

# Advanced Database Management Systems (ADBMS) Viva Questions

## Q1. What is DDL in SQL?

Answer: DDL (Data Definition Language) includes SQL commands like CREATE, ALTER, DROP, TRUNCATE, and RENAME to define and modify database structures.

## Q2. What is the purpose of the CREATE command?

Answer: It creates a new table or database structure with specified columns and data types.

## Q3. How do you rename a table in SQL?

Answer: Use the RENAME TABLE old\_table\_name TO new\_table\_name; command.

## Q4. What is the difference between DELETE and TRUNCATE commands?

Answer: DELETE removes specific rows based on a condition and can be rolled back. TRUNCATE removes all rows and cannot be rolled back.

## Q5. What is the syntax to add a column in an existing table?

Answer: ALTER TABLE table\_name ADD column\_name datatype;

## Q6. What are DML commands?

Answer: DML (Data Manipulation Language) includes commands like SELECT, INSERT, UPDATE, and DELETE for data handling.

## Q7. How do you insert a row into a table?

Answer: INSERT INTO table\_name (column1, column2, ...) VALUES (value1, value2, ...);

## Q8. What is the purpose of the SELECT command?

Answer: SELECT retrieves data from a database table.

## Q9. How do you update a specific row in a table?

Answer: UPDATE table\_name SET column\_name = value WHERE condition;

**Q10. What is the difference between WHERE and HAVING clauses?**

Answer: WHERE filters rows before grouping, and HAVING filters groups after aggregation.

**Q11. What are aggregate functions in SQL?**

Answer: Functions like SUM, AVG, COUNT, MIN, and MAX used to perform calculations on a set of values.

**Q12. How do you count the number of rows in a table?**

Answer: Use the COUNT function: `SELECT COUNT(*) FROM table_name;`

**Q13. What is a primary key?**

Answer: A unique identifier for a row in a table. Each table can have only one primary key.

**Q14. What is a foreign key?**

Answer: A field in one table that refers to the primary key in another table, establishing a relationship between the tables.

**Q15. What is normalization?**

Answer: The process of organizing data to reduce redundancy and improve data integrity.

**Q16. What are the different normal forms?**

Answer: 1NF, 2NF, 3NF, BCNF, and higher normal forms that ensure database normalization.

**Q17. What is a unique constraint?**

Answer: A constraint that ensures all values in a column are distinct.

**Q18. What is a composite key?**

Answer: A primary key made up of two or more columns to uniquely identify rows in a table.

**Q19. What is the difference between CHAR and VARCHAR?**

Answer: CHAR is a fixed-length data type, while VARCHAR is a variable-length data type.

**Q20. What is an index in SQL?**

Answer: A database object that improves the speed of data retrieval operations.

**Q21. What is a clustered index?**

Answer: A type of index where the table rows are physically stored in the same order as the index.

**Q22. What is a non-clustered index?**

Answer: An index where the logical order of data does not match the physical order.

**Q23. What is a view in SQL?**

Answer: A virtual table created using a SELECT query that provides a specific view of data.

**Q24. What is the purpose of the GROUP BY clause?**

Answer: To group rows with the same values into summary rows like aggregating data.

**Q25. What is a subquery?**

Answer: A query nested within another query to perform operations that depend on the result of the outer query.

**Q26. What is a join in SQL?**

Answer: Combining rows from two or more tables based on a related column between them.

**Q27. What is the difference between INNER JOIN and OUTER JOIN?**

Answer: INNER JOIN returns only matching rows, while OUTER JOIN returns all rows from one or both tables.

**Q28. What is a LEFT JOIN?**

Answer: Returns all rows from the left table and the matching rows from the right table, or NULL if no match.

**Q29. What is a RIGHT JOIN?**

Answer: Returns all rows from the right table and the matching rows from the left table, or NULL if no match.

**Q30. What is a FULL OUTER JOIN?**

Answer: Combines the results of both LEFT JOIN and RIGHT JOIN, returning all rows from both tables.

**Q31. What is the UNION operator in SQL?**

Answer: Combines the results of two SELECT statements and removes duplicate rows.

**Q32. What is the difference between UNION and UNION ALL?**

Answer: UNION removes duplicate rows, while UNION ALL includes them.

**Q33. What is the difference between DELETE and DROP?**

Answer: DELETE removes rows from a table, while DROP removes the entire table or database.

**Q34. What is the difference between TRUNCATE and DROP?**

Answer: TRUNCATE removes all rows but keeps the table structure, DROP deletes the entire table.

**Q35. What is a transaction in SQL?**

Answer: A sequence of operations performed as a single logical unit of work.

**Q36. What are ACID properties?**

Answer: Atomicity, Consistency, Isolation, Durability-ensuring reliable transactions.

**Q37. What is a stored procedure?**

Answer: A set of SQL statements stored in the database and executed as a single unit.

**Q38. What is a trigger in SQL?**

Answer: A database object that automatically executes a specified action when a certain event occurs.

**Q39. What is a cursor in SQL?**

Answer: A database object used to retrieve and manipulate data row-by-row.

**Q40. What is a schema in SQL?**

Answer: A collection of database objects such as tables, views, and indexes.

**Q41. What is a constraint in SQL?**

Answer: A rule applied to a column or table to enforce data integrity.

**Q42. What are the types of constraints in SQL?**

Answer: Primary Key, Foreign Key, Unique, Not Null, Check, and Default constraints.

**Q43. What is the CHECK constraint?**

Answer: Ensures that all values in a column satisfy a specific condition.

**Q44. What is the DEFAULT constraint?**

Answer: Sets a default value for a column when no value is specified.

**Q45. What is a NULL value in SQL?**

Answer: A special marker used to indicate missing or unknown data.

**Q46. How do you handle NULL values in SQL?**

Answer: Using functions like IS NULL, IS NOT NULL, COALESCE, or NULLIF.

**Q47. What is a sequence in SQL?**

Answer: An object used to generate a sequence of numeric values, often used for primary keys.

**Q48. What is a synonym in SQL?**

Answer: An alias for a database object, such as a table or view, to simplify access.

**Q49. What is a materialized view?**

Answer: A view that stores the results of a query for faster access.

**Q50. What is an ER diagram?**

Answer: A graphical representation of entities and their relationships in a database.