

CBCS SCHEME

18MCA31

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Third Semester MCA Degree Examination, Dec.2023/Jan.2024

Database Management System

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define Database Management System. Explain its characteristics in detail. (10 Marks)
- b. What are the different notations used in ER – diagram and naming conventions of schema construct? (10 Marks)

OR

- 2 a. Explain the main phases of database design with suitable diagram. (10 Marks)
- b. What are the different types of attributes? Explain with example. (10 Marks)

Module-2

- 3 a. What are Constraints? Explain the four main constraint relational databases. (10 Marks)
- b. Explain the Unary Operation SELECT and prove with suitable example its commutative. (10 Marks)

OR

- 4 a. Explain Update Operations in relational database. How constraints are violated during Update Operations? Discuss. (10 Marks)
- b. Discuss in detail ER – to – Relational mapping algorithm. (10 Marks)

Module-3

- 5 a. Explain SQL Query with proper syntax and example. (10 Marks)
- b. Discuss Schema Change statements in SQL. (10 Marks)

OR

- 6 a. What are views in SQL? What are the strategies to implement views? Explain. (10 Marks)
- b. Given the following database schema :

Sailors (Sid, name, ratings, age)

Boats (bid, bname, color)

Reserves (Sid, bid, date)

Write the following queries in SQL.

- 1) Find the names of sailors reserved for boat number 500 (bid = 500).
- 2) Find the names of sailors, who have reserved green boat.
- 3) Find the sailors having highest rating.
- 4) Delete all sailors with rating less than 10.
- 5) Update the rating of sailor with Sid = 500 to Sid = 900. (10 Marks)

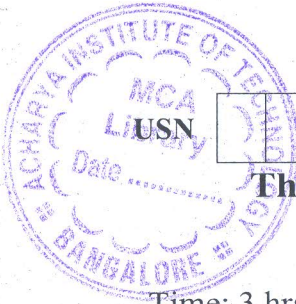
Module-4

- 7 a. Discuss in detail the Informal guidelines for relational schema. (10 Marks)
- b. Explain Stored Procedures with suitable example. (10 Marks)

OR

1 of 2

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.



- 8 a. What is Normalization? What are the goals of normalization? Explain 1NF and 2NF with example. (10 Marks)
- b. Explain with example, Procedures and cursors in SQL. (10 Marks)

Module-5

- 9 a. Explain ACID properties of a transaction in detail. (10 Marks)
- b. Discuss Recovery algorithm in detail. (10 Marks)

OR

- 10 a. What are the anomalies in inter – leaved execution? Explain. (10 Marks)
- b. Discuss in detail Strict 2PL algorithm. (10 Marks)
