

Roll No. ....

Total Pages : 4

**CAMM/D-20**

**24046**

**DATABASE MANAGEMENT SYSTEM**

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. (a) Draw a comparison amongst different types of Database users.
- (b) List all relational Algebra operations and explain only join operation.
- (c) Differentiate between alter and update SQL statements.
- (d) Why we use commit, rollback, grant and revoke SQL statements?
- (e) Write a short note on Domain key normal form.
- (f) How logical Database design differs from physical Database design?

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(g) What ACID properties of transaction state?

(h) What is meant by Time stamp ordering?

2×8=16

### UNIT-I

2. (a) What are the important properties of Database Management System (DBMS)? Draw and explain DBMS component modules. 8
- (b) What is the role of mapping in three tier architecture of DBMS as proposed by ANSISPARC? Explain. 8
3. (a) What is meant by E-R diagrams? Discuss entity, attribute and type of relationship used for designing an E-R diagram. 8
- (b) What are Structural constraints? List the design issues, while reducing an ER diagram into relational tables. 8

### UNIT-II

4. Why SQL is known as a Query language? How do you implement primary and foreign key relationship in SQL? Write the Data types, we use in SQL. 16

5. (a) Outline a neat sketch of Data storage structure and its manipulation in Oracle. 8
- (b) Discuss the operations, advantages and disadvantages of Data model as proposed by DBTG group in CODASYL. 8

### UNIT-III

6. What is the need of Normalization? Discuss the normal form based on trivial and non-trivial and full and partial Functional dependency with suitable illustration. 16
7. What is the role of Information system in Organization? List and explain different phases of physical Database design in relational Databases. 16

### UNIT-IV

8. (a) What are the phases of Transaction execution cycle? Draw and explain. 4
- (b) Write a detailed note on Serializability of Schedules. 4
- (c) What are the problems related to Concurrency? How the locking techniques help in avoiding such problems? 8

9. (a) Why do we need recovery Techniques? Draw and explain Shadow paging. How it recover pages?

8

(b) Discuss the threats and issues to Database security. How Database system can be prevented from such threats?

8

