

3rd Oct. 2006

MCA- Sem. IV sub. → Management Information System.

CON/4277-06.

BB-3904

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No.1 is compulsory.
 (2) Attempt any four questions from the remaining six questions.
 (3) Pencils should be used only for diagrams.

1. Write short notes on : 20
 (a) OLAP (c) Management by Exception
 (b) GDSS (d) Data Mining.
2. What are the different types of strategies ? Explain. Can a business have more than one strategy ? How are different strategies related to each other ? Explain with reference to a business of your choice, a growth strategy, Marketing strategy, product strategy. 20
3. (a) What is ERP ? What are the benefits of ERP ? What are the steps involved in the implementation of ERP ? 15
 (b) Write a note on "Information : A Quality product". 5
4. (a) A plan without a strong control features is destined to fail. Why ? 10
 (b) Explain the project organization structures and Matrix organization structure with its advantages and disadvantages. 10
5. (a) Explain the role of MIS in : 10
 (i) Normal Management Process
 (ii) Strategic Management Process.
 (b) The manager has a leadership role to play. How can MIS support this ? 10
6. (a) Explain "Simons Model" in decision making. 10
 (b) Distinguish between TOP management plan, middle management plan, and operations management plan in terms of goal scope and content. 10
7. (a) What is data warehouse ? What are the various steps to get data into data warehouse ? 15
 (b) Write a note on IT Audit. 5

- Q1. (a) i. State any five differences in Java and C++. [05]
ii. Advantages of using JavaScript on the client side. [05]
- (b) Write a program to print the following triangle of binary digits [10]
- ```
1
1 0 1
1 0 0 0 1
1 0 0 0 0 0 1
1 0 0 0 0 0 0 0 1
```

- Q2. (a) Write down HTML code to display college registration form, which must include College Logo, College Name, Student Name, Address, Qualification, Gender and other necessary details. Use appropriate HTML components to display these details. [10]
- (b) Write a JavaScript program to implement the following functions: [10]
- Function *Celsius* returns the Celsius equivalent of a Fahrenheit temperature, using the calculation:  $C = 5.0 / 9.0 * (F - 32)$
  - Function *Fahrenheit* returns the Fahrenheit equivalent of a Celsius temperature, using the calculation:  $F = 9.0 / 5.0 * C + 32$

- Q3. (a) Explain how Exceptions are handled by using try, catch, throw, throws and finally keywords along with example. [10]
- (b) What is Method overloading? Explain with an example. [10]

- Q4. (a) Explain byte streams and Unicode character stream. Write stream benefits also. [10]
- (b) Write a program to explain the multithreading with the use of multiplication tables. Three threads must be defined. Each one must create one multiplication table; they are 5 table, 7 table, 13 table. [10]

- Q5. (a) Explain event delegation model in detail. [10]
- (b) Explain applet architecture and applet skeleton. [10]

- Q6. (a) What is a XSQL servlet ?  
Explain how data transfer takes place between the client and the servlet. [10]
- (b) Explain CORBA architecture. [10]

- Q7. (a) Write a short note on JavaBeans. [10]
- (b) Using JDBC API write a program to create table namely Customer ( CustId, CustName, Address). Insert atleast 5 records in the table and display it. [10]

N.B. :- Question No 1. Compulsory.

Answer any four questions out of remaining six question.

Figures to be right indicated marks.

- 1.A) What do you understand by software configuration management ? Describe the change control process for a software development project 10
- B) State & define McCall's quality factor for software product. 10
- 2.A) Write a program in PDL to calculate the sum and average of 10 numbers. Draw the flow graph & derive three tests for it. 10
- B) What is meant by the term software metrics? Compute function point value for a project with the following information domain characteristics : 10
  - Number of User input :32
  - Number of user :60
  - Number of user inquiries :24
  - Number of files :8
  - Number of files :8
  - Number of external interfaces :2

Assume that all complexity adjustment values are average.
- 3.A) List three major types of risks in a S/W project . Suppose you are the project manager , enumerate the major steps you will take to manage there risks. 10
- B) How is the integration testing done? Different between top down and bottom up approach testing. 10
- 4.A) What is meant by software reliability. How is measured in the term of MTBF,MTTF & MTTR. 10
- B) Explain in detail software maintenance & Estimation cost. 10
- 5.A) Explain SEI Capability Maturity Model. 10
- B) State the four p's involved in software management. 10
- 6.A) Show the common process framework for software process. 10
- B) Partition the Safe Home Sequirity System s/w : Show horizontal & Vartical partitioning . Draw the context level 1 DFD, Control Flow Diagram (CFD) & state transition diagram for the above software. 10
- 7. Write short note on any four : 20
  - (a) RAD model for software process
  - (b) Make Buy Decision
  - (c) Formal Technical Review
  - (d) Degree of Rigor .

- Note: 1) Question No. 1 is compulsory.  
 2) Answer any four from remaining six.  
 3) All questions carry equal marks.

Q.1 A) Draw a use case diagram for Online Human Resource (HR) system. (8)  
 B) Define the following terms: (12)

- i) UML
- ii) Actors
- iii) Use Cases
- iv) Swimlanes

Q.2 A) Differentiate between: (10)

- i) Specialization and Aggregation
- ii) Ternary and Reflexive Associations
- iii) Method Overriding and Polymorphism

B) Explain the extension mechanisms used in UML notation. (10)

Q.3 A) Describe the benefits and drawbacks of following approaches: (10)

- i) Abstraction
- ii) Noun Phrases

B) Write short notes on: (10)

- i) Class Generalization
- ii) Class Specialization
- iii) Coupling

Q.4 A) How you show iteration and conditional messaging & branching in collaboration diagram. (8)

B) Write a scenario for Object Creation and Destruction in sequence diagram.

Explain the following OOA Methodologies: (8)

C) Explain Class Cards? How are they useful? (4)

Q.5 A) Draw an activity diagram to model flow for goods returning system. (8)

B) Explain Bottom-Up Design Approach of a system in detail. (12)

Q.6 A) Explain Extension versus Reuse. (6)

B) Explain three tiered architecture. (6)

C) How objects migrate between nodes. (8)

Q.7 A) Explain Object synchronization. (8)

B) Explain Reuse of Frameworks with respect to: (12)

- i) White Box Framework
- ii) Black-Box Framework

- N.B. (1) Q. No. 1 is compulsory.  
 (2) Attempt any four from the remaining Q.Nos. 2 to 7.  
 (3) All questions carry equal marks.

|    |                                                                                                                                                              |    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 1. | a.                                                                                                                                                           |    |
|    | i.                                                                                                                                                           | 5  |
|    | What "Graphic Primitives" are generally provided in Graphics Package.                                                                                        |    |
|    | ii.                                                                                                                                                          | 5  |
|    | Compare Parallel and Perspective Projection                                                                                                                  |    |
|    | b.                                                                                                                                                           | 5  |
|    | i.                                                                                                                                                           | 5  |
|    | Compare and contrast Vector and Raster Graphics..                                                                                                            |    |
|    | ii.                                                                                                                                                          | 5  |
|    | List the steps used for designing an Animation sequence.                                                                                                     |    |
| 2. | a.                                                                                                                                                           | 12 |
|    | Discuss the logic of Midpoint Circle generation algorithm. Give the algorithm for a circle at the origin and radius R units.                                 |    |
|    | b.                                                                                                                                                           | 8  |
|    | Write a pseudo-code procedure to implement the Boundary-Fill algorithm in the text in its basic form, using the 4-connected definition for region pixels.    |    |
| 3. | a.                                                                                                                                                           | 10 |
|    | Rasterise the line whose end points are A(-1,6) B(-8,8) using DDA Algorithm.                                                                                 |    |
|    | b.                                                                                                                                                           | 10 |
|    | Perform a 45 °rotation of triangle A(0,0), B(1,1), C(5,2) about the origin                                                                                   |    |
| 4. | a.                                                                                                                                                           | 10 |
|    | Discuss the major steps of Cohen-Sutherland algorithm for 2D line Clipping against a rectangle clipping window whose sides are aligned with coordinate axis. |    |
|    | b.                                                                                                                                                           | 10 |
|    | Discuss the Scan-Line Polygon Fill Algorithm                                                                                                                 |    |
| 5. | a.                                                                                                                                                           | 15 |
|    | Write a note on Bezier curves. Evaluate the Bezier curves on the following important properties.                                                             |    |
|    | i.                                                                                                                                                           |    |
|    | Control Points                                                                                                                                               |    |
|    | ii.                                                                                                                                                          |    |
|    | Multiple values                                                                                                                                              |    |
|    | iii.                                                                                                                                                         |    |
|    | Axis independence                                                                                                                                            |    |
|    | iv.                                                                                                                                                          |    |
|    | Global or local control                                                                                                                                      |    |
|    | v.                                                                                                                                                           |    |
|    | Order of continuity                                                                                                                                          |    |
|    | b.                                                                                                                                                           | 5  |
|    | i.                                                                                                                                                           |    |
|    | Prove that successive 2D rotations are additive i.e.                                                                                                         |    |
|    | $R(\theta_1) .R(\theta_2) = R(\theta_1 + \theta_2)$                                                                                                          |    |
| 6. | a.                                                                                                                                                           | 12 |
|    | Discuss the Z-Buffer algorithm. How does the Z-Buffer algorithm determine which surfaces are hidden?                                                         |    |
|    | b.                                                                                                                                                           | 8  |
|    | Write a short note on "Reflection"                                                                                                                           |    |
| 7. | Write short notes on any <b>four</b> of the following –                                                                                                      | 20 |
|    | i.                                                                                                                                                           |    |
|    | B-Spline Curves                                                                                                                                              |    |
|    | ii.                                                                                                                                                          |    |
|    | Inside Outside Tests                                                                                                                                         |    |
|    | iii.                                                                                                                                                         |    |
|    | Morphing                                                                                                                                                     |    |
|    | iv.                                                                                                                                                          |    |
|    | Text Clipping                                                                                                                                                |    |
|    | v.                                                                                                                                                           |    |
|    | Input Devices                                                                                                                                                |    |
|    | vi.                                                                                                                                                          |    |
|    | Character Generation                                                                                                                                         |    |

MCA Sem. IV Introduction to Java &  
Web Technology

May, 2006

CUN/1746-06.

BB-6936

( 3 Hours )

[ Total Marks : 100

- N.B. : (1) Question No.1 is compulsory.  
(2) Attempt any four questions from the remaining six questions.

1. (a) Write a java program to sort an array of strings in ascending Alphabetical order. (10)  
(b) Describe the features of Java Language.
2. (a) (i) Advantages of using JavaScript on client side. (10)  
(ii) What are the various types of lists in HTML Pages? Write Code to display them.  
(b) Describe the steps involved in a Java Program in order to get Connectivity to a database .Write a simple program to create a Table in the database. (10)
3. (a) Write a standalone Java program that displays first 20 prime numbers.(10)  
(b) (i) Write a short note on Abstract classes  
(ii) Write a short note on garbage collection. (10)
4. (a) What is Method overloading? Explain in detail with an example (10)  
(b) Write differences between Java and C++. Write different access specifiers in Java. (10)
5. (a)What is object serialization? Explain with an example. (10)  
(b) What is thread synchronization? How is it achieved in Java? (10)
6. (a) What are different layout managers? Explain in detail. (10)  
(b) What are exceptions in java? Explain in short the common Java Exceptions Write a Java program that can manage IOException. (10)
7. (a) What are Servlets? Explain the lifecycle of Servlet? (10)  
(b) (i) Write a short note on EJB ,  
(ii)What is JavaBean? State any three advantages of JavaBean. (10)

# MCA Sem. IV Management Information Systems

May, 2006

CON/1766-06.

BB-6930

( 3 Hours )

[ Total Marks : 100

- N.B. : (1) Question No.1 is compulsory.  
 (2) Attempt any four from remaining six questions.  
 (3) Pencil should be used only for diagrams.

1. Write short notes on any four : 20
  - (i) Strategic planning
  - (ii) Return on investment analysis
  - (iii) IT-Audit
  - (iv) Management by exception
  - (v) Role of MIS.
  
2. (a) What is corporate planning ? Why is it necessary ? Is it long range or short range ? 10  
 (b) What a data warehouse is ? Also explain what star schema is and how are they constructed. Give figures also. 10
  
3. (a) Explain the architecture of Data warehouse. Explain the following terms - 15
  - (i) Metadata
  - (ii) Operational data
  - (iii) Business data
  - (iv) Data Mart.
- (b) What is ERP ? Describe briefly the benefits of ERP. 5
  
4. (a) In the process of development of MIS what is the difference between prototype approach and life cycle approach. 10  
 (b) When it comes to various organisation structures what are the situations when product organisation is chosen and when Matrix organisation is chosen. 10
  
5. (a) Distinguish between Top management plan, Middle management plan and Operation management plan in terms of goal scope and content. 10  
 (b) A plan without a strong control features is destined to fail. Why ? 10
  
6. (a) The manager has a leadership role to play. How can MIS support this role ? 10  
 (b) How does data mining works ? Discuss the different phases in data mining process. 10
  
7. (a) Consider an Organisation of your choice. Develop an organization structure for this. Give reason to justify your answers. 10  
 (b) Does the quality of information improves the knowledge as well as decision making factor of the people. If yes, explain in detail. 10

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- Q. 1 (a) Describe the COCOMO model for project estimation . Describe the way in which it is used for projects with different Complexity? (10)
- (b) The following table indicates various tasks involved in completing a s/w project, the corresponding activities and the estimated effort for each task in programmer months . (10)

| Notation | Activity                       | Effort man-month |
|----------|--------------------------------|------------------|
| T1       | Requirement specks             | 1                |
| T2       | Design                         | 2                |
| T3       | Code actuator interface module | 2                |
| T4       | Code senor interface module    | 5                |
| T5       | Code sensor interface part     | 3                |
| T6       | Code control processing part   | 1                |
| T7       | Integrate and test             | 6                |
| T8       | Write user manual              | 3                |

The precedence relation  $T_i \leq [T_j, T_k]$  implies that the task  $T_i$  must be complete before either task  $T_j$  or  $T_k$  can start. The following precedence relation is know to hold among different tasks :  $T_1 \leq T_2 \leq [T_3, T_4, T_5, T_6] \leq T_7$ . Draw the Gantt chart and the PERT chart representation for the project.

- Q. 2 (a) Explain in detail software maintenance & Estimation of maintenance cost (08)
- (b) How is the integration testing done ? Differentiate between top down and bottom up approach testing. (08)
- (c) State the term measures , metrics & indicator for s/w estimation. (4)
- Q. 3 (a) Show the first level DFD, CFD and state transition diagram for photocopier Software. (10)
- (b) What is mean by Software Reliability. How is measured in terms of MTBF , MTTF, MTR. (10)
- Q. 4 (a) What do you understand by Software Configuration mgmt. Explain in detail the version control mechanism in the configuration management. (12)
- (b) What are fundamental design concept ? Explain any five concept in detail. (08)
- Q. 5 (a) Explain in detail White Box Testing. (10)
- (b) Explain the prototype model in detail & state the circumstances when it is beneficial it use prototype model comparing it with other models (10)
- Q. 6 (a) State & define the Mc Call's Quality factor. How is the quality of a s/w Product found out using FURPS quality factor categorization of the quality factors. (10)
- (b) Explain SEI Capability Maturity Model. (10)
- Q. 7 (a) Five Software Engineering were hired to complete a 26 month project, each with capacity to Write 5000 LOC/year. Due to Communication among the Engineers he productivity is reduced by 300 LOC /year each Communication path among team Members. Two More Members having simjlar coding and communication capacities are added in the last 3 Month of completion of project. Find the percentage of the total reduction in productivity due to communication in the group. (08)
- (b) Write Short note on (12)
- i) Software Requirement Specifications.
  - ii) Software Reengineering:
  - iii) RMMM