

Q.1 What are SQL dialects? Give some examples?

SQL dialects are variations of the SQL language that include different features, syntax, or functions specific to certain database management systems (DBMS). Examples of SQL dialects include:

- T-SQL (Transact-SQL) used by Microsoft SQL Server
- MySQL SQL dialect used by MySQL
- PostgreSQL SQL dialect used by PostgreSQL

Q.2 What are the main applications of SQL?

The main applications of SQL include:

- Database creation and management
- Data insertion, updating, and deletion
- Data querying for information retrieval
- Data manipulation and transformation

Q.3 What is an SQL statement? Give some examples?

An SQL statement is a text-based command used to perform operations on a database, such as retrieving data, inserting records, updating data, or deleting records. Examples include:

- **SELECT ***
FROM Data_table;
- **INSERT INTO Data_table (column1, column2)**
VALUES (value1, value2);
- **UPDATE Data_table SET column1 = value1**
WHERE condition;
- **DELETE FROM Data_table**
WHERE condition;

Q.4 What types of SQL commands (or SQL subsets) do you know? Give some examples of common SQL commands of each type?

SQL commands are categorized into:

- Data Definition Language: Commands like **CREATE**, **DROP**, **ALTER** used to define and modify database schema.
- Data Manipulation Language: Commands like **SELECT**, **INSERT**, **UPDATE**, **DELETE** used for data manipulation.
- Data Control Language: Commands like **GRANT**, **REVOKE** used for access control.
- Transaction Control Language: Commands like **COMMIT**, **ROLLBACK** used for transaction management.

Q.5 What is a database? What is DBMS, and what types of DBMS do you know?

A database is an organized collection of data, which is used to stored and accessed electronically from a computer system.

A Database Management System (DBMS) is software that provides an interface for users to interact with databases. Types of DBMS include:

- Relational DBMS (RDBMS) like Oracle, MySQL, SQL Server
- NoSQL DBMS like MongoDB

Q.6 What are tables and fields in SQL?

- Table is a collection of related data entries and it consists of columns and rows.
- Fields in a table represent the categories of data stored in the table, like **name**, **age**, **address**, **sales**, **categories** etc;

Q.7 What is an SQL query, and what types of queries do you know?

Types of queries include:

- Select queries for data retrieval
- Action queries: **INSERT**, **UPDATE**, **DELETE** for data manipulation
- Data definition queries: **CREATE TABLE**, **ALTER TABLE** for schema changes

Q.8 What is a subquery? What types of SQL subqueries do you know?

A subquery is an SQL query nested inside another query. Types of subqueries include:

- Scalar subqueries (return a single value)
- Row subqueries (return a row of data)
- Column subqueries (return a column of data)
- Table subqueries (return a table)

Q.9 What is a constraint, and why use constraints? What SQL constraints do you know?

Constraints in SQL are rules applied to columns of a table to enforce data integrity. Common SQL constraints include:

- **PRIMARY KEY**
- **FOREIGN KEY**
- **UNIQUE**
- **NOT NULL**
- **CHECK**

Q.10 What is a join? What types of joins do you know?

A join is an SQL operation used to combine rows from two or more tables based on a related column between them. Types of joins include:

- Inner Join
- Left Join
- Right Join
- Full Join
- Cross Join

Q.11 What is a primary key? What is a foreign key? What is a unique key?

- Primary Key: A column used to uniquely identify each row in a table.
- Foreign Key: A column in one table that uniquely identifies a row of another table or the same table.
- Unique Key: A constraint that ensures all values in a column or group of columns are unique.

Q.12 What is an index? What types of indexes do you know?

An index is a database object that improves the speed of data retrieval. Types of indexes include:

- Primary index
- Secondary index
- Unique index
- Full-text index

Q.13 What is a schema? What is a SQL comment?

- Schema: The structure that defines the organization of data in a database, including tables, columns, relationships, and constraints.
- SQL Comment: A note or explanation in the SQL code, written as `--` for single-line comments or `/* */` for multi-line comments.

Q.14 What is a SQL operator? What types of SQL operators do you know?

SQL operators are symbols or keywords used to perform operations on data. Types of SQL operators include:

- Arithmetic operators
- Comparison operators
- Logical operators

Q.15 What is an alias? What is a clause?

- Alias: A temporary name given to a table or column in an SQL query.
- Clause: A part of an SQL statement that performs a specific function, like **WHERE**, **FROM**, **ORDER BY**.

Q.16 What are some common statements used with the SELECT query?

Common statements used with **SELECT** include:

- **WHERE** for filtering records
- **ORDER BY** for sorting results
- **GROUP BY** for grouping rows

Q.17 How to create a table? How to update a table? How to delete a table from a database?

- Create: **CREATE TABLE table_name;**
- Update: **UPDATE table_name SET column1 = value1**
WHERE condition;
- Delete: **DROP TABLE table_name;**

Q.18 How to select common records from two tables?

To select common records, use the **INNER JOIN**:

SQL QUERY:

SELECT columns

FROM table1

INNER JOIN table2 ON table1.common_column = table2.common_column;

Q.19 What are entities? What are relationships? What is NULL value?

- Entities: Objects in a database, represented as tables.
- Relationships: Associations between entities, represented as foreign keys.
- NULL value: A marker in a database indicating that a data value does not exist, different from zero or blank space.

Q.20 What is a function in SQL, and why use functions?

Functions in SQL are predefined commands that perform operations on data, used to enhance the capabilities of SQL queries. Types include:

- Aggregate functions: **SUM(), COUNT(), AVG()**
- Scalar functions: **UCASE(), LCASE(), ROUND()**
- Case manipulation functions: **UPPER(), LOWER()**
- Character manipulation functions: **CONCAT()**