**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\_nameSQL;**
* 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()**