**1. What is DBMS?**

A Database Management System (DBMS) is a program that controls creation, maintenance and use of a database. DBMS can be termed as File Manager that manages data in a database rather than saving it in file systems.

**2. What is RDBMS?**

RDBMS stands for Relational Database Management System. RDBMS store the data into the collection of tables, which is related by common fields between the columns of the table. It also provides relational operators to manipulate the data stored into the tables.

**Example: SQL Server.**

**3. What is SQL?**

SQL stands for Structured Query Language , and it is used to communicate with the Database. This is a standard language used to perform tasks such as retrieval, updation, insertion and deletion of data from a database.

Standard SQL Commands are Select.

**4. What is a Database?**

Database is nothing but an organized form of data for easy access, storing, retrieval and managing of data. This is also known as structured form of data which can be accessed in many ways.

Example: School Management Database, Bank Management Database.

**5. What are tables and Fields?**

A table is a set of data that are organized in a model with Columns and Rows. Columns can be categorized as vertical, and Rows are horizontal. A table has specified number of column called fields but can have any number of rows which is called record.

Example:.

Table: Employee.

Field: Emp ID, Emp Name, Date of Birth.

Data: 201456, David, 11/15/1960.

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

A primary key is a combination of fields which uniquely specify a row. This is a special kind of unique key, and it has implicit NOT NULL constraint. It means, Primary key values cannot be NULL.

**7. What is a unique key?**

A Unique key constraint uniquely identified each record in the database. This provides uniqueness for the column or set of columns.

A Primary key constraint has automatic unique constraint defined on it. But not, in the case of Unique Key.

There can be many unique constraint defined per table, but only one Primary key constraint defined per table.

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

A foreign key is one table which can be related to the primary key of another table. Relationship needs to be created between two tables by referencing foreign key with the primary key of another table.

**9. What is a join?**

This is a keyword used to query data from more tables based on the relationship between the fields of the tables. Keys play a major role when JOINs are used.

**10. What are the types of join and explain each?**

There are various types of join which can be used to retrieve data and it depends on the relationship between tables.

* **Inner Join.**

Inner join return rows when there is at least one match of rows between the tables.

* **Right Join.**

Right join return rows which are common between the tables and all rows of Right hand side table. Simply, it returns all the rows from the right hand side table even though there are no matches in the left hand side table.

* **Left Join.**

Left join return rows which are common between the tables and all rows of Left hand side table. Simply, it returns all the rows from Left hand side table even though there are no matches in the Right hand side table.

**11. What is normalization?**

Normalization is the process of minimizing redundancy and dependency by organizing fields and table of a database. The main aim of Normalization is to add, delete or modify field that can be made in a single table.

**12. What is Denormalization.**

DeNormalization is a technique used to access the data from higher to lower normal forms of database. It is also process of introducing redundancy into a table by incorporating data from the related tables.

**13. What are all the different normalizations?**

The normal forms can be divided into 5 forms, and they are explained below -.

* **First Normal Form (1NF):.**

This should remove all the duplicate columns from the table. Creation of tables for the related data and identification of unique columns.

* **Second Normal Form (2NF):.**

Meeting all requirements of the first normal form. Placing the subsets of data in separate tables and Creation of relationships between the tables using primary keys.

* **Third Normal Form (3NF):.**

This should meet all requirements of 2NF. Removing the columns which are not dependent on primary key constraints.

* **Fourth Normal Form (4NF):.**

Meeting all the requirements of third normal form and it should not have multi- valued dependencies.

**14. What is a View?**

A view is a virtual table which consists of a subset of data contained in a table. Views are not virtually present, and it takes less space to store. View can have data of one or more tables combined, and it is depending on the relationship.

**15. What is an Index?**

An index is performance tuning method of allowing faster retrieval of records from the table. An index creates an entry for each value and it will be faster to retrieve data.

**16. What are all the different types of indexes?**

There are three types of indexes -.

* **Unique Index.**

This indexing does not allow the field to have duplicate values if the column is unique indexed. Unique index can be applied automatically when primary key is defined.

* **Clustered Index.**

This type of index reorders the physical order of the table and search based on the key values. Each table can have only one clustered index.