

GOVERNMENT DEGREE COLLEGE, NANDIKOTKUR
DEPARTMENT OF COMPUTER APPLICATIONS
Database Management System

UNIT - I: Overview of Database Systems

Short Answer Questions:

1. What are the key characteristics of a database system?
2. How does a database system differ from a file system?
3. Who are the different types of database users?
4. List some advantages of using database systems.
5. Define schema and instance.
6. What is data independence? Differentiate between logical and physical data independence.
7. Briefly explain the three-tier schema architecture.
8. What is a centralized database architecture?

Long Answer Questions:

1. Explain the advantages of database systems over traditional file systems with examples.
2. Describe the types of data models with examples. How do they differ from each other?
3. Discuss the three-tier schema architecture in detail and its importance in achieving data independence.
4. Compare and contrast centralized and client-server database architectures.

UNIT - II: Relational Model and Normalization

Short Answer Questions:

1. What are Codd's rules?
2. Define domain, attribute, tuple, and relation in the context of the relational model.

3. What are key constraints? Provide examples.
4. Explain the difference between primary key and foreign key.
5. What is functional dependency?
6. List the different types of keys (super key, candidate key, surrogate key).
7. What is the purpose of normalization?
8. Briefly explain the difference between 1NF, 2NF, and 3NF.

Long Answer Questions:

1. Discuss the relational model and its importance in database systems.
2. Explain the different types of constraints in the relational model. How are they enforced?
3. Describe the concept of normalization. Discuss 1NF, 2NF, and 3NF with examples.
4. What is Boyce-Codd Normal Form (BCNF)? How does it differ from 3NF?

UNIT - III: Entity Relationship Model & Basic SQL

Short Answer Questions:

1. Define entity, entity set, relationship, and relationship set.
2. What are the key differences between generalization and specialization?
3. Explain the concept of inheritance in ER modeling.
4. What are the DDL operations in SQL?
5. List the common data types used in SQL.
6. Define the WHERE clause and its usage in SQL.
7. What is the purpose of aggregation functions in SQL?
8. How does grouping and ordering work in SQL?

Long Answer Questions:

1. Describe the Entity-Relationship (ER) Model with examples. How is it useful in database design?
2. Explain the key components of an ER diagram and their significance.

3. Write detailed notes on SQL DDL operations with examples.
4. Discuss the use of SQL for basic querying. Explain the use of SELECT, WHERE clause, and aggregation functions with examples.

UNIT - IV: Advanced SQL

Short Answer Questions:

1. What is a nested query? Provide an example.
2. Define SQL join and its types.
3. What are SQL functions? Provide examples of date and numeric functions.
4. Explain the concept of views in SQL.
5. What is the difference between COMMIT, ROLLBACK, and SAVEPOINT?
6. What are relational set operations in SQL?
7. Define the purpose of the GRANT and REVOKE commands in DCL.

Long Answer Questions:

1. Explain different types of SQL joins with examples. How are they implemented?
2. Describe the usage of SQL functions like string, conversion, and numeric functions with suitable examples.
3. Write a detailed note on Transaction Control Language (TCL) and its role in maintaining database integrity.
4. What are relational set operations? Explain UNION, INTERSECT, and MINUS with examples.

UNIT - V: PL/SQL and Transaction Processing Concepts

Short Answer Questions:

1. What are the main components of a PL/SQL block?
2. Define cursors in PL/SQL.
3. What is the purpose of exception handling in PL/SQL?

4. Explain the concept of triggers in PL/SQL.
5. What are the different transaction states?
6. Define serializability in transaction processing.
7. What is failure classification in transaction processing?

Long Answer Questions:

1. Explain the structure of a PL/SQL block with an example. Discuss its components and their roles.
2. Discuss the various control structures in PL/SQL with examples.
3. Write detailed notes on transaction states and the importance of serializability in transaction management.
4. What is a recovery algorithm? Discuss its significance in ensuring database integrity after failure.