MY SQL
VIVA QUESTIONS

1. **What is DDL and DML?**
   DDL (Data Definition Language): All the commands which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER.
   DML (Data Manipulation Language): All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE.

2. **What is RDBMS?**
   RDBMS: A DBMS used to manage Relational Databases is called an RDBMS (Relational Data Base Management System). Some popular RDBMS software available are: Oracle, MySQL, Sybase, Ingress.

3. **What is data inconsistency?**
   Data inconsistency occurs when same data present in two different tables does not match.

4. **What is a relation?**
   Relation/Table: A table refers to a two-dimensional representation of data arranged in columns (also called fields or attributes) and rows (also called records or tuples).

5. **What is cardinality and degree?**
   Cardinality: Total number of rows in a table is called the cardinality of the table.
   Arity/Degree: Total number of columns of a table is called the Degree of the table.

6. **What is the difference between primary key, candidate key and alternate key?**
   Primary Key: The group of one or more columns used to uniquely identify each row of a relation is called its Primary Key.
   Candidate Key: A column or a group of columns which can be used as the primary key of a relation is called a candidate key because it is one of the candidates available to be the primary key of the relation.
   Alternate Key: A candidate key of a table which is not made its primary key is called its Alternate Key.

7. **What is selection and projection?**

The SELECTION operation is a horizontal subset of table/relation and is used to choose the tuples(rows) from a relation that satisfies a given condition. It is denoted by the symbol σ (sigma).

The PROJECTION operation is a horizontal subset of table/relation and used to choose the attributes(columns) from a relation that are given in the attribute list. It is denoted by the symbol ∏ (pi).

8. **What are the different types of clauses used in where command?**

CLAUSE/KEYWORD	USAGE
DISTINCT	Used to *display distinct values (removes duplicate values)* from a column of a table.
WHERE	Used to *specify the condition* based on which rows of a table are displayed.
BETWEEN	Used to define the *range of values* within which the column values must fall to make a condition true. Range includes both the upper and the lower values.
IN	Used to select values that match any value in a *list of specified values*.
LIKE	Used for *pattern matching* of string data using wildcard characters **%** and **_.** **% (percentage):** It is used to represent any sequence of zero or more characters. **_ (underscore):** It is used to represent a single character.
IS NULL	Used to select rows in which the specified column is NULL (or is NOT NULL).
ORDER BY	Used to display the selected rows in ascending or in descending order of the specified column/expression.
GROUP BY	Group by clause is used when we need *to group the data of the table* based on certain type.

9. **What is a cartesian product?**
   Cartesian product of two tables is a table obtained by pairing each row of one table with each row of another table. The table obtained has
   columns = sum of the columns of both the tables
   rows = product of the rows of both the tables
   It is represented by the symbol X.

10. **What is a UNION?**
    Union of two tables is a table in which the number of columns is same as the number of columns of the two tables and number of rows is the sum of the number of rows of both the tables.
    Union operation can be applied on two tables only if the tables have same number and type of columns.

11. **Give a command to insert a new column into a table?** Alter table

12. **Give a command to delete a column from a table?** Alter table

13. **Give a command to delete a row from a table?** Delete from

14. **Give a command to insert a new row into a table?** Insert into

15. **What is a difference between database and table?**
    Database is a collection of related tables
    Table is a collection of related data in the form of rows and columns

16. **What is the difference between update and alter command?**
    ALTER command is a Data Definition Language Command. UPDATE command is a Data Manipulation Language Command.
    ALTER Command add, delete, modify the attributes of the relations (tables) in the database. UPDATE Command modifies one or more records in the relations.

17. **What happens when the drop table command is executed?**
    All the records as well as the entire structure of the table is deleted.

18. **In SQL can MAX function be applied to date and char type date?**
    Yes

19. **What are aggregate functions?**
    Aggregate functions work on multiple rows. There are 5 types of aggregate functions:

Aggregate function	Purpose
MAX()	To find the maximum value under the specified column

MIN()	To find the minimum value under the specified column
AVG()	To find the average of values under the specified column
SUM()	To find the sum of values under the specified column
COUNT()	To count the values under the specified column

20.   Difference between count() and count(*)

When the argument is a column name or an expression based on a column, COUNT() returns the number of non-NULL values in that column.

If the argument is a *, then COUNT() counts the total number of rows satisfying the condition, if any, in the table.

21.What is the purpose of group by clause?
Group by clause is used together with the SQL SELECT statement to group the data of the table based on certain type. It arranges identical data into groups. It returns only one single row for every grouped item.

22. What is the difference between where & having?

WHERE is used to put a condition on individual row of a table whereas HAVING is used to put condition on individual group formed by GROUP BY clause in a SELECT statement.

23. What is equi join?
When we extract data from two tables, they must have one column which is present in both the tables. An equi join of two tables is obtained by putting an equality condition on the Cartesian product of two tables.

This equality condition is put on the common column of the tables and is called equi join condition.

24. What is a foreign key?
Foreign key is a column in one table which is the primary key of another table.

For eg. The column Deptno is the primary key of dept table and the foreign key of emp table.

It is important that no entry should be made in the emp table in which deptno does not belong to dept table ie we cannot write deptno in emp table which does not exist in dept table.