CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Regular) -June- 2025
DATABASE MANAGEMENT SYSTEM
(Common for IT, CSD, CSM)

[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) Mention any two advantages of using a DBMS over a file system.   [1M]
   b) List any two components of a DBMS.   [1M]
   c) Define a primary key.   [1M]
   d) What is a view in SQL?   [1M]
   e) Define trigger in SQL.   [1M]
   f) What is a functional dependency?   [1M]
   g) What is a transaction in a database system?   [1M]
   h) Explain about serializability.   [1M]
   i) What is a primary index?   [1M]
   j) List the main advantage of B+ trees over B-trees?   [1M]

PART-B   (50 Marks)

2. a) Compare file systems and DBMS in terms of data redundancy, consistency, and   [5 M]
      security.
   b) Explain the levels of abstraction in a DBMS with an example.   [5 M]

OR

3. Design a conceptual ER model for an online food delivery system. Include entities,   [10M]
   attributes, and relationship sets. Justify your design.

4. Explain with examples how integrity constraints are enforced in relational databases.   [10M]
   Evaluate the consequences of not using them properly.

OR

5. Design a database schema for a University system with tables for Students, Courses,   [10M]
   and Enrollments. Include integrity constraints and write SQL statements for table
   creation, along with enforcing constraints.

6. Discuss the concept of lossless-join decomposition. Explain with an example how   [10M]
   decomposition can lead to loss of data or anomalies.

OR

7. What is schema refinement? Describe the process of normalization up to BCNF.   [10M]
   Discuss with suitable examples.

8. Describe the implementation of isolation in DBMS using locking and timestamp   [10M]
   ordering protocols. Compare both.

OR

9. Describe recovery in multi-user environments using log-based recovery. How are   [10M]
   checkpoints and cascaded rollbacks handled?

10. Explain various file organization methods and evaluate their performance in terms of search, insert, and delete operations. [10M]

OR

11. Explain in detail the intuition behind tree-based indexes. Why are B+ trees preferred in databases over binary trees or B-trees? [10M]

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