CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Regular) - August- 2023
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 are the advantages of a database system over traditional paper-based methods of record-keeping? [2M]
   b) How are stored records and stored files defined in the context of database systems? [2M]
   c) What are integrity constraints? [2M]
   d) What are the definitions of primary key constraint and foreign key constraint in the context of database design? [2M]
   e) What are the issues caused by redundancy in databases? [2M]
   f) What is the basic structure of SQL and its key components? [2M]
   g) How to disallow null values for a field? Give an example. [2M]
   h) What are Commit, Rollback, and Savepoint commands in database transactions? [2M]
   i) Discuss about file organization techniques. [2M]
   j) Differentiate Clustered and an Unclustered index. [2M]

PART-B   (50 Marks)

2. a) Construct an ER diagram for banking enterprise. [5M]
   b) What are the benefits with Database approach? Explain briefly? [5M]

OR

3. Explain how DBMS supports data independence with an example? [10M]

4. a) Define a Trigger. Explain trigger operations with a program. [5M]
   b) What are the standard set operations available in relational algebra? Explain with suitable examples? [5M]

OR

5. Using the following schema answer the following queries in Relational Algebra: [10M]
   Suppliers (sid, sname, saddress) Parts (pid, pname, color) Catalog (sid, pid, cost)
   i. List the the names of suppliers who supply blue part.
   ii. List the supplier details who supply "Bolts" colored "Red" .
   iii. List the supplier details and part details of those whose cost is less than $30.
   iv. List the part details that are supplied by supplier whose name starts with "S".

6. What is normalization? Define BCNF. How does BCNF differ from 3NF? Explain with an example. [10M]

OR

7. Explain the properties of Decomposition. Explain 1NF, 2NF and 3NF with suitable example? [10M]

8. Explain the concept of deadlock and dead lock prevention policies with an example?   [10M]

OR

9. Define locking protocol. Describe the Two-Phase Locking protocol with an example.   [10M]

10. Explain tree-based indexing with an example? How B+ tree is used to do file   [10M]
    organization? Explain briefly.

OR

11. What is file organization? Describe the operations to consider for comparing file   [10M]
    organizations.

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