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Reg. No.....

Name.....

**M.Sc. (COMPUTER SCIENCE) DEGREE (C.S.S.) EXAMINATION
FEBRUARY 2025**

Third Semester

MCS3C1—DATABASE MANAGEMENT SYSTEMS

(2018 Admissions—First Mercy Chance/2017 Admissions—Second Mercy Chance, 2016 Admissions—Third Mercy Chance and 2015 Admissions—Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Weight : 30

Part A (Short Answers)

*Answer any **five** questions.*

Each question carries a weight of 1.

1. What are generalization and aggregation ?
2. Define instance and schema.
3. Enlist DDL and DML commands.
4. Differentiate between primary and unique key.
5. Define a Transaction. List the properties of transaction.
6. What is database security and integrity?
7. What do you mean by serializability ?
8. What do you mean by data fragmentation in distributed systems ?

(5 × 1 = 5)

Part B

*Answer any **five** questions.*

Each question carries a weight of 2.

9. Explain the advantages of using the DBMS approach over the traditional file system approach.
10. Explain the importance of Views in detail.





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11. What do you mean by functional dependency ? How many types of functional dependency are there ? Discuss it through suitable example.
12. What is a lock ? Describe the two-phase locking protocol.
13. Explain about recovery and atomicity.
14. Write a note on Parallel Databases.
15. Write a note on Tertiary storage.
16. Explain about integrity constraints with examples.

(5 × 2 = 10)

Part C

*Answer any **three** questions.*

Each question carries a weight of 5.

17. Define Database and DBMS. Explain the importance of database design.
18. Consider the following schema for company database :

Employee (Name | ESSN, Salary, DNo, SuperSSN) ;

Department (DName, DNos, MGRSSN) ;

Project (PName, PNo, DNum) ;

Works_ON(ESSN, PNo, Hours) ;

Dependent (ESSN, DName, Sex) ;

Write the queries in Relational Algebra and SQL.

- (a) List the name of employees with at least two dependants.
- (b) find the name of employees who work on all projects controlled by department 5.
- (c) Retrieve the name of managers who do not have female dependents.





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19. Discriminate 1NF, 2NF, 3NF and BCNF with example.
20. What is meant by File Organization ? Briefly discuss different types of file organization.
21. What are concurrent transactions ? Discuss the problems encountered by concurrent transactions.
22. Write a note on NoSQL databases.

(3 × 5 = 15)

