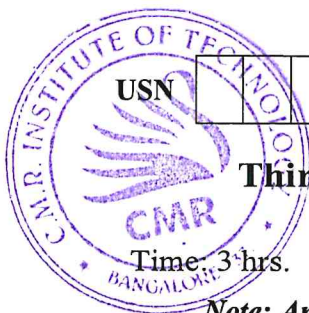


CBCS SCHEME



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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

