Roll No. ....

DATABASE SYSTEMS
Paper—MCA-301

Time Allowed : 3 Hours]   [Maximum Marks : 80

Note : Attempt five questions in all, selecting at least one question from each Unit I-IV. Question No, 1 is compulsory carrying 24 marks and remaining questions carrying 14 marks each.

Compulsory Question

1, Differentiate between the following;

(a) Uncontrolled redundancy and Controlled redundancy.

(b) Data dependence and Data independence

(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.   3x8=24

UNIT-I

2. (a) "Database serves community users." Discuss.   6

(b) Why is DBMS divided into diferent layers?   4

(c) "File systems lack data independence". Discuss.   4

3. (a)What do you understand by ER model? How does the ER diagram help in analysing the problem? 5

  (b) Why are tuples in a relation not ordered?   3

  (c) How do you ensure consistency in a Database? Discuss.   6

UNIT-II

4. (a) What are Views, Constraints and Indexes in SQL? describe.   8

  (b) Explain the following terms :

  (i) Set type

  (ii) PCR type

  (iii) Singular set.   2X3=6

5. What is historical perspective of Oracle? How the storage is organized in Oracle?   14

UNIT-III

6. (a) What is meant by Normalisation? What causes Anomalies in a Database? Why they are considered bad for a Database?   6

(b) A relation R is in 2NF, but not in 3NF. Discuss various problems that will occur with each of the three basic operations namely Insertion, Deletion and Updation. 8

7. Discuss the role of Information systems in any Organization. Also explain the process of Database design.   14

UNIT-IV

8. (a) What do you mean by Database Recovery? List some limitations of the Log files.   8

  (b) What is Serializability of Schedules? Explain.

9. (a) Describe any two Concurrency control techniques.   10

  (b) What are the various issues related to the Database security? Discuss.   4