4TH SEM./AI & ML/CS&E/IT/ 2024(S)

Th-4 Database Management System

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. What do you mean by data redundancy?
   b. Define cardinality.
   c. Define the RENAME operation used in relational algebra.
   d. Define super key. How it is different from primary key?
   e. Define RDBMS.
   f. Write the different data types used in ORACLE.
   g. State the transaction operations.
   h. Define serializability.
   i. What is VIEW?
   j. Define schema and sub schema.

2. 6 x 5
   a. Define transaction. State & explain the various states of transaction.
   b. State & explain about the TEDD CODD's rules. (any five)
   c. Describe the SELECT & PROJECT operation used in relational algebra with example.
   d. Define anomalies. Classify the types of anomalies.
   e. Briefly explain the three level schema architecture of DBMS with a neat and clean diagram.
   f. Differentiate between hierarchical data model & network data model.
   g Explain the concept of two phase locking.

3 Compare the 1st, 2nd & 3rd normal form with suitable example. 10

4 Briefly explain the components of DBMS. 10

5 Define DEADLOCK. Describe the deadlock avoidance & recovery techniques used in DBMS. 10

6 What is the purpose of ER diagram? What are the different symbols used in ER diagram? Draw & explain the ER diagram for a business transaction involving sales, marketing, production & purchase department. 10

7 Write down the syntax with a suitable example for each of the following SQL commands. 10
   i. Alter
   ii. Insert
   iii. Update
   iv. Select
   v. Delete