CMCS/D-23　　　24036

ADVANCED DATABASE SYSTEMS

MS-20-12

Time : Three Hours]　　　　　　　　[Maximum Marks : 75

Note : Attempt *Five* questions in all selecting any *one* question each from Unit I to Unit IV. Q. No. **1** is compulsory. All questions carry equal marks.

1. (a) What are stored and derived attributes in SQL ?
   (b) Write note on candidate key and secondary key.
   (c) What are views ? How views are created and dropped in SQL ? Write syntax.
   (d) Write the structure of PL/SQL.
   (e) Write a note on DKNF.
   (f) What are the properties of transaction ?
   (g) What is object structure ?
   (h) What is temporal databases ? Write potential applications of temporal databases.　　　**15**

Unit I

2. (a) Define database system. Outline and explain the architecture of Database Management System as proposed by ANSI-SPARC.

(b) What do you mean by relationship role name and recursive relationship ? Discuss degree of relationship. **8+7=15**

3. (a) Outline the symbolic notation used in drawing ER diagram. Write design issues while reducing an ER diagram into relational tables.

(b) Draw comparison between ER and EER model ? How EER model achieves specialization and generalization ? **8+7=15**

Unit II

4. (a) Differentiate between SQL and PL/SQL. Illustrate join operations in SQL.

(b) Write the purpose, syntax and example of SQL alter and SQL drop statement. **8+7=15**

5. (a) What are cursors ? How cursors are declared in PL/SQL ? Write different types of cursors.

(b) Explore the need to learn about relational algebra. Discuss set-oriented operations in relational algebra. **8+7=15**

Unit III

6. (a) Explain normal form based on full and partial functional dependency with an illustration. How is BCNF simpler and stronger that 3NF ? Comment.

(b) Why do we need scanning, parsing and validation in query processing ? Discuss query tree and show equivalence of query tree with example. **8+7=15**

7. (a) How problem of concurrency arises ? Illustrate lost-update problem of concurrency.

(b) Write the potential reasons for transaction failure. Discuss immediate update and deferred update recovery technique. **8+7=15**

Unit IV

8. (a) Differentiate between parallel and distributed databases. Outline and explain shared nothing architecture of parallel databases with advantages and disadvantages.

(b) What are ECA rules ? Discuss the role of triggers in active databases. Give example. **8+7=15**

9. Write notes on the following : **5+5+5=15**
   (a) Spatial databases
   (b) Mobile databases
   (c) XML query