2) What are aggregate functions in SQL? List and Explain five with examples.

Aggregate functions in SQL perform a calculation on a set of values and return single value. They are GROUP BY

Five aggregate functions

1) COUNT() - Count number of rows

SELECT COUNT(*) FROM employees;

2) SUM() - Adds values in a column

SELECT SUM(salary) FROM employees;

3) AVG() - Calculate Average value

SELECT AVG(salary) FROM employees;

4) MAX() - Find highest value

SELECT MAX(salary) FROM employee;

5) MIN() - Find lowest value

SELECT MIN(salary) FROM employee

22, How does the COUNT() function behave with NULL value?

The COUNT() function ignores NULL Values when used with a Column name

(Eg)

SELECT COUNT (email) FROM users;

This will count only non-NULL email values.

23, What is difference between SUM() and Count()?

Function	PURPOSE	EXAMPLE
SUM ()	Adds up numeric values in a Column	SELECT SUM (salary) FROM employees;
COUNT ()	Counts rows (or non NULL Values in a Column)	SELECT COUNT (salary) FROM employees

24, how do you group data is SQL using GROUP By
Clause?

The GROUP By clause groups rows that have the
some values in specified column.

(Eg)

SELECT coulmn mame, AGG_FUNCTION (coulmn_mame)
FROM Table_mame
GROUP by Column_name;

25, What is the Purpose of having clause? how is
different from WHERE?

The having clause is used to filtered
grouped Result after applying the GROUP BY clause

	USED		Applies to
Clause			
WHERE	Filtered row before Grouping		Individual Rows
HAVING	Filter group after aggregation		grouped datas

26) Can you use aggregate functions in where clause?
Why or why not?

No, you cannot use aggregate function in the WHERE clause.

Why not?

- The WHERE clause filters rows before any grouping or aggregation

- At the point, aggregate values like SUM(), COUNT(), etc

Solution :-
use aggregate function in the HAVING Clause, which filters after aggregations

27, Write a Query to find departments with more than 5 employees Using GROUP BY and HAVING

Query:

```sql
SELECT dept, COUNT(*) AS employee_count
FROM employees
GROUP by dept
HAVING COUNT(*) >5;
```

28, How do you find the max and Min Salary from an employee table?

— Using MAX() and MIN() aggregate functions we can find

Query:-

```sql
SELECT
MAX(Salary) AS max_salary,
MIN(Salary) AS min-salary.
FROM employees;
```

29, Write a query to calculate the average salary by department ?

SQL Query to calculate the average salary by department

Query :-
SELECT department, AVG(Salary) AS average_salary
FROM Employees
GROUP BY department ;

30, What happens if you use GROUP BY without any aggregate functions ?

- It return one row per group
- only grouped columns

Example :-
SELECT dept
FROM employees
GROUP BY dept ;