Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.TECH(CSE)/SEM-2/MCSE-202/2012

2012

ADVANCED DATABASE MANAGEMENT SYSTEM

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A

Answer any *seven* of the questions 7 × 2 = 14

1. Define the following terms with two or three sentences :

   i) Write in short about Fixed-Length Records, Variable-Length Records with an example for any one of them.

   ii) Explain the term failure with respect to DBMS. What are the different types of failure possible, explain any one of them.

   iii) What are the various methods available, by which one can recover database from failure state, with an example ?

   iv) What is Log based recovery. Explain the same with a suitable example.

   v) Explain the meaning of File Organization. Write any two advantages of the same.

vi) Write Document Type Definition (DTD) in short in reference to XML.

vii) What is the meaning of X Query with respect to XML. Explain with suitable example ?

viii) How XML Data Storage takes place in Relational Databases and Non-relational data Stores ?

ix) Explain the meaning of Object Oriented database with suitable example.

x) What is the meaning of spatial and temporal database with suitable examples.

GROUP - B

Answer any *four* of the following : 4 × 14 = 56

2. Explain Querying and Transformation in XML. Write notes for the following giving suitable example : 4 + 5 + 5

   a) XPath

   b) XSLT (Style Sheet)

3. Explain transaction processing in short defining Single-User versus Multi-user Systems.

   a) Transactions Read and Write Operations.

   b) Concurrency control and associated problems like lost update, incorrect summary problem. 4 + 5 + 5

4. What are the types of schedules that are considered when concurrent transactions are executing ? Explain the following in detail (any two) :

   a) Serial, Nonserial, and Conflict-Serializable Schedules

   b) Testing for Conflict-Serializability of a Schedule

   c) View Equivalence and View Serializability. 4 + 5 + 5

5. What is Data Mining ?

   a) Explain the 4 core data mining tasks. Write one of them in brief with suitable example ?

   b) Explain the Architecture of Data warehousing in detail. What are different components available with Data warehouse. Write the advantages and limitations of Data warehousing. 2 + 4 + 8

6. Write notes on Parallel Databases along with three main architectures. Explain Query Parallelism in short.

   a) Explain the different types of distributed databases systems available. What are the different functions performed by Distributed Database Management System (DDBMS).

   b) Explain the basic concept of distributed databases along with some advantages and drawbacks over Distributed Database Management System (DDBMS).

   3 + 2 + 5 + 4

7. How will you maintain organization data using distributed database system ?

   a) Explain (any two) of the following using the example given below :

EID	Name	Salary	D-ID	D-Name
1	Anand	7000	1	Sales
2	Sumit	8000	2	Account
3	Johan	6500	1	Sales
4	Rahul	5000	2	Account
5	Pravin	9000	3	Marketing

   i) Horizontal fragmentation
   ii) Vertical fragmentation
   iii) Hybrid fragmentation

   b) Data Replication and Allocation. 4 + 5 + 5

8. Explain the following with suitable examples any *three* :

a) Recovery based on Deferred database Modification.

b) Recovery based on Immediate database Modification.

c) Checkpoints

d) Query Optimization. 5 + 5 + 4