D3ACS2401 **(1 Page)** **Name.....**

Reg.No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2025

(Regular/Improvement/Supplementary)
COMPUTER SCIENCE

FCSS3C11-ADVANCED DATABASE MANAGEMENT SYSTEM

Time: 3 Hours **Maximum Weightage: 30**

Section A: Short answer questions. Answer any four questions. Each carries two weightage.

1. Describe ‘selection’, ‘projection’ and ‘join’ operations in relational algebra.
2. Discuss the anomalies in a poorly designed database.
3. Explain the use of cursors in SQL with an example.
4. Discuss the states of a transaction with a neat diagram.
5. Explain the architecture of a distributed database.
6. Discuss entity integrity and referential integrity constraints with examples.
7. Describe the types of locks in SQL and their purposes.

(4 × 2 = 8 weightage)

Section B: Short essay Question. Answer any four questions. Each carries three weightage.

8. Describe the role of a Database Administrator (DBA).
9. Define functional dependency and explain its role in database design.
10. Discuss the importance of data constraints (Primary Key, Foreign Key, Unique, and Not Null) in SQL.
11. List and explain the ACID properties of a transaction.
12. Compare centralized databases and distributed databases with real-time examples.
13. Discuss the two-phase locking protocol and deadlock handling in DBMS.
14. Explain the concepts of composite objects and object identity in OODBMS.

(4 × 3 = 12 weightage)

Section C: Essay questions. Answer any two questions. Each carries five weightage.

15. Explain data replication and fragmentation in distributed databases with examples.
16. Discuss multivalued dependency, 4NF and join dependency with suitable examples.
17. Discuss stored procedures, functions and triggers in MySQL with examples.
18. Explain timestamp ordering protocol and compare it with locking methods.

(2 × 5 = 10 weightage)