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Total Pages : 02

**BT-3/D-19**

**33001**

**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**

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.

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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.

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