

Roll No.

Total Pages : 3

MCA(8-9)/D-14

10376

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. 3×8=24

UNIT-I

- 2. (a) "Database serves community users." Discuss. 6
- (b) Why is DBMS divided into different layers? 4

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- (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. 2×3=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

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7. Discuss the role of Information systems in any Organisation. 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. 6
9. (a) Describe any two Concurrency control techniques. 10
(b) What are the various issues related to the Database security? Discuss. 4