

BT-3/DX

8301

## DATABASE MANAGEMENT SYSTEMS

Paper : CSE-201(E)

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

- What is a Weak entity ? How is it represented in E-R diagram ? Explain using suitable example.
  - What are the different views of data ? What is the difference between logical data independence and physical data independence ? What are the advantages of data independence ?
- Define following : Primary Key, Foreign Key, Super Key, Candidate Key, Secondary Key.
  - Differentiate between Network and Hierarchical models.

## UNIT-II

- What is the order  $p$  of a B tree ? Discuss the structure of B-tree nodes.
  - What do you understand by Theta join, Equijoin, and Natural join ? Explain using suitable examples.
- What is meant by safe expression in relational calculus ?
  - Differentiate between UNION and OUTER UNION.
  - Explain the meaning of Universal quantifier ( $\forall$ ) and Existential quantifier ( $\exists$ ) using examples.

## UNIT-III

- Differentiate between following using suitable examples :

  - Entity integrity constraint and Referential integrity constraint.
  - Functional dependency and Transitive dependency.
  - First Normal form and Second normal form.
- What do you understand by insertion/deletion/update anomalies ?
  - Using an example show that BCNF is more desirable than 3NF.

## UNIT-IV

- What do you understand by Concurrent processing ? What are the problems with it ? Give a brief overview of the locking techniques for concurrency control.
- Distinguish between Redo and Undo recovery techniques.
  - What do you understand by Serializability of schedules ?