

**CMR ENGINEERING COLLEGE: : HYDERABAD****UGC AUTONOMOUS****II–B.TECH–II–Semester End Examinations (Supply) - December- 2025****DATABASE MANAGEMENT SYSTEMS****(Common to CSM, IT, AI&DS)****[Time: 3 Hours]****[Max. Marks: 70]****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 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****(20 Marks)**

1. a) What is a weak and strong entity set? Explain with an example. [2M]
- b) What is Relational Instance, Relational Schema? Give one example. [2M]
- c) Explain integrity constrain over relation. [2M]
- d) Define-relational algebra. [2M]
- e) Write SQL query for nested Query. [2M]
- f) What is meant by attribute closure? Explain. [2M]
- g) Define transaction management. [2M]
- h) Explain about Recoverability. [2M]
- i) Give one Example for Extendable hashing. [2M]
- j) What are the techniques to be evaluated for both ordered indexing and hashing? [2M]

**PART-B****(50 Marks)**

2. Explain about Database languages with examples. [10M]

**OR**

3. Draw the Architecture of Database. [10M]

4. What is meant by integrity constraint? Write about complex integrity constraints in sql. [10M]

**OR**

5. Write about relational algebra? Discuss about different operators used in algebra. [10M]

6. Explain trigger and write the trigger syntax for After Update. [10M]

**OR**

7. Compare and contrast between the third normal form and BCNF. [10M]

8. Explain serializability in transaction management. [10M]

**OR**

9. Explain Lock Based Protocols and Timestamp Based Protocols. [10M]

10. What is clustered index organization? Illustrate an example? [10M]

**OR**

11. Explain about B+ Trees Dynamic Indexing. [10M]

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