

**LNCT UNIVERSITY, BHOPAL**

Enrollment No. \_\_\_\_\_

**CS - 301**

**B.TECH (CS / AIML) III SEMESTER  
EXAMINATION [DECEMBER-2024]  
DBMS**

**Maximum Marks: 70**

**Time Allowed: 3Hours**

**Note:- Attempt all questions. Internal choice is given.**

**(SECTION –A)**

**1. Short Answer Type Questions (Attempt Any Five) [5x6=30]**

- i. What are the key differences between the database approach and the traditional file-accessing approach?
- ii. Define data independence and explain its types.
- iii. What are the key attributes of a relation in the relational model?
- iv. Explain referential integrity with an example.
- v. Define functional dependency and discuss its significance in database design.
- vi. What is a transaction? Briefly describe its ACID properties.
- vii. Explain the concept of distributed databases and mention their advantages.

**(SECTION –B)**

**2. Long Answer Type Questions (Attempt Any Four) [4x10=40]**

- i. Describe the functions of a Database Administrator (DBA).
  - ii. Explain the process of transforming an ER diagram into relational tables with an example.
  - iii. Discuss normalization and describe the first three normal forms with examples.
  - iv. Explain the steps involved in query optimization.
  - v. What is log-based recovery? Explain its importance in transaction management.
  - vi. Write SQL queries to demonstrate the usage of INNER JOIN, OUTER JOIN, and SELF JOIN.
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