```
{
char *s[ ] = {"Dharma", "Norton", "Simens", "ibm"};
char **p;
    p = s;
printf ("%s", ++ *p);
printf ("%s", *p ++);
printf ("%s", ++ *p);
}
```

2. A) Write a program to compute the real roots of quadratic equation $px^2 + qx + R = 0$. The roots are given by equation $x_1 = – q + sqrt (q^2 – 4PR)/2p$ and $x_2 = – q – sqrt (q^2 – 4PR)/2p$. **5**

   B) Write a program to accept integer numbers till user enters '0' and display how many non-zero integers entered. **5**

3. Write a program to accept five strings from user and display all those strings in descending order. **10**

4. Write a program, which will accept file name and string from command prompt and append the string in given file. **10**

5. A) Write a note on – Masking using bitwise operator. **5**

   B) Write a user defined function * strcmp (char * t_1, char * t_2) which compares two strings t_1 and t_2.Do not use library functions. **5**

6. Create structure Elect Bill having members consumer_no, name, no_of_units, amt. Write a program to accept 10 records.
   Calculate amt – using following rate.
   For no_of_units less than 100 – rate Rs. 1.50 per unit.
   no_of_units greater than 100 – rate Rs. 6.50 per unit.
   Display the records of largest and smallest amt. **10**

7. A) Write a program to demonstrate fill color in circle. **5**

   B) Write a program to display the following pattern. **5**

   A1
   B2, C3
   D4, E5, F6
   G7, H8, I9, J10.

8. Write a program to display frequency of each character in a given file. **10**

9. A) Write a program using function to print sum of digits of given number. **5**

   B) Write a program to count no. of sentences in a given file. **5**

B/II/10/4,585

[3880] – 104

M.C.A. (Semester – I) (Management Faculty) Examination, 2010
(IT-13) 104 : OPERATING SYSTEM CONCEPTS
(2008 Pattern) (New)

Time : 3 Hours | Total Marks : 70

***Note** : 1) Q. **1** and Q. **7** are **compulsory** questions.*
*2) Attempt **any four** from the Q. **2** to Q. **6**.*

1. What is IPC ? Explain how IPC is implemented in client server system. **10**

2. What is Memory Management ? Explain paging in detail. **10**

3. What is Deadlock ? Explain critical section problem with example. **10**

4. Explain free space management methods in detail. **10**

5. Define centralized O.S. and distributed O.S. Explain advantages of distributed O.S. **10**

6. Explain different disk performance issues and also explain two disk scheduling algorithms. **10**

7. Write short notes on (**any four**) : **20**
   i) FAT
   ii) NOS
   iii) CPU schedular
   iv) PCB
   v) System calls.

B/II/10/4,100

[3880] – 10C

M.C.A. (Mgt. Faculty) Examination, 2010
BME – 5 : BUSINESS FINANCE

Time : 3 Hours | Max. Marks : 80

Instructions : *a) Attempt **any five** questions.*
*b) **All** questions carry **equal** marks.*

1. a) Explain Inter-Bank Call Money Market.
   b) Discuss the role of Non-Banking Financial Institutions.
2. Briefly explain the role played by IDBI and IFCI in the development of economic growth in India.
3. Discuss the functions and Operations of Money Market and Capital Market in India.
4. Examine the role of Merchant Bankers, Managers, Brokers and Underwriters in Primary Capital Market.
5. Describe the role of SEBI in controlling and regulating functions and operations of Capital Market.
6. Explain the key role of RBI in regulating banking functions and operations.
7. Explain the concept of "Credit Rating". What is the need and importance of credit rating agencies ?
8. Write short notes on :
   a) Clearing House
   b) ICICI
   c) Bank Rate
   d) CRICIL

[3880] – 13

M.C.A. (Semester – I) (Mgt. Faculty) Examination, 2010
IT-13 : COMPUTER ARCHITECTURE
(Old) (2005 Pattern)

Time : 3 Hours | Max. Marks : 70

***Notes** : 1) Q. No. **1** and Q. No. **7** are **compulsory**.*
*2) Solve **any four** questions from remaining.*
*3) **Draw** neat diagrams **whenever** necessary.*

1. a) Compare 16-bit and 32-bit Architecture. **8**
   b) Compare RISC and CISC. **7**

2. What is register ? Explain SISO Shift Register. **10**

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

4. What is pipelining ? Explain RISC pipelining in detail. **10**

5. Explain the working of A to D converter with the help of appropriate diagram. **10**

6. What is Multiplexer ? Explain Demultiplexer in detail. **10**

7. Write short notes on **(any three)** : **(3×5=15)**
   a) Master-slave JK FF
   b) PCI Vs. MCA Bus
   c) Instruction Cycle
   d) CPU Performance
   e) DMA Controller.

B/II/10/530

[3880] – 15

M.C.A. (Mgt. Faculty) (Sem. I) Examination, 2010
BM-12 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR
(2005 Pattern) (Old)

Time : 3 Hours Marks : 70

N.B. *: 1) Q.* ***1*** *is* ***compulsory****.*
2) Solve ***any three*** *from the remaining.*

1. A) "The manager elevates the status of the organization" elaborate with the help of essential skills and functions of a manager. **15**

   B) Role of decision making in increasing organization effectiveness – Explain. **10**

2. Define OB. Explain the foundations of OB. Explain in details the various models in OB. **15**

3. Define motivation. Describe the role of Meslow's theory with its limitations. **15**

4. Explain the process and steps planning in details – Explain. **15**

5. What is the contribution of Mr. Fayol in modern theory of management ? Why is the theory time tested ? **15**

6. Write short notes on **(any 3)** : **15**
   1) Decentralisation Vs. Centralisation
   2) Systems Approach
   3) Levels of management
   4) Line and staff authority
   5) Control Techniques.

B/II/10/185

[3880] – 203

M.C.A. (Semester – II) (Management Faculty) Examination, 2010
(IT-23) 203 : SOFTWARE ENGINEERING
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Q.* ***1*** *and Q.* ***7*** *are* ***compulsory****.*
2) Attempt ***any three*** *from Q.* ***2*** *to Q.* ***6****.*

1. a) A Library Management System (LMS) needs to be developed for an Educational Institute to assist and manage a Library System efficiently. The main objective of the LMS is to provide timely information for the users (students as well as faculty members). The system should also keep track of the following :

   i) Issuing/Returning of books

   ii) Purchase and maintenance of the books

   iii) The amount of the fine to be collected from the students in case of late return of the book.

   Draw the context level diagram and first level data flow diagram for the above case. **15**

   b) ABB Co. Ltd., decides to give Diwali bonus to all its employees for which the management has divided the employees into three categories, namely, Administrative Staff (AS), Office Staff (OS), Workers (W) and considered the following rules.

   i) If the employee is permanent and in the AS category the bonus amount is three months salary.

   ii) If the employee is permanent and in the OS category the bonus amount is two months salary.

   iii) If the employee is permanent and in the W category the bonus amount is one month's salary.

   iv) If the employees are temporary then half of the amount is given to them as per the permanent employee's bonus amount.

   Draw a decision tree to represent the above case. **5**

P.T.O.

2. Compare the classical Life Cycle and Prototyping models. **10**

3. Explain the format and features of a good SRS. **10**

4. Explain the types of maintenance and the methods of estimating maintenance cost. **10**

5. Explain the advantages and disadvantages of CASE tools. **10**

6. Explain the features of a modern GUI form with a suitable example. **10**

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

   a) RAD

   b) Data Dictionary

   c) Web Engineering

   d) Legacy systems

   e) Code Design.

[3880] – 24

M.C.A. (Semester – II) (Mgt. Faculty) Examination, 2010
IT-24 : DATABASE MANAGEMENT SYSTEM
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Q.* ***1*** *is* ***compulsory****.*
2) Solve ***any 5*** *from* ***remaining*** *questions.*
3) State assumptions and ***draw*** *well labelled diagrams* ***wherever*** *necessary.*

1. a) A company has set of departments. Each department has a set of employees, a set of projects and a set of offices. Each employee has a job history (set of jobs that employee has held). For each such a job the employee also has salary history (set of salaries received while employeed on that job). Each office has a set of phones. Normalize the above case upto 3-NF. **15**

   b) State Codd's rule. **5**

2. What is data abstraction ? Explain data view levels. Also explain view and schema. **10**

3. Explain M : N resolution of NDM, HDM and RDM. **10**

4. Explain log based recovery. **10**

5. Explain the following : **10**
   a) Object oriented d/b
   b) Security and privacy of database.

6. Explain **any two** of the following : **10**
   1) Knowledge database
   2) Datawarehouse schema
   3) Aggregation.

7. Write short notes on (**any two**) : **10**
   1) Database users
   2) Join and its types
   3) 2-phase commit protocol
   4) Transaction, properties and states.

B/II/10/205

[3880] – 303

M.C.A. (Management Faulty) (Semester – III) Examination, 2010
IT-33 : 303 : OBJECT ORIENTED PROGRAMMING USING C++
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

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

What will be the output of following program ?

a)
```
#include<iostream.h>
#include<conio.h>
void main ( )
{
        clrscr( );
        char s[ ] = "OBJECT";
        int i;
        for(i = 0;s[i];i++)
                cout<<"\n"<<s[i++]<<*(s+i++)<<*(i+s)<<i[s];
}
```

b)
```
class base
{
        private: int x;
        protected: int y;
};
class derived:public base
{
        protected:
        int a, b;
        void change( )
        {
                a=x;
                b=y;
        }
};
```

P.T.O.

c)
```
class test
{
        static int count;
        public:
                static void showcount(void)
                {
                        cout<<"count:"<<++count;
                }
};
int test::count;
main( )
{
        test t1,t2,t3;
        t1.showcount( );
        t2.showcount( );
        t3.showcount( );
}
```

d)
```
#include<iostream.h>
#include<conio.h>
public class A
{
        int x=4;
};
private class B::class A
{
int x=20;
cout<<"x="<<x;
};
```

e)
```
#include<conio.h>
#include<iostream.h>
#include<iomanip.h>
void main( )
{
        int x=100;
        float f=56.75;
        cout<<hex<<x<<dec<<x<<endl;
        cout<<setw(8)<<setfill('0')<<f;
}
```

II) Explain new, delete and scope resolution operator. **5**

2) a) Write a program to demonstrate overloading of constructor. **5**

b) Explain pointer to data members using suitable example. **5**

3) Write a program to overload increment and decrement operators. **10**

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

b) What is Namespace ? Explain nested namespace using a suitable example. **5**

5) a) Write a function template to calculate area of circle. **5**

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

6) Explain different types of inheritance with suitable examples of each type. **10**

7) Write a program that reads the text file and replace all the occurrences of vowels with '*' and copy the contents in new file. Also display the no. of replacements made. **10**

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

a) Exception Handling Mechanism.

b) New Style Cast.

c) Standard Template Library.

B/II/10/3,350

[3880] – 305

M.C.A. (Semester – III) (Management Faculty) Examination, 2010
(BM – 31) 305 : MANAGEMENT SUPPORT SYSTEMS AND IS SECURITY
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

Notes : *1) Q. No. **1** and **7** are **compulsory**.*
*2) Attempt **any four** from Q. **2** to Q. **6**.*
*3) Figures to the **right** indicate **full** marks.*

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

2. Explain the MIS structure based on organizational functions. **10**

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

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

5. Explain the Herbert-Simon model of decision making in detail. What are its limitations ? **10**

6. Define Expert System. Compare Expert System and DSS. **10**

7. Write short notes on (**any four**) : **(4×5=20)**
   a) Coupling and decoupling of subsystems
   b) Matrix organization structure
   c) Quality of Information
   d) Heuristic programming
   e) Executive information system
   f) Need for IS Auditing.

B/II/10/3,035

[3880] – 31

M.C.A.(Mgt. Faculty) (Sem. – III) Examination, 2010
IT 31 : WEB SUPPORTING TECHNOLOGIES
(2005 Pattern) (Old)

Time : 3 Hours | Max. Marks : 70

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

1. Explain following tags with basic attributes : **10**
   a) <iframe>
   b) <script>
   c) <textarea>
   d) <table>
   e) <hr>

2. a) Design a calculator using Java Script, which will perform following operations : **10**
      i) Addition of 2 numbers
      ii) Subtraction of 2 numbers
      iii) Division of 2 numbers.
   b) What is image mapping ? Explain client side image mapping with example. **10**

3. a) Write a VB Script code for accepting email-id of user, from user before submitting the form validate email-id with 3 different validations and provide appropriate messages. **10**
   b) Explain array and string objects in Java Script. **10**

4. a) Write XML-DTD to maintain 'Magazine'. Details like month, ISBN No., Title, Publisher, Price. **10**
   b) What is style sheet ? Explain types of style sheet. **10**

5. Write short note on **any four** : **20**
   a) Three Tire Web Architecture
   b) XMLDSO object
   c) Java Script DOM
   d) Date object in VB Script
   e) Web publishing.

[3880] – 33

M.C.A. (Semester – III) (Mgt. Faculty)Examination, 2010
(IT-33) : MANAGEMENT SUPPORT SYSTEM
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

***Notes** : 1) Q. No. **1** and **7** are **compulsory**.*
*2) Attempt **any four** from Q. **2** to Q. **6**.*
*3) Figures to the **right** indicates **full** marks.*

1. Explain in detail the information required in designing IT based MIS for handling finance function. **10**

2. Explain Newell-Simon model in detail. **10**

3. What is MIS ? Explain its needs and objectives in a typical organization. **10**

4. What is the use of sensitivity analysis ? Explain its types in detail. **10**

5. Define DSS. Compare EIS and DSS. **10**

6. Define Expert System. Compare Expert System and conventional system. **10**

7. Write short notes on (**any four**) : **(4×5=20)**
   a) System concept
   b) Matrix organization structure
   c) Modeling process
   d) Value of information
   e) Information needs of managers at different levels
   f) MIS Vs. Data Processing.

B/II/10/200

[3880] – 403

M.C.A. (Semester – IV) (Mgt. Faculty) Examination, 2010
IT-43:403 : OBJECT ORIENTED ANALYSIS AND DESIGN
(2008 Pattern) (New)

Time : 3 Hours | Max. Marks : 70

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

1. The university is in the process of up loading and updating the PhD guide list. The process has following activities.

   The guide uploads his academic details the guide selects his stream (i. e. Engineering Management etc.) He also has to select the research centre where he is associated or wants to associate. If the guide has vecancy, he can select the students from the waiting list which is available at the research centre. The guide can select Maximum upto 8 Ph.D. candidates and 4 M.Phil. candidates for the about case.

   a) Draw class diagram. **10**

   b) Draw use case diagram. **10**

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

3. a) Draw collaboration diagram for creating an e-mail account. **5**

   b) Draw sequence diagram for sending e-mail. **5**

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

5. Draw activity diagram for registering a billing complaint of your mobile phone. **10**

6. Draw state transition diagram for digital watch. **10**

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

   a) Guidelines for preparing test plan

   b) Types of pattern

   c) Object persistence

   d) OMT methodology.

[3880] – 410

M.C.A. (Semester – IV) (Management Faculty) Examination, 2010
BME 6:416 : ENTERPRISE RESOURCE MANAGEMENT
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. The Mudrika Group has selected INDIA-1 product to implement the ERP system in their organization. They have opted for INDIA-1 for the following reasons :

„It fits with their requirements.
„The Mudrika Group have confidence in the vendor.
„It has the least technology.
„It is a world-class product.

The implementation was started in 2009 and it was decided to do so in phases. The first phase comprised financial, logistics HR and payroll activities. The second phase was to cover production, quality control and fixed assets management.

Some of the advantages of going in for the INDIA-1 are that the software supported the implementation of the packaged solution without too many changes having to be made in the software and provided competitive advantages to the company by implementing effective and economical IT solutions.

Status of implementation : The phase comprising general ledger, purchase order management system, payroll and sales order management systems at all the locations is live.

The pitfalls encountered along the route implementation are :

„Problems were encountered with first version release which took time to stabilize.
„Optimization of procedure took time.
„ERP tuning complexity was underestimated.
„Hardware requirements were underestimated.

P.T.O.

[3880] – 45

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2010
BM-E1 : MIS FRAMEWORK AND IMPLEMENTATION
(2005 Pattern) (Elective) (Old)

Time : 3 Hours | Max. Marks : 70

Notes : *1) Q. No. **1** and **7** are **compulsory**.*
*2) Solve **any four** questions from **remaining**.*
*3) Figures to the **right** indicates **full** marks.*

1. Explain the impact of IT infrastructure in changing business environment. **10**
2. Define MIS. Explain its features and limitations. **10**
3. Explain the critical success factors for accounting information system. **10**
4. How information technology changing the way finance function is performed ? **10**
5. Explain the techniques of evaluating information technology investments. **10**
6. What are common computer abuses that damage IT infrastructure ? **10**
7. Write short notes on (**any four**) : **(4×5=20)**
   a) Characteristics of EIS
   b) Threats to IT infrastructure
   c) Objectives of Security Policy
   d) Competitive Advantage
   e) MIS as an instrument for organizational change
   f) Expert System.

B/II/10/170

[3880] – 46

M.C.A. (Mgmt. Faculty) (Sem. – IV) Examination, 2010
BME-2 : FOUNDATIONS OF DECISION PROCESS (Elective)
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. a) Explain with suitable examples maximin, minimax and the regret criterion in decision making. **10**

b) A publisher is bringing out a book on Decision-Making. Its marketing department has produced the following sales forecast covering next three years.

Year	0	1	2	3
Demand of books	2000	3000	4000	5000
Probability	0.1	0.5	0.2	0.2

The contribution to the publisher's fixed costs and profits for every book sold is Rs. 90. If the book is not sold the publisher loses Rs. 40 per book. If the publisher cannot meet the demand, he estimates he loses Rs. 10 per book of demand not met, to cover the loss of goodwill and future sales.

Use different criterion of decision making. Determine the number of books publisher should print in every criterion. **10**

c) A businessman has two independent investments available to him, but he lacks the capital to undertake both of them simultaneously. He can choose to take A first and then stop, or if A is successful then take B, or vice versa. The probability of success on A is 0.7 while for B it is 0.4. Both the investments require an initial capital outlay of 20,000 and both return nothing if the venture is unsuccessful. Successful completion of A will return Rs. 30,000 (over cost) and successful completion of B will return Rs. 50,000 (over cost). Draw the decision tree and determine the best strategy. **10**

P.T.O.

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

b) What investment plan should he choose to maximize his expected utility ? Assume that the rise or fall of either stock is independent of the other.

A dealer of boats has estimated the following distribution of demand for a particular kind of boat.

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

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

3. a) Solve the flowering game : **10**

Strategy		**Player 2**		
		1	2	3
Player 1	1	2	3	1
	2	1	4	0
	3	3	–2	–1

b) A confectioner sells confectionary items. Past data of demand per week (in hundred kilograms) is given below : **10**

Demand	0	5	10	15	20	25
Frequency	2	11	8	21	5	3

Consider the following sequence of random numbers :
35, 52, 90, 13, 23, 73, 34, 57, 37, 83, 94, 56, 67, 66, 60
Using the above sequence, simulate the demand for next 15 weeks. Also find the average demand per week.

4. a) A investor has Rs. 10,000 to invest in common stock. His selection is between Companies A and B. He feels that for each of the investments, he has a 0.7 probability for doubling his money and 0.3 probability of losing half his money depending upon the company's stock rising or falling respectively. His choices are : **10**

i) Invest the entire money in A or B.

ii) Invest Rs. 5,000 in one company and not invest in order.

iii) Invest Rs. 5,000 in A and Rs. 5,000 in B.

If this utility values changes in assets are Rs. 10,000 = 1, Rs. 5,000 = 0.9, Rs. 2,500 = 0.7, Rs. 0 = 0.4, Rs. 2,500 = 0.2, Rs. 5,000 = 0.

b) Write short notes on **any two** : **10**

a) Various Queue Models

b) Simulation Techniques

c) Decision-making criterion.

B/II/10/170

[3880] – 58

M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
ITE 4 : MOBILE COMPUTING
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. a) Define the following terms (**any five**) : **10**

   I) MAC II) WTP
   III) Bitrate IV) HLR
   V) MMF VI) VLR.

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

2. What are the database used in GSM network ? What are its functions ? **10**

3. What is snooping ? Why it is used in TCP ? **10**

4. How can DHCP be used for mobility and support to Mobile-IP ? Explain. **10**

5. Describe the main steps in inter-BS hand off procedure. **10**

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

   a) Features of WLAN
   b) RTS-CTS protocol
   c) Adhoc Network
   d) Mobile agents
   e) SIM
   f) HIPER LAN.

B/II/10/135

[3880] – 103

M.C.A. (Management Faculty) (Semester – I) Examination, 2010
(BM-11) 103 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND ORGANISATIONAL BEHAVIOUR
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q. **1** is **compulsory**.*
*2) Solve **any three** of the **remaining** questions.*

1. A) 'It is said that decision making is a crucial step for every manager'- Justify. And also explain decision making environment. **15**

   B) Define group dynamics. How effective teams play vital role in organizational effectiveness ? **10**

2. What are the causes of organisational conflicts ? Explain how the concept of Johari window can be applied to resolve intrapersonnel and interpersonnel conflicts. **15**

3. What are the different managerial functions ? And explain staffing and directing in details. **15**

4. Explain McGregor's theory X and theory Y. **15**

5. What is organizing and state different structure of organization ? **15**

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

   1) Span of control and factors affecting it
   2) Managerial skills
   3) Delegation of authority
   4) Team building
   5) Leadership styles.

B/II/10/3,840

[3880] – 10-D

M.C.A. (Mgt. Faculty) Examination, 2010
TAXATION PRACTICE (BME 6)

Time : 3 Hours Max. Marks : 80

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

1. Explain in detail the provisions under the Income Tax Act, 1961 regarding short term and long term capital assets.

2. Explain in detail the provisions under the Income Tax Act, 1961 regarding deduction of tax at source from payment to contractors and sub-contractors.

3. What are the conditions a partnership firm should fulfil under the Income Tax Act, 1961 ?

4. What are the objects of the Central Sales Tax Act ? Also explain the provisions therein for registration of dealers.

5. What are the different forms of salary ? Explain the basis of chargeability of Salary Income.

6. Write a detailed note on deemed assets under the Wealth Tax Act.

7. Explain the meaning of the following terms under the Central Sales Tax Act :
   i) Declared goods
   ii) Deemed sale
   iii) Ascertained goods
   iv) Inter-state sale.

8. Write short notes on (**any four**) :
   i) Belated return
   ii) Importance of PAN
   iii) Advance tax
   iv) Deduction of unrealized rent from house property
   v) Person under the Income Tax Act, 1961.

[3880] – 23

M.C.A. (Mgt. Faculty) (Semester – II) Examination, 2010
IT-23 : INFORMATION SYSTEMS : ANALYSIS AND DESIGN METHODOLOGIES
(2005 Pattern) (Old)

Time : 3 Hours | Total Marks : 70

Note : *1) Q.* ***1*** *and Q.* ***6*** *are* ***compulsory****.*
2) Solve ***any three*** *from* ***remaining****.*
3) Figure to ***right*** *indicate* ***full*** *marks.*

1. a) Create a **functional decomposition diagram** for the video store whose processes are described below : **10**

A Video Store (AVS) runs a series of fairly standard video stores. Before a video can be put on the shelf, it must be catalogued and entered into the video database. Every customer must have a valid AVS customer card in order to rent a video. Customers rent videos for three days at a time. Every time a customer rents a video, the system must ensure that they do not have any overdue videos. If so, the overdue videos must be returned and an overdue fee paid before customer can rent more videos. Likewise, if the customer has returned overdue videos, but has not paid the overdue fee, the fee must be paid before new videos can be rented. Every morning, the store manager prints a report that lists overdue videos; if a video is two or more days overdue, the manager calls the customer to remind them to return the video. If a video is returned in damaged condition, the manager removes it from the video database and may sometimes charge the customer.

b) Income tax deduction is made in the month of March from the salary using the following rules. Prepare the **decision table and decision tree**. **10**

a) If the total income is less than Rs. 22,000, then no tax is deducted.

b) If the total income exceeds Rs. 22,000 but does not exceed Rs. 30,000, then the deduction is 20% of the amount which exceeds Rs. 22,000.

c) If the total income exceeds Rs. 30,000 but does not exceed Rs. 50,000 then the deduction is Rs. 1600 + 30% of the amount which exceeds Rs. 30,000.

P.T.O.

[3880] – 402

M.C.A. (Semester – IV) (Management Faculty) Examination, 2010
IT-42 : 402 : SOFTWARE TESTING AND QUALITY ASSURANCE
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. Write a test plan with scope of testing risks and contingencies, strategy, schedule, staffing and training, deliverables, item pass/fail criteria for Online Library System. **15**

2. What is verification and validation ? Explain different types of verification techniques with suitable examples. **10**

3. a) Check the cyclomatic complexity for a program of adding 100 integers with valid values and boundaries. **5**

   b) 'Process improvement is a vehicle for quality assurance' – comment. **5**

4. Define Tester Workbench. Explain 11 steps of testing process life cycle. **10**

5. Write test cases for member registration form with unique username, password, retype password, name, address, contact no., email-id, date of birth fields. None of the fields can be NULL. **10**

6. Explain path, statement, branch and decision coverage in Structural Testing. Give suitable examples for each. **10**

7. Write short note (**any 3**) : **15**

   1) Integration Testing

   2) CMM Model

   3) CAST

   4) Mc. Calls Quality Factors.

B/II/10/1,215

[3880] – 405

M.C.A. (Semester – IV) (Management Faculty) Examination, 2010
(BM-E1) 411 : MIS FRAMEWORK AND IMPLEMENTATION
(2008 Pattern) (New) (Elective)

Time : 3 Hours Max. Marks : 70

***Notes**: 1) Q. No. **1** and **7** are **compulsory**.*
*2) Solve **any four** questions from **remaining**.*
*3) Figures to the **right** indicates **full** marks.*

1. Explain the role played by IT infrastructure in Office Automation and Transaction Processing System in an organization. **10**

2. What is Expert System ? Explain components of Expert System. **10**

3. Explain the basic elements of IT infrastructure. Also list and explain the IT resources required to generate information. **10**

4. How information technology changing the way marketing function is performed ? Explain. **10**

5. Explain the techniques of evaluating information technology investments. **10**

6. What are common computer abuses that damage IT infrastructure ? **10**

7. Write short notes on (**any four**) : **(4×5=20)**
   a) Characteristics of EIS
   b) Features of MIS
   c) Objectives of Security Policy
   d) Competitive advantage
   e) MIS as an instrument for organization change
   f) Expert system.

B/II/10/650

[3880] – 43

M.C.A. (Management Faculty) (Semester – IV) Examination, 2010
IT-43 : 403 : SOFTWARE ENGINEERING
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

Notes : *a) Q.* ***1*** *and Q.* ***7*** *are* ***compulsory****.*
b) Solve ***any three*** *from Q.* ***2*** *to Q.* ***6****.*

1. Joshi Caterers Pvt. Ltd. wants to develop the order processing and billing software which presently works as under.

   Company collects order from different corporate customers or individuals. The customer fill up the order form describing various details like order details, customer details, menu item details and number of thalies. 50% advance is collected only from individual customers. Then after receiving the orders, Kitchen Order Ticket (KOT), is issued to the kitchen and then kitchen issues the list of raw material (excluded from available stock) to be purchased from the suppliers. Purchase order is given and ordered material is received from the fixed suppliers and forwarded further to the kitchen. After completion of the delivery of the order, bill is issued to the customer on the basis of actual number of thalies or ordered number of thalies whichever is more. Payment is accepted and receipt is given to the customer.

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

2. Explain inspection process, inspection team and defect loading in detail. **10**

3. Explain various tools available for project management support in CASE tool. **10**

4. Explain the relationship among software process, project and product. Elaborate the need of software engineering for software projects. **10**

5. What is the importance of documentation in software development ? Explain various types of documentation in detail. **10**

P.T.O.

6. Design the suitable data codification scheme for permanent registration number for the students getting enrolled in the university for different courses from different colleges in different years. Justify your design with suitable examples. **10**

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

   a) Web engineering.

   b) Functional decomposition diagram

   c) Reverse engineering

   d) Physical Vs logical DFD

   e) Types of review.

[3880] – 48

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2010
COLLABORATIVE MANAGEMENT (Old)
BME.4 : Elective (2005 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Attempt **any five** questions.*
2) Support your answers with relevant examples.
*3) Figures to the **right** indicate **full** marks.*

1. a) Describe BCG matrix. **5**
   b) Explain GE Nine Cell model. What is the advantage of GE Nine Cell over BCG matrix ? **9**

2. What do you understand by Mergers and Acquisitions ? What are various type of mergers ? What are the issues in implementing 'merger strategy' successfully ? Cite latest Indian and Global examples relevant to the merger strategy. **14**

3. State and explain the various issues involved in strategy implementation w.r.t. **14**
   a) Structural issues
   b) Functional issues
   c) Behavioural issues.

4. While the past has been about positioning the firm in its external environment, today it is more about harnessing internal resources aimed at providing superior benefits to customers. Is it that simple ? Comment. **14**

5. How corporate strategies are developed using analysis of environmental appraisal ? Explain. **14**

6. Leadership style, corporate culture, values and ethics play a crucial role in effective implementation of strategy. Comment. **14**

7. Write short notes an **any three** : **14**
   a) Porter's five forces framework
   b) SWOT Analysis
   c) Value chain
   d) Mckinsey's 7s frame work
   e) Core competencies.

[3880] – 50

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2010
BME – 6 : INVESTMENT TECHNOLOGY
(Elective) (2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. What is portfolio theory ? Explain markowitz graphical portfolio analysis and capital market theory in brief. **14**

2. What is an equity share ? How earning and risk are estimated in this regards ? **14**

3. Write short notes on **any two** : **14**
   a) Fundamental analysis
   b) Behavior of share prices-technical analysis
   c) Sources of investment information.

4. "Are investors attracted to mutual funds due to "risk in other investment opportunities". Discuss on the background of present share market conditions. **14**

5. What is "Credit Rating" ? How it is useful for investors ? Specify three popular credit rating agencies in India. **14**

6. Explain the concept fundamental analysis and technical analysis and also discuss their utility for investors point of view. **14**

7. How debts securities are valued ? How they are difficult from valuation of warrants and convertibles ? **14**

B/II/10/165

[3880] – 501

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
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 remaining.*
*3) Assume suitable data **whenever** necessary.*
*4) Figures at **right** hand indicates **full** marks.*

1. Answer **any four** : **(5×4=20)**
   A) Explain any two golden rules of User Interface Design.
   B) What is hyper media and hypertext ?
   C) List and explain different types of expert reviews.
   D) What do you mean by information visualisation ?
   E) Explain different types of menus.

2. A) Describe the five measurable human factors. **(5×2=10)**
   B) Describe two important difference between STM – Short Term Memory and LTM – Long Term Memory.

3. A) Explain three pillars of design. **(5×2=10)**
   B) Explain design guidelines for form-fill-in and dialog boxes.

4. Explain Object-Action Interface Model. **10**

5. Explain with example computer supported co-operative work. **10**

6. Explain six types tasks where pointing devices are application. Explain direct and indirect control pointing devices. **10**

7. Write short notes on (**any two**) : **(5×2=10)**
   A) LUCID methodology
   B) Social and individual impact of user interface
   C) Online manuals.

[3880] – 504

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
(2008 Pattern)
ITE 1 : PROGRAMMING LANGUAGE PARADIGM (Elective)

Time : 3 Hours | Max. Marks : 70

***Note**: 1) Q. **1** and Q. **4 compulsory**.*
*2) Attempt **any four** from **remaining**.*

1. Explain stages from original syntax to executable form of typical compiler. **15**
2. Explain layers of virtual computer for any program. **10**
3. Explain syntactic elements of a language. **10**
4. Differentiation between : **15**
   a) Vector and array
   b) Interactive and batch processing environment.
5. Explain local data and local referencing environment.
6. Explain the role of programming language. **10**
7. Explain stack and heap storage management. **10**

B/II/10/2,095

[3880] – 505

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
ITE-2 : ADVANCED UNIX (Elective)
(2008 Pattern)

Time : 3 Hours | Max. Marks : 70

Instructions : *1) Question **one** and **seven** are **compulsory**.*
*2) Solve **any four** from remaining.*
*3) Assume suitable data **whenever** necessary.*
*4) Figure at **right** hand indicates **full** marks.*

1. Explain the following system calls/functions (**any five**) : **(5×2=10)**
   a) fork()
   b) exit ()
   c) wait()
   d) fseek()
   e) kill()
   f) raise()

2. Describe the use of File and Record locking. And explain how to implement them. **10**

3. What are message queues ? How they differ from pipes ? **10**

4. What are pipes ? What happens when a pipe system is called ? Explain how they are different from ordinary files. **(2+4+4)**

5. What are the phases in signaling process ? Explain what is meant by the lifetime of a signal. **(4+6)**

6. What is shared memory ? What is the importance of it ? Explain in detail about the process of "Allocating a shared memory segment". **(3+2+5)**

7. Write short notes on (**any four**) : **(5×4=20)**
   a) Semaphores Vs Record locking
   b) Methods of Inter Process Communication
   c) Process identifiers
   d) Zombie process
   e) Reading a message from the queue.

[3880] – 507

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
ITE-4 : DISTRIBUTED DATABASE MANAGEMENT SYSTEMS (Elective)
(2008 Pattern)

Time : 3 Hours | Max. Marks : 70

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

1. What is DDBMS ? Explain the components of DDBMS in detail. **10**

2. Explain Peer-to-Peer distributed system architecture in detail. **10**

3. Explain Top-Down design process for designing DDBMS. **10**

4. What is query optimization ? Explain in detail join ordering in fragment queries. **10**

5. Explain concurrency control for centralized database systems. **10**

6. Explain the concept of mobile databases. **10**

7. Write short notes on following (**any four**) : **(4×5=20)**
   a) Distributed Data Processing
   b) Network topologies
   c) Cold restart
   d) Recovery protocols
   e) Vertical fragmentation.

B/II/10/620

[3880] – 57

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
(2005 Pattern) (Old)
IT E3 : NETWORK SECURITY

Time : 3 Hours Max. Marks : 70

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

1. a) Explain with example active and passive attacks on Networks. **10**
   b) Explain SSL encryption and how it is useful in web security. **10**

2. Suggest model for internet security and justify its purpose. **10**

3. Explain RSA algorithm in detail. **10**

4. Explain Bell La-Pedula model for access control. **10**

5. Explain various services provided by PGP for e-mail security. **10**

6. Write short notes (**any four**) : **(4×5=20)**
   a) Non-repudiation
   b) Digital signature
   c) X.509
   d) TLS
   e) Cryptoanalysis
   f) IDEA.

B/II/10/140

[3880] – 61

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
ITE – 7 : PARALLEL COMPUTING
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

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

2. a) State and explain different fundamental parameters required for the analysis of parallel algorithm. **7**
   b) Explain parallel virtual machine and list its salient feature. **8**

3. a) Explain message passing with the issues decided by the system in the process of message passing. **7**
   b) Explain pipeline processing and describe the architecture of pipeline processing. **8**

4. Differentiate between the following : **(7+8)**
   a) Tightly coupled system and loosely coupled system
   b) Vector processing and scalar processing.

5. Explain the concept of thread with basic methods in concurrent programming languages for creating and terminating of threads. Also give the advantages the thread offers over other processes. **15**

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

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[3880] – 201

M.C.A. (Semester – II) (Management Faculty) Examination 2010
(IT-21) 201 : DATA STRUCTURE USING 'C'
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

Instructions *:1) Question **1** is **compulsory**.*
*2) Solve **any 5** from **2** to **8**.*
*3) **Assume** suitable data **whenever** necessary.*
*4) **Draw** suitable diagram **whenever** needed.*
*5) Figures at **right** hand indicate **full** marks.*

1. A) A graph is implemented by Adjancency Matrix. Write non recursive algorithm for depth first search. **7**

   B) Define Acyclic Graph **3**

   C) A integer Array is defined as x [100] [40] [40]. Find the address of cell x [80] [30] [20] **5**

   D) Write short note on Applications of Graph. **5**

2. Write a program for addition of two polynomials. **10**

3. Write a program to implement priority queue using linked list. **10**

4. Write a program to evaluate postfix expression. **10**

5. Draw AVL Tree for the following : **10**

   Nita, Pratik, Priti, Ravan, Somu, Joggy, Amar, Parmeet, Naresh, Varun.

6. Write short notes on : **10**

   1) B tree

   2) Expression tree.

P.T.O.

7. A) Write an algorithm to insert and delete an element from a Queue. **5**

   B) Draw Binary search tree from the following data. **5**

   55, 60, 30, 25, 70, 10, 80.

   Write postorder Traversal for the above tree.

8. A) Write a function to delete an element in B tree. **5**

   B) Explain space complexity and time complexity. **5**

[3880] – 204

M.C.A. (Mgmt. Faculty) (Sem. – II) Examination, 2010
BM 21 – 204 : SOFT SKILLS (New)
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. Distinguish between non-verbal and verbal communication. Give examples. **15**

2. What are the communication activities in educational organisation ? **10**

3. You have visited your college library. Prepare a library usage instructions to be put-up on notice board so that new students may use library with convenience and ease. **10**

4. You intend joining NewYork State University for further studies. A recommendation letter need to be send to NewYork State University from your last academic institution. Draft a letter from your Professor requesting him to give recommendation letter. Probably he has forgotten you as your interaction was very brief for one semester. **10**

5. Discuss "Listen to what is meant and not what is said". **10**

6. What is the importance of listening and what are the barriers for effective listening ? **10**

7. Explain the importance of Sign boards and Symbols in non-verbal communication. **10**

8. Write short notes (**any three**) : **15**
   a) Eye Contact
   b) Note taking habit
   c) Voice mail
   d) Minutes of meeting
   e) Stress management.

[3880] – 205

M.C.A. (Mgt. Faculty) (Semester – II) Examination, 2010
MT – 21 : 205 : PROBABILITY AND COMBINATORICS
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

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

   b) Solve the recurrence relation : **5**

   $a_n - 7a_{n-1} + 10a_{n-2} = 0$, for n = 2, given $a_0 = 0$, $a_1 = 3$.

   c) An elevator starts at the basement with 8 people (excluding the elevator operator) and discharges them all by the time it reaches the top floor, number 6. **5**

      i) In how many ways could the operator have perceived the people leaving the elevator if all people look alike to him ?

      ii) What if the 8 people consist of 5 men and 3 women and operator could tell a man from a woman ?

   d) Find the probability that in a group of 100 letters. **5**

      i) No letter is put into the correct envelope.

      ii) Exactly 98 letters are put into correct envelope.

2. a) Find the number of positive integer solutions of equation $x_1 + x_2 + x_3 = 15$ subject to the conditions $x_1 \le 5$, $x_2 \le 6$, $x_3 \le 8$. **7**

   b) i) $\binom{2^n}{2} = 2\binom{n}{2} + n^2$

   ii) $\binom{m+n}{n} = \binom{m}{0}\binom{n}{0} + \binom{m}{1}\binom{n}{1} + \ldots + \binom{m}{n}\binom{n}{n}$ **8**

P.T.O.

3. a) Determine the discrete numeric function of generating function. **8**

$$A(z) = \frac{1+z^2}{4-4z-z^2}$$

b) Find the coefficient of $x^6y^6z^5$ in the expression of $(2x^2 - 3y^3 + 5z)^{10}$. **7**

4. a) Define following terms with illustration : **5**

i) Exhaustive events

ii) Independent events

b) Suppose that a product is produced in three factories x, y and z. It is known that factory x produces thrice as many items as factory y, and that factories y and z produced the same number of items. Assume that it is known that 3 percent of the items produced by each of the factories x and z are detective while 5 percent of those manufactured by factory y are defective.

All the items produced in the three factories are stocked, and an item of product is selected at random.

What is the probability that this item is detective ? **5**

c) The following table represents the joint probability distribution of discrete random variable (X, Y). **5**

X \ Y	**1**	**2**	**3**
1	$\frac{1}{12}$	$\frac{1}{6}$	0
2	0	$\frac{1}{9}$	$\frac{1}{5}$
3	$\frac{1}{18}$	$\frac{1}{4}$	$\frac{2}{15}$

Find :

i) Marginal distribution of X and Y

ii) $P(X=1/Y=1)$.

d) In a distribution exactly normal, 10% of the items are under 25 kilogram weight and 90% of the items are under 70 kilogram weight. What are the mean and standard deviation of the distribution ? **5**

5. a) Obtain M.G.F. of binomial distribution, hence calculate mean and variance of Binomial distribution. **7**

b) The p.m.f. of a random variable X is **8**

$$P(X = x_i) = \begin{cases} \frac{1}{15} & \text{for } x_i = 1, 2, 3, \ldots . 15 \\ 0 & \text{otherwise} \end{cases}$$

Find :

i) E(X)

ii) Var(X)

6. a) If the joint d.f. of (X, Y) is given by

$$F(X, Y) = (1 - e^{-x})(1 - e^{-y}); \; x > 0, \; y > 0$$

$$= 0 \quad , \qquad \text{otherwise}$$

Find $P(1 < X < 3, \; 1 < Y < 2)$. **8**

b) State and prove memory-less property of exponential distribution. **7**

B/II/10/2,900

[3880] – 25

M.C.A. (Management Faculty) (Semester – II) Examination, 2010
MT 21 : PROBABILITY AND COMBINATORICS (Old)
(2005 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. a) State the Pigeonhole principle and solve the following problem :

   Among 100 people, at least how many would have been born in the same month ? **6**

   b) Determine the discrete numeric function of generating function **6**

$$A(z) = \frac{1}{4 - 4z - z^2}$$

   c) In a random arrangement of the letters of the word 'STATISTICS', find the probability that all the vowels come together. **6**

   d) Obtain mean and variance of Binomial distribution. **6**

   e) A certain item is manufactured by three factories F_1, F_2, F_3. It is known that F_1 turns out twice as many items as F_2 and that F_2 and F_3 turn out the same number of items during a specified period.

   It is also known that 2% of the items produced by F_1 and F_2 are defective, while 4% of those manufactured by F_3 are defective. One item is choosen at random from the lot of items produced by those factories together and found to be defective. Find the probability that it is produced by F_1. **6**

2. a) A monthly balance on the bank account of credit card holders is assumed to be normally distributed with mean Rs. 5,000 and standard deviation Rs. 1,000. Find the proportion of credit card holders with balance :

   i) Over Rs. 6,500

   ii) Between Rs. 4,000 and Rs. 6,000. **8**

P.T.O.

b) Suppose the bivariate continuous r.v. (X, Y) has the joint p.d.f.

$$f(x,y)=\begin{cases} x^2+\dfrac{xy}{3} & ;\ 0\le X\le 1,\ 0\le Y\le 2 \\ 0 & ;\ \text{o.w.} \end{cases}$$

Compute :

i) $P(Y < X)$ ii) $p(X+Y\ge 1)$. **6**

c) Find the number of integer solution of equation $x_1 + x_2 + x_3 = 28$ subject to the conditions, $3\le x_1\le 9,\ 0\le x_2\le 8,\ 7\le x_3\le 17$. **6**

3. a) Obtain mean and variance of Gamma distribution. **8**

b) Following is the joint p.m.f. of (X, Y) :

Y \ X	1	2	3
1	$\frac{5}{27}$	$\frac{4}{27}$	$\frac{2}{27}$
2	$\frac{1}{27}$	$\frac{3}{27}$	$\frac{3}{27}$
3	$\frac{3}{27}$	$\frac{4}{27}$	$\frac{2}{27}$

Find :

i) Marginal probability distribution of X and Y

ii) Conditional probability distribution of Y given X = 2

iii) Conditional probability distribution of X given Y = 3. **6**

c) Find coefficient of $x^2y^4z^3$ in the expansion of $(x - 2y + 3x)^9$. **6**

4. a) If a random variable has p.d.f. **8**

$$f(x)=\frac{c}{x}\ ;\quad 1<x<3$$

then find :

i) C ii) E(X) iii) Var(X).

b) Solve the recurrence relation,

$a_{n+2}+2a_{n+1}+a_n=9*2^n$ for n = 0 given $a_0 = 2$, $a_1 = 4$. **6**

c) Define moment generating function and cumulant generating function with the properties. **6**

[3880] – 301

M.C.A. (Sem. – III) (Mgt. Faculty) Examination, 2010
(IT 31) 301 : WEB TECHNOLOGY
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Q. **1** and Q. **8 compulsory**.*
*2) Solve **any 5** from Question **2** to **7**.*
*3) Figures to the **right** indicate **full** marks.*

1. Describe features of XML ? Explain SOAP. **10**

2. Explain ASP session object with examples. **10**

3. Design a form to accept International Conference Registration details from participants and validate any five fields using Java Script (Assume suitable structure). **10**

4. What is a style sheet ? Explain margin, font and background properties with examples. **10**

5. Write ASP code to accept visitors details along with in-time and out-time. Assume suitable structure and insert information in database. **10**

6. Explain array and date objects in VB script. **10**

7. Explain (Java script) DOM object with suitable examples. **10**

8. Write short notes on (**any 2**) : **10**
   a) Web Hosting
   b) Embedded CSS
   c) String object in Java Script.

B/II/10/3,170

[3880] – 304

M.C.A. (Management Faculty) (Semester – III) Examination, 2010
IT – 34 : 304 : ADVANCED DATABASE MANAGEMENT SYSTEM
(2008 Pattern) (New)

Time : 3 Hours | Max. Marks : 70

***Note** : 1) Question No. **8** is **compulsory**.*
*2) Solve **any five** questions from **1** to **7**.*
*3) Figures at the **right** indicate marks.*

1. a) What is OLAP ? What are 3 types of OLAP servers ? **(6)**
   b) Outlier analysis in Data mining. **(4)**

2. a) Explain various concurrency control approaches in DDBMS. **(6)**
   b) Explain deadlock handling in DDBMS. **(4)**

3. a) Explain data warehouse architecture in detail. **(6)**
   b) Write note on Apriori algorithm. **(4)**

4. a) Explain DTD with example. **(6)**
   b) What are various XML parsers ? **(4)**

5. a) Compare RDBMS, OODBMS and ORDBMS. **(6)**
   b) Explain in brief Parallel database architecture. **(4)**

6. a) Explain text mining with example. **(6)**
   b) Explain distributed catalog manager. **(4)**

7. a) Compare with example homogeneous and heterogeneous databases. **(6)**
   b) Explain data cubes. **(4)**

8. Write short note on **(any four)** : **(5×4=20)**
   a) XML name space
   b) KBS
   c) Machine learning
   d) Mobile databases
   e) Data preprocessing.

[3880] – 32

M.C.A. (Semester – III) (Management Faculty) Examination, 2010
IT - 32 : COMPUTER NETWORKS
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. a) Describe Ethernet in terms of standards, frame formats and specifications. **10**
   b) Explain different switching techniques in detail. **10**
2. Compare the Go-Back N ARQ protocol with selective Repeat ARQ. **10**
3. Explain DHCP in detail. Explain scope resolution in DHCP with example. **10**
4. What is firewall ? Explain policies and rules of firewall. **10**
5. Explain in detail the differences between POP 3 and IMAP 4. **10**
6. Explain Guided and Unguided Media in detail. **10**
7. Write short note on (**any four**) : **20**
   1) CSMA/CD
   2) Application layer
   3) Digital signature
   4) IPv_4 Vs IPv6
   5) ATM
   6) SMTP.

B/II/10/220

[3880] – 34

M.C.A. (Mgmt. Faculty) (Semester – III) Examination, 2010
IT – 34 : OBJECT ORIENTED PROGRAMMING USING C++
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

***Notes** : 1) Q. **1** is **compulsory**.*
*2) Figures to **right** indicate **full** marks.*

1. Explain the output of following **(any five)** : **(5×2=10)**

a) int a = 10;

```
void main ( )
    {
        int a = 20;
        {
        int a=30;
        cout < < a < < :: < < :: :: a;
        }
    }
```

b) Write C++ syntax for :
   i) declaring a pointer to a struct
   ii) boolean not

c) Explain the difference between ' \ n' and endl

d) char *p = "abcde";
   char q [ ] = "ABCDE";
   Then which is true and why ?
   i) p = q;
   ii) q = p;

P.T.O.

e) main( )
```
{
char s [ ] = “man”;
int i;
for ( i = 0; s[i]; i++)
cout < < “ \ n” < < s[i] < < * (s + i) < < * (i + s) < < i[s];
{
```

f) #include<iostream.h>
```
void main()
{
char *p = “hello”;
char * q = p;
cout < < p < < endl < < q;
q = “goodbye”;
cout < < endl < < p << endl < < q;
}
```

2. Answer **any four** : **(4×5=20)**

a) Explain scope resolution operator :: in c++ with suitable example.

b) What are the rules of overloading the operators ?

c) Explain friend with suitable example.

d) Write a short note on pointers to data members and pointer to objects.

e) What are containers ? Compare its type.

3. Answer **any two** : **(2×10=20)**

a) Create a class cricket having data members player ID, player name, no. of inning, total runs and number of time not out. Add necessary member functions in it. Write a c++ program to accept the complete information of player from the user. Calculate its average of runs and display all information. Overload insertion << and extraction >> operators to accept and display information. Create array object for 11 players of team.

b) Write a C++ program to read the text file character by character, check the character if it is vowels then write it into the file VOWEL and if it is consonants then write it into CONO, open these two files for write purpose.

c) Create a class student with data members Roll no., Name, Marks of 4 subjects. Also ass proper member functions to it, to accept and display data. Calculate the total marks, percentage and result of each student and write this complete data for 10 students in the file STUD in binary format. Read the file STUD and display the information.

4. Answer **any four** : **(4×5=20)**

a) Define Exception. Write a program to accept the string and display length of string. Handle following exception.

1) Zero length string

2) Excess length string

b) Explain difference between public, private and protected class with C++ code.

c) What is generic programming ? Write a program to swap two integer values using template.

d) Write a program to design a class for addition of 2 objects using friend function.

e) Write a program to demonstrate invocation of constructor and destructor.

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[3880] – 35

M.C.A. (Semester – III) (Management Faculty) Examination, 2010
IT – 36 : OBJECT ORIENTED ANALYSIS AND DESIGN
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Question **1** is **compulsory**.*
*2) Answer **any five** from the **remaining**.*
*3) Mention the assumptions made for solving **case study**.*

1. a) The University research cell publishes research papers on subjects like mathematics, management and computers. Each paper may have more than one author. Reviewers review the papers as per their subject specialization. The selected papers are published in the journals. The journals are identified by publisher details, title, volume and issue number. The publisher enters his details along with the ISSN number of the journal. One issue of the journal contains many papers on various subjects. The review report is sent by the research cell to the authors giving the remarks from the reviewers. The publisher sends the issue of the journal to the author in which his paper is printed.
   i) Draw class diagram.
   ii) Draw use case diagram. **(15)**

   b) Explain aggregation and composition with example. **(5)**

2. Explain the four phases of RUP with suitable example. **(10)**

3. a) Draw a sequence diagram for booking an air ticket for you and your friend. **(5)**

   b) Differentiate between OOAD and SSAD. **(5)**

4. Explain with the help of example Grady Booch's methodology for Object Oriented Design. **(10)**

P.T.O.

5. Draw the state transition diagram for vending machine. **(10)**

6. Draw an activity diagram for arranging the college orchestra in your annual gathering. **(10)**

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

   a) Categories of pattern

   b) Multitiered architecture

   c) CRC

   d) Test cases guidelines.

[3880] – 401

M.C.A. (Management Faculty) (Sem. – IV) Examination, 2010
(IT– 41) 401 : JAVA PROGRAMMING
(2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. Solve the following questions : **10**
   a) Explain throw and throws clauses.
   b) Explain Dynamic Method Dispatch.
   c) What is Daemon Thread ?
   d) Explain Action Listener.
   e) What is Boxing and Unboxing ?

2. Write a Java socket program for client-server chatting application. **10**

3. Write a JDBC application for registration of participation in National Level Seminar. (Assume Suitable Table Structure). **10**

4. Write RMI application to invoke sales commission calculation method. Accept sales amount from client and display commission on server. If sales is between 5 – 50 lakh commission is 10% of sales amount. For above commission is 15%. **10**

5. Write a program to accept senior citizen name and age. Store the contents in text file. Throw invalid age exception for age below 60. **10**

6. Write an applet to display scrolling image in an applet window using thread. **10**

7. Design GUI based JDBC application to search and display employee details from given empid. (assume suitable table structure) **10**

8. Write short notes on **any two** : **10**
   a) MVC Architecture
   b) Marshalling and Unmarshalling
   c) Random Access File Class.

[3880] – 404

M.C.A. (Management Faculty) (Semester – IV) Examination, 2010
(MT-41) 405 : OPTIMIZATION TECHNIQUES (2008 Pattern) (New)

Time : 3 Hours Max. Marks : 70

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

1. a) The data regarding a project with activities A to I are given below : **9**

Activity	Immediate Predecessor	Time (Weeks)
A	–	3
B	A	2
C	A	4
D	A	4
E	B	6
F	C, D	6
G	D, F	2
H	D	3
I	E,G,H	3

i) Draw the project network and find critical path.
ii) Also find total, free and independent floats for each activity.

b) Solve the integer programming problem by fractional cut method : **9**

Max : $Z = 5x_1 + 7x_2$

Stc. : $-2x_1 + 3x_2 \leq 6$

$6x_1 + x_2 \leq 30$

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

P.T.O.

c) On an average, 6 customers reach a telephone booth every hour to make calls. Assuming that arrivals follow Poisson distribution with 4 customers in a 30-minute time period, **6**

i) find the probability that the telephone booth will be idle.

ii) what is the probability that a caller has to wait for more than 5 minutes outside the telephone booth ?

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

	1	**2**	**3**	**4**	**5**	**6**
A	12	10	15	22	18	8
B	10	18	25	15	16	12
C	11	10	3	8	5	9
D	6	14	10	13	13	12
E	8	12	11	7	13	10

2. a) Solve the LPP by 2-phase simplex method. **8**

Max : $Z = 2x_1 + 3x_2 + 4x_3$

Stc. : $3x_1 + x_2 + 6x_3 \leq 600$

$2x_1 + 4x_2 + 2x_3 \geq 480$

$2x_1 + 3x_2 + 3x_3 = 540$

$x_1, x_2, x_3 \geq 0.$

b) A machine costs Rs. 500. Operation and maintenance costs are zero for the first year and increase by Rs. 100 every year. If money is worth 5% every year, determine the best age at which the machine should be replaced. The resale value of the machine is negligibly small. What is the weighted average of owning and operating the machine ? **6**

c) Explain the inventory model with shortages. **6**

3. a) Obtain initial solution by VAM and find the optimal solution by MO-DI method for the following transportation problem. **8**

		Depot A	B	C	D	E	Tons
Manufacturing centre	P	4	1	3	4	4	60
	Q	2	3	2	2	3	35
	R	3	5	2	4	4	40
		22	45	20	18	30	

b) An aircraft uses rivets at an approximately constant rate of 5000 kg per year. The rivets cost Rs. 20 per kg. and the company personnel estimate that it costs Rs. 200 to place an order and the carrying cost of inventory is 10% per year. Find :

i) Economic lot size

ii) Minimum annual inventory cost. **6**

c) Explain different types of replacement policies. **6**

4. a) The normal and crash duration with cost for various activities is given below : **8**

Activity	Time (days)		Cost (Rs.)	
	Normal	Crash	Normal	Crash
1 – 2	6	2	4,000	12,000
1 – 3	8	3	3,000	6,000
2 – 4	7	4	2,800	4,000
3 – 4	12	8	9,000	11,000
4 – 6	3	1	10,000	13,000
5 – 6	5	2	4,900	7,000
3 – 5	7	3	1,800	5,000
5 – 7	11	5	6,600	12,000
6 – 7	10	6	4,000	8,400

Indirect cost of the project is Rs. 2,000 per day.

i) Draw the network of the project.

ii) Find the normal duration and cost of the project.

iii) Find the optimum duration and cost of the project.

b) Express the following assignment problem as LPP : **6**

Machine\ Job	J_1	J_2	J_3	J_4	J_5
M_1	7	5	9	8	11
M_2	9	12	7	11	10
M_3	8	5	4	6	9
M_4	7	3	6	9	5
M_5	4	6	7	5	11

c) Explain different time estimates in PERT with illustration. **6**

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[3880] – 407

M.C.A. (Management Faculty) (Sem. – IV) Examination, 2010
413 : INFORMATION SYSTEM AUDIT AND GOVERNANCE
(2008 Pattern) (New) (Elective)

Time : 3 Hours | Max. Marks : 70

Instructions : *1) Question no. **1** is **compulsory**.*
*2) Attempt **any 5** from Q. **2** to Q. **7**.*

1. Answer the following : **20**

   a) Explain physical access control in IS Audit.

   b) Govt. of India planning to implement online voting system for any election of our country.

   As been an IT Auditor – Identify the possible threats and input control for such system.

2. What is e-Governance ? **10**

3. What are different evidence collections techniques used by auditor ? Explain. **10**

4. What are the risk involved in IT-system company ? How they will handle it ? **10**

5. Explain role of DA and DBA in auditing. **10**

6. Explain the term Network Audit with an example. **10**

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

   a) ISACA standards

   b) Digital signature

   c) Security issues in e-commerce

   d) Management control.

B/II/10/670

[3880] – 408

M.C.A. (Mgt. Faculty) (Semester – IV) Examination, 2010
BME-414 :Elective – COLLABORATIVE MANAGEMENT (New)
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Attempt* ***any five*** *questions.*
2) Support your answers with ***relevant*** *examples.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. a) Define strategy and strategic management. **14**

   b) Explain the following terms :

      i) Vision,

      ii) Mission,

      iii) Objectives,

      iv) Purpose and

      v) Goals.

2. What is Environment Threat and Opportunity Profile (ETOP) ? What is its role in strategic analysis ? Explain with relevant examples. **14**

3. Write short note on **any three** : **14**

   a) Value chain.

   b) Diversification.

   c) Core competencies.

   d) McKinsey's 7s frameworks.

   e) Porter's five forces framework.

4. Write a detail note on the nature, importance of strategic evaluation. **14**

P.T.O.

5. What are stakeholders of an organization ? What roles do different stakeholders play in strategic issue identification and resolution ? **14**

6. Explain different types of growth strategies. Why many Indian companies are acquiring global companies ? What are the issues involved in post acquisition scenario ? **14**

7. Write short notes on **any two** : **14**

   a) Synergy and dysergy

   b) Project implementation

   c) Symptoms of malfunctioning of strategy

   d) GE 9 cell model.

[3880] – 44

M.C.A. (Management Faculty) (Semester – IV) Examination, 2010
MT 41 : 404-OPTIMIZATION TECHNIQUES
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. a) The details of a project consisting of activities are summarized in table below : **(9)**

Activity	Immediate Predecessors	Duration (days)		
		t_o	t_m	t_p
A	–	6	7	8
B	–	1	2	9
C	–	1	4	7
D	A	1	2	3
E	A, B	1	2	9
F	C	1	5	9
G	C	2	2	8
H	E, F	4	4	4
I	E, F	4	4	10
J	D, H	2	5	14
K	I, G	2	2	8

i) Draw the Project Network.
ii) Find the critical path and expected project duration.
iii) What is the probability of completing the project on or before 25 weeks ?

P.T.O.

b) Solve the Integer Programming Problem by Gomory's cutting plane method. **(9)**

Max : $Z = 10x_1 + 12x_2$

Subject to : $5x_1 + 2x_2 \leq 3$

$x_1 + 2x_2 \leq 2$

$x_1, x_2 \geq 0$ and integers.

c) A television repairman finds the time spent on his jobs has an exponential distribution with a mean of 30 minutes. If he repairs sets in the order in which they came in, and if the arrival of sets follows a Possion distribution approximately with an average rate of 10 per 8-hour day.

Calculate :

i) TV repairman's idle time each day.

ii) Expected waiting time for a TV in the shop. **(6)**

d) A department has five employees with five jobs to be performed. The time (in hours) each men will take to perform each job is given in the effectiveness matrix. How should the jobs be allocated, one per employee, so as to minimize the total man-hours ? **(6)**

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

2. a) The following table shows the costs of transporting one unit from warehouse to the customer. Find the transportation cost. **(9)**

		Warehouse				
		a	b	c	d	**Supply**
Customer	A	8	9	6	3	18
	B	6	11	5	10	20
	C	3	8	7	9	18
Demand		15	16	12	13	

b) The following mortality rates have been observed for a certain type of fuse : **(6)**

Week	1	2	3	4	5
% failing by end of week	5	15	35	57	100

There are 1000 fuses in use and it costs Rs. 5 to replace an individual fuse. If all fuses were replaced simultaneously it would cost Rs. 1.25 per fuse. It is proposed to replace all fuses at fixed intervals of time, whether or not they have burnt out and to continue replacing burnt out fuses as they fail. At what interval the group replacement should be made ? Also suggest which policy, individual or group replacement should be adopted ?

c) Define :
i) Degenerate solution ii) Unbounded solution. **(5)**

3. a) Solve by 2-phase, the following LPP : **(9)**

Min : $Z = 12x_1 + 18x_2 + 15x_3$

Subject to : $4x_1 + 8x_2 + 6x_3 \geq 64$

$3x_1 + 6x_2 + 12x_3 \geq 96$

$x_1, x_2, x_3 \geq 0.$

b) The production department for a company requires 3600 kg of raw material for manufacturing a particular item per year. It has been estimated that the cost of placing an order is Rs. 36 and the cost of carrying inventory is 25% of the investment in the inventories. The price is Rs. 10 per kg. **(6)**
Calculate :
i) Optimal lot size ii) Frequency of order
iii) Minimum yearly total inventory cost.

c) Explain the replacement model where value of money changes and machines worn out gradually. **(5)**

4. a) Consider the details of the project shown below. The indirect cost of the project is Rs. 130 per day. Find the crashed duration of the project with optimal cost. **(9)**

Activity	Immediate Predecessors	Normal		Crash	
		Time	Cost	Time	Cost
A	–	6	600	4	750
B	A	5	400	4	450
C	A	6	1200	3	1650
D	A	7	1000	4	1360
E	B	10	500	8	550
F	C, E	5	800	4	910
G	D	4	1500	3	1660

b) Describe the elements of queuing system. **(6)**

c) Express the following transportation problem in the form of LPP. **(5)**

		Destination				
		D_1	D_2	D_3	D_4	Supply
Source	O_1	15	24	11	12	5000
	O_2	25	20	14	16	4000
	O_3	12	12	22	13	7000
	Demand	3000	2500	3500	4000	

B/II/10/350

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M.C.A. (Semester – IV) (Mgt. Faculty) Examination, 2010
BME – 5 : DECISION SUPPORT SYSTEMS (Elective)
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Q.* ***1*** *and Q.* ***8*** *are* ***compulsory****. Out of the remaining attempt* ***any 5*** *questions.*
2) ***Full*** *marks are indicated to the* ***right*** *of* ***each*** *question.*
3) ***All*** *questions carry* ***equal*** *marks.*

1. Define DSS. Explain the characteristics of DSS. **10**

2. Discuss Supply Chain Management (SCM) and its benefits. **10**

3. Define ESS. Explain the characteristics and capabilities of ESS. **10**

4. What are the various tools that are used for DSS development ? How would you choose a DSS development tool ? **10**

5. Explain the various component of DSS by giving a schematic view of DSS. **10**

6. How do transactional systems differ from data warehousing systems. **10**

7. Will businesses integrate EIS and DSS ? Explain the benefits/problems associated with this. **10**

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

   1) MRP

   2) Business Intelligence

   3) Knowledge Based Expert Systems.

B/II/10/200

[3880] – 502

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
IT 52 : SOFTWARE IT PROJECT MANAGEMENT
(2008 Pattern)

Time : 3 Hours Max. Marks : 70

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

1. a) You are required to give cost estimation for the project of size 32,000 LOC. **6**

   b) Define CPM/PERT. **4**

2. Why change control is necessary ? Explain structured change control process. **10**

3. What is maintainability ? Discuss various maintainability metrices. **10**

4. "Testing is crucial phase in Project" Comment. **10**

5. a) Explain IT infrastructure management. **5**

   b) How FPA is useful for cost estimation ? **5**

6. What do you mean by a project ? How S/W projects are unique in the characteristics ? **10**

7. "User is very important in Project Management" Comment. **10**

8. Write short note on (**any two**) : **10**
   i) Items of S/W configuration Management.
   ii) Tools for S/W Project Management.
   iii) Activities in SQA.
   iv) Acceptance testing.

B/II/10/2,805

[3880] – 506

M.C.A. (Management Faculty) (Semester – V) Examination, 2010
ITE 3 : MOBILE WIRELESS COMPUTING (Elective)
(2008 Pattern)

Time: 3 Hours Max. Marks: 70

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

1. a) Define the following terms (**any five**) : **10**
   i) BSS ii) Frame Error Rate
   iii) UMTS iv) MSC
   v) SIM vi) WTP

   b) What is WAP Gateway ? What are its functions ? Explain. **10**

2. Explain case-of-address mechanism used in mobile IP. **10**

3. Explain the features of wireless networks. What are the advantages and disadvantages of wireless networking ? **10**

4. What is handoff ? How do you perform handoff during roaming ? Explain. **10**

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

   b) Explain RTS-CTS protocol **5**

6. What is the basic purpose of DHCP ? Name and explain the entities of DHCP. **10**

7. Write short notes (**any four**) : **20**
   a) HIPER LAN
   b) Indirect TCP
   c) BLUE Tooth
   d) Mobile agents
   e) VLR
   f) SPIN.

B/II/10/725

[3880] – 53

M.C.A. (Semester – V) (Management Faculty) Examination, 2010
IT – 53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. A deemed university want to implement e-learning model for distance learning programmes. As a IT consultant do comparative analysis of various e-learning models and suggest suitable e-learning model to university and justify your suggestion. **(15)**
2. Explain various electronic payment methods. How transactions are performed in E-Banking ? **(10)**
3. Explain various models of E-Governance. Which model is successfully implemented in India ? **(10)**
4. Explain various tools for Knowledge Management. **(10)**
5. Explain supply chain management and E-Logistics. **(10)**
6. Explain components of Embedded system with their functionality. **(10)**
7. Write short notes **(any three)** : **(3×5=15)**
   a) RFID
   b) GPS
   c) ECS
   d) Digital Signature
   e) BCP.

B/II/10/225

[3880] – 54

M.C.A. (Sem. – V) (Management Faculty) Examination, 2010
BM – 51 : SOFTWARE PROJECT MANAGEMENT
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

***Note** : 1) Que. **1** and Que. **8** are **compulsory**.*
*2) **Assume** suitable data **if required**.*
*3) Solve **any five** from Que. **2** to Que. **7**.*

1. a) Explain the reasons for project failure. **5**

   b) Draw network diagram for the following project activities. **10**

Activity	Predecessor	Duration (Days)
A	–	2
B	A	3
C	–	3
D	C	2
E	D, J	3
F	E, B	2
G	F	2
H	–	4
J	H	2

   i) Find critical path.

   ii) If activity D takes 5 days, what is impact on project schedule.

2. What do you mean by "Resource Planning" and explain different types of resource used in S/W project. **8**

3. Write objective of Formal Technical Review and what it includes. **8**

4. What do you mean by repository and explain its role in software configuration management. **8**

P.T.O.

5. What are different software quality standard ? Explain in detail SEI-CMM and its significance with the software industry. **8**

6. Explain recruitment process of IT personnel. **8**

7. Explain different types of testing and what its role in project. **8**

8. Write short note on (**any 3**) : **15**

   a) User role in Project Management

   b) Team Models

   c) Change Control

   d) MS-Project.

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M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
ITE – 1 : DISTRIBUTED DATABASE MANAGEMENT SYSTEMS
(2005 Pattern) (Old)

Time : 3 Hours | Max. Marks : 70

Note : *1) Question No. **7** is **compulsory**. Solve **any 5** from remaining.*
*2) Figures to the **right** indicate **full** marks.*

1. Discuss in detail the problem areas in DDBMS environment. **10**
2. Explain peer-to-peer distributed systems architecture. **10**
3. Explain various distribution design issues. **10**
4. Explain the generic layering scheme for distributed Query processing. **10**
5. What is Query optimization ? Explain the distributed query optimization Algorithms. **10**
6. Explain concurrency control for distributed DBMS. **10**
7. Write short notes (**any 4**) : **(4×5=20)**
   1) Deadlock management
   2) Characteristics of transactions
   3) Object clustering
   4) Mobile DBMS
   5) Reliability techniques and protocols
   6) Vertical fragmentation.

B/II/10/140

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M.C.A. (Mgt. Faculty) (Semester – V) Examination, 2010
ITE2 : ARTIFICIAL INTELLIGENCE
(2005 Pattern) (Old)

Time: 3 Hours Max. Marks: 70

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

1. a) Define the term Artificial Intelligence (AI) and discuss it in detail with respect to the traveling-salesman problem. **10**

   b) How the problem reduction and AND-OR graphs can be used as problem solving tools ? Explain in detail with appropriate examples. **10**

2. Explain in detail the min-max search procedure used in game playing along with an appropriate example. **10**

3. a) Formalize the monkey-banana problem using predicate logic. **5**

   b) Prove that the monkey can reach the bananas using resolution proof. **5**

4. Represent the following statement using conceptual dependency model : "India challenged Australia with better performance in cricket". **10**

5. Explain in brief the following sub-tasks involved in natural language understanding : **10**

   i) Signal processing ii) Syntactic analysis
   iii) Semantic analysis iv) Pragmatics

6. Construct a script for going to a movie, from the viewpoint of the movie goers. **10**

7. Write short notes on **any two** of the following : **10**

   a) Forward Vs Backward reasoning

   b) A* Algorithm

   c) Architecture of an expert-system.

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M.C.A. (Semester – V) (Management Faculty) Examination, 2010
ITE6 : HUMAN COMPUTER INTERFACE
(2005 Pattern) (Old)

Time : 3 Hours Max. Marks : 70

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

1. A company want to maintain customer data in CRM system. A data entry form is to be design to acquire customer data. Design interactive data entry form. Explain the design principles and methodology used, human factors considered for this design. How usability will be tested for this design ? **(20)**

2. Explain phase search and multimedia search design in a website. **(10)**

3. Explain principles of documentation design. How printed manuals are designed ? **(10)**

4. a) Explain speech recognition devices. State problems associated with these devices. **(5)**

   b) Explain participatory design process. **(5)**

5. Explain importance of icons and images in dialog design. How presentation sequence is important for icons and images ? **(10)**

6. a) Explain guidelines for design of effective error messages. **(5)**

   b) Explain object action interface principles and rules. **(5)**

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

   a) Accessibility tests

   b) Virtual environments

   c) On-line documentation design

   d) Information virtualization

   e) Hypertext and hypermedia.

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[3880] – 63

M.C.A. (Semester – V) (Mgt. Faculty) Examination, 2010
ITE – 9 : PROGRAMMING LANGUAGE PARADIGMS
(2005 Pattern) (Old)

Time : 3 Hours | Total Marks : 70

***Note** : 1) Figures to the **right** indicate **full** marks.*
*2) Q. No. **7** is **compulsory**.*
*3) Solve **any 5** from remaining.*

1. Explain Stack and Heap based storage management. **10**
2. Discuss the process of program interpretation of execution. **10**
3. Explain variations in sub-program control. **10**
4. Write in detail syntactical elements of language. **10**
5. Explain layers of virtual computer for any program. **10**
6. What is Program Environment ? Discuss effect of environment language design. **10**
7. Short notes (**any 4**) : **20**
   1) Attributes of good language
   2) Firmware computer
   3) Arithmatic and non-arithmatic expression
   4) Embedded systems
   5) Features of C++ Programming.

B/II/10/265

[3880] – 7

M.C.A. (Management Faculty) Examination, 2010
ITE – 6 : IMAGE PROCESSING (2002 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Solve* ***any four*** *questions from* ***1*** *to* ***5****.*
2) ***Assume*** *suitable data* ***wherever*** *necessary.*
3) ***Draw*** *suitable diagram* ***wherever*** *needed.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

1. a) Explain Dilation and Erosion morphological operators. **(10)**
   b) Discuss the adaptive median filter to restore an image in the presence of noise only. **(10)**

2. a) Explain smoothing frequency domain filters. **(10)**
   b) What is histogram of an image ? Explain histogram equalization. **(10)**

3. What is the need for image segmentation ? Discuss any three segmentation algorithm in detail. **(20)**

4. Define Edge detection. Explain various edge detection techniques of an image. **(20)**

5. Write short notes on : **(5×4=20)**
   a) Geometric mean
   b) Harmonic mean
   c) Median
   d) Directional smoothing.

B/II/10/100