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BT-3/D-19

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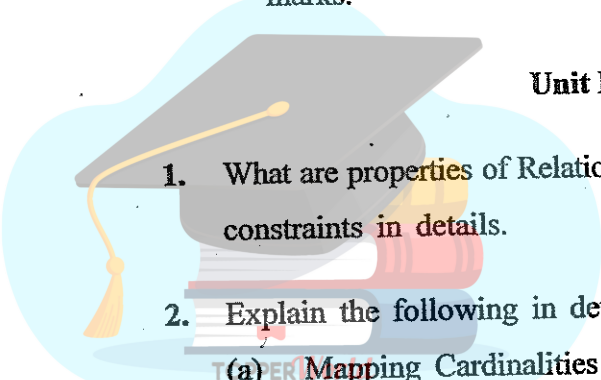
DATABASE MANAGEMENT SYSTEM  
CSE-201E

Time : Three Hours]

[Maximum Marks : 100

**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

**Unit I**

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1. What are properties of Relational Model ? Explain integrity constraints in details.
  2. Explain the following in detail :
    - (a) Mapping Cardinalities in E-R Model.
    - (b) Total and Partial Participation
    - (c) Composite and Derived Attribute.

**Unit II**

3. What are Hierarchical and Network Database Models ? Discuss applications of database models to database design.

4. Explain the following by examples :

- (a) Index Sequential Files
- (b) Hashing
- (c) B-Tree Index Files
- (d) Direct Files.

### Unit III

5. (a) Define Normalization and its various forms. How does BCNF differ from 3 NF.
- (b) What are prime and non-prime attribute in a relation ? Discuss their significance in Normalization process.

6. What is Relational Algebra ? Discuss Query Language- SQL and QBE ?

### Unit IV

7. (a) Discuss the Atomicity, Durability and Consistency Preservation Properties of a database transaction.

(b) Describe the basic techniques to implement database recovery in a DBMS.

8. Explain the following :

- (a) Time Stamping
- (b) 2PL Protocol.