CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Regular) - December- 2025
DATABASE MANAGEMENT SYSTEMS
(Common for CSE, CSC)

[Time: 3 Hours]   **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   **(10 Marks)**

1. a)   What is data independence?   [1M]
   b)   What is an attribute?   [1M]
   c)   Write syntax of foreign key.   [1M]
   d)   Define referential integrity.   [1M]
   e)   What is the basic syntax of an SQL SELECT query?   [1M]
   f)   What is the difference between 3NF and BCNF?   [1M]
   g)   List the four properties of a transaction.   [1M]
   h)   What is a lock-based protocol?   [1M]
   i)   Define file organization.   [1M]
   j)   What is a B+ tree?   [1M]

PART-B   **(50 Marks)**

2.a)   Compare file-based systems with database systems.   [5M]
  b)   Explain the components of an ER diagram with suitable examples.   [5M]

OR

3.   Discuss the process of conceptual database design using the ER model.   [10M]

4.   Explain the different types of integrity constraints in the relational model.   [10M]

OR

5.   Describe the operations in relational algebra with suitable examples and syntax.   [10M]

6.   Explain the basic structure of an SQL query and aggregate operations with examples.   [10M]

OR

7.   Discuss about functional dependencies and their role in normalization.   [10M]

8.   Describe about lock-based protocols in detail.   [10M]

OR

9.   Explain about validation-based concurrency control protocol.   [10M]

10.   Explain the different types of file organizations used for storing data on external storage.   [10M]

OR

11.   Discuss about the ISAM tree-based indexing techniques with example.   [10M]

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