MCA/D-15

DATABASE MANAGEMENT SYSTEMS

PAPER-MCA-14-34

Time Allowed: 3 Hours Maximum Marks: 80

Note: Attempt Five questions in all, selecting at least one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. Differentiate between the following concepts :
   (a) Uncontrolled redundancy and Controlled Redundancy.
   (b) Serial schedule, Non-serial schedule and recoverable schedule.
   (c) Conceptual schema, Internal schema and logical schema.
   (d) Candidate key, foreign key and super key.
   (e) Trivial and Non-Trivial functional dependencies.
   (f) Extension and Intension of a relation.
   (g) 3NF and BCNF.
   (h) UNDO and REDO operations

UNIT-I

2. (a) (i) "Database serves community users." Discuss.
   (ii) Why is DBMS divided into different layers.
   (b) "File systems lack data independence". Discuss.
3. (a) What do you understand by ER model? How does the ER diagram help in analysing the problem?
   (b) Why are tuples in a relation not ordered?
   (c) How do you ensure consistency in a database? Discuss.

UNIT-II

4. (a) What are views, constraints and indexes in SQL? Describe.
   (b) Explain the terms :
   (i) Set type
   (ii) PCR type (iii) Singular Set
   (iv) Set instance.

5. Describe main processes with respect to ORACLE system. How the storage is organised in Discuss.

UNIT-III

6. (a) What is meant by 'Normalization' What causes anomalies in a Database? Why they are considered bad for a database?

(b) A relation R is in 2NF but not in 3NF. Discuss various problems that will occur with each of the three basis operations namely Insertion. Deletion and Updating.

7. Discuss the role of Information systems in any organisation? Also explain the process of database design.

UNIT-IV

8. (a) What do you mean by Concurrent processing in database? Describe in detail various concurrency control techniques.

9. (a) What is Serializability of schedules? Explain.
(b) What do you mean by threats in a database environment? List the potential threats could affect a database system.