



ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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END SEMESTER EXAMINATION –NOV/DEC 2025

COMPUTER SCIENCE – III SEMESTER BSC

25BSC34A/C – DATABASE MANAGEMENT SYSTEMS

Time: 3 Hours

Max. Marks: 80

Instruction: *Answer should be written completely in English*

SECTION - A

Answer any **FIVE** questions. Each question carries **TWO** marks.

(5X2=10)

1. What is DBMS? List a few applications of the database.
2. What are Constraints? Mention its types.
3. What is the purpose of the GROUP BY clause in SQL?
4. What is Denormalization?
5. What are all the operations of Transaction? Give an example.
6. Define Deadlock with an example.
7. What are the uses and features of NoSQL document databases?

SECTION - B

Answer any **SIX** questions. Each question carries **FIVE** marks.

(6X5=30)

8. Explain how to create a table in a database, including PRIMARY KEY, FOREIGN KEY, and UNIQUE constraints with suitable examples.
9. What is the role of a Database Administrator (DBA)? Explain their responsibilities.
10. Explain the different types of JOIN operations in SQL with suitable examples. Explain all the aggregate functions and logical operators in DBMS.
11. Describe different types of transaction schedules in detail.
12. Define lock-based concurrency control and its basic principle.
13. Write brief notes on types of NoSQL with suitable examples.
14. Investigate how deadlock detection and prevention techniques maintain concurrency in DBMS.
15. Write a PL/SQL code for Fibonacci series.



SECTION - C

Answer any **FIVE** questions. Each question carries **EIGHT** marks.

(5X8=40)

16. Draw an ER diagram for the hospital management system with mapping cardinalities. Brief notes on Database Operations on Relational Model.
17. Discuss the structure and components of SQL language DDL, DML, and DCL commands with examples.
18. Develop a database design for a hospital database that includes patients, doctors, and appointments. Normalize the schema to 3NF.
19. Apply ACID properties to explain how they ensure reliable transaction management in a banking system.
20. Illustrate the use of different NoSQL data models such as Document, Key-Value, Column Family, and Graph with suitable examples.
21. Apply BASE properties to explain the working of NoSQL systems as compared to ACID in RDBMS.
22. Demonstrate CRUD operations using MongoDB with suitable examples.

