1. **What do you understand by database?**

=> A database is a structured collection of data that is organized in a way to allow efficient storage, retrieval, and management of information. It serves as a central repository for storing and managing data that can be easily accessed, updated, and manipulated by authorized users or computer programs.

2. **What is Normalization?**

=> Normalization is a database design technique used to eliminate data redundancy and improve data integrity by organizing data into related tables. The primary goal of normalization is to reduce data anomalies and ensure that each data element is stored in one place, avoiding duplication and inconsistencies. It is a critical concept in relational database management systems (RDBMS). There are several levels of normalization, each with specific rules and goals.

3. **What is difference between DBMS and RDBMS?**

=> A Database Management System (DBMS) and a Relational Database Management System (RDBMS) are both software systems used for managing databases, but they have distinct differences:-

\* Data Model \*

DBMS: DBMS can work with various data models, including hierarchical, network, and relational, among others. It doesn't require the data to be stored in a specific structure.

RDBMS: RDBMS specifically uses a relational data model. Data is organized into tables with rows and columns, and relationships between tables are defined.

\* Data Integrity \*

DBMS: DBMS typically doesn't enforce data integrity constraints, such as primary keys, foreign keys, and unique constraints, which are crucial for maintaining data accuracy and consistency.

RDBMS: RDBMS enforces data integrity using features like primary keys, foreign keys, and unique constraints. This ensures that data remains consistent and accurate.

\* Query Language \*

DBMS: DBMS may use a variety of query languages, and the syntax and capabilities can vary widely.

RDBMS: RDBMS uses Structured Query Language (SQL) as the standard query language. SQL is specifically designed for querying and manipulating relational data.

4**. What do you understand by DATA REDUNDANCY?**

=> Data redundancy refers to the unnecessary repetition of data in a database. In a well-designed database, data should be stored once and only once. Redundant data can lead to various problems, including increased storage space requirements, data inconsistency (due to updates that don't propagate to all copies), and slower data retrieval due to the need to access multiple locations to get complete information. Normalization is a process used to minimize data redundancy by organizing data efficiently.

5. **What is DDL Interpreter?**

=> DDL Interpreter refers to the component of a Database Management System (DBMS) that handles the statements that define or manage the structure of the database. DDL statements are used to create, modify, and delete database objects such as tables, indexes, or constraints. Common DDL statements include CREATE TABLE, ALTER TABLE, and DROP TABLE.

6. **What is DML Compiler in SQL?**

=> DML Compiler is a component of a DBMS that processes Data Manipulation Language (DML) statements. DML statements are used to manipulate data stored in the database. Common DML statements include SELECT, INSERT, UPDATE, and DELETE.

7. **What is SQL Key Constraints? Write an E.g. Of SQl key Constraints?**

=> Key constraints in SQL are rules that define how data in a column or set of columns should behave. There are several types of key constraints:

a. primary key constraint

b. unique constraint

c. foreign key constraint

d. check constraint

e.g. for SQL key constraint

CREATE TABLE Students (

StudentID INT PRIMARY KEY,

FirstName VARCHAR(50),

LastName VARCHAR(50)

);

8. **What is save point? How to create a save write a query?**

=> A save point is a point within a transaction to which you can later roll back. It allows you to create a kind of "bookmark" in a transaction, so you can later return to that point if needed. Save points are used to handle partial rollbacks and nested transactions.

To create save point in SQL, we can use save point statement:-

SAVEPOINT savepoint\_name;

9. **What is trigger and how to create trigger in SQL?**

=> In SQL, a trigger is a set of SQL statements that are automatically executed ("triggered") in response to a specific event that occurs in the database. These events can include actions like inserting, updating, or deleting records in a table. Triggers are often used to enforce data integrity rules, perform logging, or automate other database-related tasks.

**To create a trigger in SQL, you use the CREATE TRIGGER statement. The basic syntax for creating a trigger is as follows:**

CREATE TRIGGER trigger\_name

[BEFORE | AFTER] [INSERT | UPDATE | DELETE] ON table\_name

FOR EACH ROW

BEGIN

-- Trigger logic here

END;

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