USN

18MCA31

Third Semester MCA Degree Examination, July/August 2022
Database Management Systems

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a. Explain the characteristics of a Database approach.   **(10 Marks)**
    b. Discuss on the different types of people who work in a database system environment.
                                                                                              (10 Marks)

OR

2   a. Describe the Three-Schema architecture for database systems. Also explain the concept of data independence with this architecture.   **(12 Marks)**
    b. With a neat diagram, explain the interactions of DBMS component modules with database system environment.   **(08 Marks)**

Module-2

3   a. Define the following terms: (i) Join   (ii) Division   (iii) Cartesian product   (iv) Union
        (v) Set difference.   **(10 Marks)**
    b. Discuss on the characteristics of Relations.   **(10 Marks)**

OR

4   a. How does the various update operations deal with constraint violations?   **(10 Marks)**
    b. Discuss the Unary relational operations with example.   **(10 Marks)**

Module-3

5   a. Explain Aggregate functions in SQL with examples.   **(10 Marks)**
    b. What is Embedded SQL? Explain.   **(05 Marks)**
    c. Explain the concept of views in SQL.   **(05 Marks)**

OR

6   a. Write a short note on SQL data types.   **(10 Marks)**
    b. Differentiate between SubQuery and correlated Query with example.   **(10 Marks)**

Module-4

7   a. Discuss in detail, the four informal measures of quality in relation schema design. **(10 Marks)**
    b. Define the term functional dependency, using an example.   **(02 Marks)**
    c. What is minimal set of FDS? Give an algorithm to find the minimal cover for the given set of FDS.   **(08 Marks)**

OR

8   a. What is Normalization? Explain 1NF, 2NF, 3NF and BCNF with suitable example.
                                                                                          (12 Marks)
    b. List all Armstrong's Inference axioms and prove it with example.   **(08 Marks)**

Module-5

9   a. Define Transaction. Explain ACID properties of transactions.   **(10 Marks)**
    b. Discuss the ARIES recovery algorithm.   **(10 Marks)**

OR

10 a. Explain the strict Two-Phase Locking (strict-2PL).   **(10 Marks)**
    b. Discuss the levels of isolation in detail.   **(10 Marks)**

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