

MODEL PAPER – 1
B.Sc Computer Science – Semester III
Paper: Paper: Database Management Systems
Time: 3 Hours | Max Marks: 80

SECTION – A: SHORT ANSWER QUESTIONS

Answer any EIGHT questions ($8 \times 4 = 32$ Marks)

1. Define DBMS and list its advantages
 2. Explain three-tier architecture
 3. Define entity and attribute
 4. What is cardinality in ER model?
 5. Define functional dependency
 6. What is normalization?
 7. Define SQL and its types
 8. What is JOIN?
 9. Define ACID properties
 10. What is concurrency control?
 11. Define recovery techniques
 12. What is database security?
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◆ **SECTION – B: ESSAY TYPE QUESTIONS**

Answer ALL questions ($4 \times 12 = 48$ Marks)

13. (a) Explain DBMS environment and components
OR
(b) Explain file system vs DBMS with advantages
14. (a) Explain ER model with diagram
OR
(b) Explain normalization (1NF, 2NF, 3NF) with suitable examples
15. (a) Explain SQL queries (JOIN, GROUP BY, HAVING) with examples
OR
(b) Explain nested and correlated subqueries
16. (a) Explain transaction management and ACID properties
OR
(b) Explain recovery techniques and concurrency control

MODEL PAPER – 2
B.Sc Computer Science – Semester III
Paper: Paper: Database Management Systems
Time: 3 Hours | Max Marks: 80

SECTION – A: SHORT ANSWER QUESTIONS

Answer any EIGHT questions ($8 \times 4 = 32$ Marks)

1. Define DBMS and its components
 2. What is data independence?
 3. Define entity and attribute
 4. What is a weak entity set?
 5. Define functional dependency
 6. What is 3NF?
 7. Define SQL and its categories
 8. What is GROUP BY clause?
 9. Define JOIN
 10. What is a transaction?
 11. Define deadlock
 12. What is database recovery?
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◆ **SECTION – B: ESSAY TYPE QUESTIONS**

Answer ALL questions ($4 \times 12 = 48$ Marks)

13. (a) Explain DBMS environment and advantages
OR
(b) Explain three-tier architecture with diagram
14. (a) Explain ER model with components and example
OR
(b) Explain normalization (1NF, 2NF, 3NF) with examples
15. (a) Explain SQL queries with joins and aggregate functions
OR
(b) Explain nested and correlated subqueries with examples
16. (a) Explain transaction management and ACID properties
OR
(b) Explain concurrency control and recovery techniques

MODEL PAPER – 3
B.Sc Computer Science – Semester III
Paper: Paper: Database Management Systems
Time: 3 Hours | Max Marks: 80

◆ **SECTION – A: SHORT ANSWER QUESTIONS**

Answer any EIGHT questions ($8 \times 4 = 32$ Marks)

1. Define Database and DBMS
 2. What is metadata?
 3. Define strong and weak entity sets
 4. What is cardinality ratio?
 5. Define normalization
 6. What is BCNF?
 7. Define SQL and DML
 8. What are aggregate functions?
 9. Define view
 10. What is concurrency control?
 11. Define serializability
 12. What is backup and recovery?
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◆ **SECTION – B: ESSAY TYPE QUESTIONS**

Answer ALL questions ($4 \times 12 = 48$ Marks)

13. (a) Explain database approach and advantages of DBMS
OR
(b) Explain data models and database users
14. (a) Explain ER model with diagram and types of relationships
OR
(b) Explain normalization (1NF, 2NF, 3NF, BCNF) with examples
15. (a) Explain SQL queries (JOIN, GROUP BY, HAVING, ORDER BY) with examples
OR
(b) Explain PL/SQL structure, cursors, and triggers
16. (a) Explain transaction management and ACID properties
OR
(b) Explain concurrency control methods and deadlock

MODEL PAPER – 4
B.Sc Computer Science – Semester III
Paper: Paper: Database Management Systems
Time: 3 Hours | Max Marks: 80

SECTION – A: SHORT ANSWER QUESTIONS

Answer any EIGHT questions ($8 \times 4 = 32$ Marks)

1. Define database and its components
 2. What is metadata?
 3. Define relationship and its types
 4. What is aggregation in ER model?
 5. Define functional dependency with example
 6. What is 2NF?
 7. Define integrity constraints
 8. What is HAVING clause?
 9. Define view and its advantages
 10. What is a trigger?
 11. Define serializability
 12. What is RAID?
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◆ **SECTION – B: ESSAY TYPE QUESTIONS**

Answer ALL questions ($4 \times 12 = 48$ Marks)

13. (a) Explain database approach and advantages of DBMS
OR
(b) Explain three-tier architecture and database users
14. (a) Explain ER diagram with strong and weak entities
OR
(b) Explain normalization up to BCNF with examples
15. (a) Explain SQL queries with aggregate functions and GROUP BY
OR
(b) Explain views, triggers, and PL/SQL structure
16. (a) Explain concurrency control techniques and deadlock
OR
(b) Explain recovery techniques and database security

MODEL PAPER – 5
B.Sc Computer Science – Semester III
Paper: Paper: Database Management Systems
Time: 3 Hours | Max Marks: 80

SECTION – A: SHORT ANSWER QUESTIONS

Answer any EIGHT questions ($8 \times 4 = 32$ Marks)

1. Define DBMS and its objectives
 2. What is data independence?
 3. Define entity set and relationship set
 4. What is specialization?
 5. Define functional dependency
 6. What is BCNF?
 7. Define SQL and DDL
 8. What is ORDER BY clause?
 9. Define subquery
 10. What is ACID property?
 11. Define concurrency control
 12. What is backup and recovery?
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◆ **SECTION – B: ESSAY TYPE QUESTIONS**

Answer ALL questions ($4 \times 12 = 48$ Marks)

13. (a) Explain components of database environment
OR
(b) Explain file-based system and its drawbacks
14. (a) Explain ER model with attributes and relationships
OR
(b) Explain normalization (1NF, 2NF, 3NF, BCNF) with examples
15. (a) Explain SQL queries with joins and subqueries
OR
(b) Explain PL/SQL structure, cursors, and exception handling
16. (a) Explain transaction properties and serializability
OR
(b) Explain recovery techniques and database security mechanisms

UNIT WISE IMPORTANT QUESTIONS

UNIT – I (DBMS Basics)

- Define DBMS and its advantages ★★★★★
- File system vs DBMS ★★★★★
- Components of DBMS ★★★★★
- Three-tier architecture ★★★★★
- Database users and DBA ★★★★★
- Data models ★★★★★
- Types of databases ★★★★★

UNIT – II (ER Model + Normalization)

- ER diagram components ★★★★★
- Entities, attributes, relationships ★★★★★
- Strong vs weak entity ★★★★★
- Types of attributes ★★★★★
- Cardinality and degree ★★★★★
- Generalization & specialization ★★★★★
- Functional dependency ★★★★★
- 1NF, 2NF, 3NF ★★★★★
- BCNF ★★★★★
- De-normalization ★★★★★

UNIT – III (SQL + PL/SQL)

- Basic SQL queries ★★★★★
- Constraints and data types ★★★★★
- Aggregate functions ★★★★★
- GROUP BY, HAVING ★★★★★
- Joins (all types) ★★★★★
- Nested and correlated subqueries ★★★★★
- Views ★★★★★
- PL/SQL structure ★★★★★
- Cursors ★★★★★
- Triggers ★★★★★

■ UNIT – IV (Transactions, Recovery, Security)

- Transaction properties (ACID) ★★★★★
- Concurrency control ★★★★★
- Serializability ★★★★★
- Locking methods ★★★★★
- Deadlock ★★★★★
- Recovery techniques ★★★★★
- Database security ★★★★★
- Backup and recovery ★★★★★
- Encryption ★★★



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