SQL Final Test: 50 Marks

Part 1: Multiple-Choice Questions (MCQs)

(10 Questions × 1 mark each = 10 Marks)

1. What does the `GROUP BY` clause do in SQL?

a) Orders the results by column values.
b) Aggregates data into groups based on one or more columns.
c) Filters rows based on conditions.
d) Combines data from multiple tables.

2. Which of the following SQL functions returns the maximum value in a column?

a) `MAX()`
b) `COUNT()`
c) `SUM()`
d) `AVG()`

3. What is the purpose of the `HAVING` clause in SQL?

a) Filters rows after grouping.
b) Orders the rows.
c) Joins two or more tables.
d) Filters rows before grouping.

4. Which operator is used to check a column for NULL values?

a) `=`
b) `IS NULL`
c) `LIKE`
d) `NOT NULL`

5. What does the following query do?

```
SELECT * FROM employees WHERE name LIKE '%a%';
```

a) Finds names ending with 'a'.
b) Finds names containing the letter 'a'.
c) Finds names starting with 'a'.
d) Finds names with two 'a's in them.

6. Which join returns all rows from both tables, with NULLs where there is no match?

a) INNER JOIN
b) LEFT JOIN
c) RIGHT JOIN
d) FULL OUTER JOIN

7. What is the correct order of execution for the following SQL clauses?

a) SELECT → FROM → WHERE → GROUP BY → HAVING → ORDER BY
b) FROM → WHERE → GROUP BY → HAVING → SELECT → ORDER BY
c) WHERE → FROM → SELECT → GROUP BY → HAVING → ORDER BY
d) GROUP BY → SELECT → WHERE → FROM → ORDER BY → HAVING

8. What is the result of a CROSS JOIN between a table with 3 rows and a table with 4 rows?

a) 3 rows
b) 4 rows
c) 7 rows
d) 12 rows

9. Which aggregation function is used to count distinct values in a column?

a) `COUNT()`
b) `COUNT(DISTINCT column)`
c) `DISTINCT COUNT()`
d) `COUNT(*)`

10. What does the following query do?

```
SELECT department_id, COUNT(*)
FROM employees
GROUP BY department_id
HAVING COUNT(*) > 5;
```

a) Finds departments with more than 5 employees.
b) Lists all departments.
c) Counts all employees in each department.
d) Filters departments with less than 5 employees.

Part 2: Practical Questions

(20 Questions × 2 marks each = 40 Marks)

Schema for Questions

Table: Employees

ID	Name	DepartmentID	Salary	JoinDate
1	Alice	1	50000	2022-01-15
2	Bob	2	60000	2021-03-10
3	Charlie	NULL	45000	2023-02-01
4	Diana	1	70000	2020-07-25
5	Ethan	3	80000	2019-11-12

Table: Departments

DepartmentID	DepartmentName
1	HR
2	Finance
3	IT

Practical Questions

1. Write a query to retrieve all employees who joined after **2020-01-01**.
2. Retrieve the names and salaries of employees earning more than **60,000**, ordered by salary in descending order.
3. Find all employees whose names end with the letter 'e'.
4. Write a query to calculate the total salary paid to employees in the IT department.
5. List all employees who do not belong to any department.
6. Find the average salary of employees in each department.
7. Retrieve all departments that have more than one employee.
8. Write a query to retrieve the highest-paid employee's name and salary.
9. List all employees along with their department names using a JOIN.
10. Find the total number of employees in the company.
11. Retrieve the names of employees who joined in **2022**.

12. Write a query to find the minimum salary in each department.
13. Retrieve all employees along with their department names, including employees with no department.
14. Write a query to count the number of employees in each department.
15. Find all departments that have no employees.
16. Retrieve the second highest salary from the Employees table.
17. Write a query to find employees earning between **50,000** and **80,000**.
18. List the names of employees and their salaries in ascending order of salary.
19. Write a query to find employees whose names contain the substring **'an'**.
20. Retrieve all employees who belong to the HR department and earn more than **60,000**.

Scoring

- **MCQs**: 1 mark each.
- **Practical Questions**: 2 marks each.
- **Total Marks**: 50.

To follow the instructions provided, here is a suggested outline for the document:

MCQ Answers:

1. Your Answer
2. Your Answer

SQL Queries:

1. SQL Query 1:
2. SQL Query 2 :

Once the document is ready, save it as a Word or PDF file and send it to `1211@thekiranacademy.com`.

********** Good luck! **********