**1. What is the difference between INNER JOIN and LEFT JOIN?**

* **INNER JOIN** → returns only matching rows between two tables.
* **LEFT JOIN** → returns all rows from the left table, and matching rows from the right (NULLs if no match).

**2. How do you calculate totals using SQL?**

Use aggregate functions like SUM(), COUNT(), AVG().

Eg:

*SELECT SUM(salary) AS TotalSalary FROM Employees;*

**3. What is GROUP BY used for?**

Groups rows that share a value in one/more columns.

Used with aggregate functions.

**4. What is the HAVING clause?**

Filters groups created by GROUP BY.

Similar to WHERE function, but works after aggregation.

*SELECT Department, AVG(Salary)*

*FROM Employees*

*GROUP BY Department*

*HAVING AVG(Salary) > 50000;*

**5. How would you get the top 3 products by revenue?**

*SELECT ProductName, SUM(Quantity \* Price) AS Revenue*

*FROM OrderDetails*

*JOIN Products USING(ProductID)*

*GROUP BY ProductName*

*ORDER BY Revenue DESC*

*LIMIT 3;*

**6. What is the difference between COUNT(\*) and COUNT(column\_name)?**

COUNT(\*) → counts all rows (including NULLs).

COUNT(column\_name) → counts only non-NULL values in that column.

**7. How do you combine multiple conditions in WHERE clause?**

Use logical operators: AND, OR, NOT.

*SELECT \* FROM Employees*

*WHERE Age > 30 AND Department = 'IT';*

**8. What is a subquery?**

A query inside another query.

Can be used in WHERE, FROM, or SELECT.

*SELECT Name*

*FROM Employees*

*WHERE Salary > (SELECT AVG(Salary) FROM Employees);*

**9. What’s the difference between WHERE and HAVING?**

**WHERE** → filters rows before grouping.

**HAVING** → filters groups after grouping.

**10. How do you write efficient SQL queries?**

* Use proper indexing.
* Avoid SELECT \*.
* Filter early with WHERE.
* Use EXISTS instead of IN for large datasets.
* Optimize joins and avoid unnecessary subqueries.