1. What is SQL, and why is it important in data analytics?
SQL (Structured Query Language) is used to interact with relational databases to store, retrieve, and manipulate data. It is important in data analytics because it allows analysts to query large datasets efficiently for insights.

Example:

SELECT SUM(sales) FROM sales_data WHERE region = 'North';

2. Difference between INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL OUTER JOIN:

- **INNER JOIN:** Returns matching records from both tables.
- **LEFT JOIN:** Returns all records from the left table and matching records from the right table.
- **RIGHT JOIN:** Returns all records from the right table and matching records from the left table.
- **FULL OUTER JOIN:** Returns all records from both tables, with NULLs for non-matching records.

Example:

SELECT a.id, a.name, b.order_id

FROM customers a

LEFT JOIN orders b ON a.id = b.customer_id;

3. Difference between WHERE and HAVING clauses:

- **WHERE:** Filters rows before grouping.
- **HAVING:** Filters groups after grouping.
  Example:

  SELECT department, COUNT(*) AS employee_count

  FROM employees

  GROUP BY department

  HAVING COUNT(*) > 10;

4. How do you use GROUP BY and HAVING in a query?

SELECT department, AVG(salary) AS avg_salary

FROM employees

GROUP BY department

HAVING AVG(salary) > 50000;

5. Write a query to find duplicate records in a table:

SELECT column1, column2, COUNT(*)

FROM table_name

GROUP BY column1, column2

HAVING COUNT(*) > 1;

6. How do you retrieve unique values from a table using SQL?

SELECT DISTINCT column_name

FROM table_name;

7. Use of aggregate functions like COUNT(), SUM(), AVG(), MIN(), and MAX():

Aggregate functions summarize data.

SELECT COUNT(*) AS total, SUM(salary) AS total_salary, AVG(salary) AS avg_salary,

MIN(salary) AS min_salary, MAX(salary) AS max_salary

FROM employees;

8. Purpose if the DISTINCT Keyword in SQL:

Used to return unique values.

Example:

SELECT DISTINCT department

FROM employees;