3rd External Exam Paper 23 Marks

Using function, join and sub query

Table Creation with Sample Records

Question 1:
You are tasked with managing employee data for a company. The company has a database with the following information:

- EmployeeID: Unique identifier for each employee
- FirstName: Employee's first name
- LastName: Employee's last name
- Department: Department in which the employee works
- Salary: Employee's salary
- JoiningDate: The date when the employee joined

Sample Records for the Employees table:

Sample Records for the `Employees` table:

EmployeeID	FirstName	LastName	Department	Salary	JoiningDate
1	Alice	Johnson	HR	60000	2021-05-10
2	Bob	Smith	IT	75000	2020-03-20
3	Charlie	Brown	Finance	90000	2019-11-15
4	David	Davis	HR	65000	2018-06-30
5	Eva	Miller	IT	72000	2022-01-01
6	Frank	Williams	Marketing	58000	2021-08-
7	Grace	Lee	Finance	88000	2020-05-20

Table creation syntax

```
CREATE TABLE Employees (
    EmployeeID INT PRIMARY KEY,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    Department VARCHAR(50),
```

```
    Salary DECIMAL(10, 2),
    JoiningDate DATE
);


INSERT INTO Employees (EmployeeID, FirstName, LastName, Department, Salary, JoiningDate)
VALUES
(1, 'Alice', 'Johnson', 'HR', 60000, '2021-05-10'),
(2, 'Bob', 'Smith', 'IT', 75000, '2020-03-20'),
(3, 'Charlie', 'Brown', 'Finance', 90000, '2019-11-15'),
(4, 'David', 'Davis', 'HR', 65000, '2018-06-30'),
(5, 'Eva', 'Miller', 'IT', 72000, '2022-01-01'),
(6, 'Frank', 'Williams', 'Marketing', 58000, '2021-08-12'),
(7, 'Grace', 'Lee', 'Finance', 88000, '2020-05-20');
```

You can see the all records in present. You need to execute below query to get the results

1. Functions- Single Row and Multi-Row

Single-Row Functions:

Question 1:
Using the sample records, find the employee's full name by combining FirstName and LastName into a single column.

Question 2: 1 mark
Calculate the uppercase version of the employee's FirstName for all employees.

Question 3:
Round off the Salary of all employees to the nearest integer. 1 mark

Question 4:
Calculate the Salary of each employee after a 10% bonus. 1 mark

Multi-Row Functions:

Question 5:
Find the average salary of employees in the IT department. 1 mark

Question 6:
How many employees are there in each department? 1 mark

Question 7:
Find the average salary of employees in each department. 1 mark

Question 8:
Use the YEAR() function to extract the year from the JoiningDate and show the year each employee joined.

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2. GROUP BY and HAVING Clause

Question 9:
Find the total salary expenditure in each department by grouping the employees based on their department. 1 mark

Question 10:
List departments where the total salary expenditure is greater than 100,000. 1 mark

Question 11:
Group employees by DepartmentID and calculate the total salary in each department. 1 mark

Question 12:

Find the department that has the highest average salary. 1 mark

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4. JOIN Concept
Consider another table Departments with the following structure and records:

DepartmentID	DepartmentName
1	HR
2	IT
3	Finance

DepartmentID	DepartmentName
4	Marketing

```
CREATE TABLE Departments (
    DepartmentID INT PRIMARY KEY,
    DepartmentName VARCHAR(50)
);
INSERT INTO Departments (DepartmentID, DepartmentName)
VALUES
(1, 'HR'),
(2, 'IT'),
(3, 'Finance'),
(4, 'Marketing');
```

Using the Employees and Departments tables, list each employee's name and the department they work in by joining both tables on the department name.

Question 13:
Perform a LEFT JOIN between the Employees and Departments tables and list all employees, even if they don't belong to any department. 2 marks

Question 14:
List the employee names along with their respective department names using an INNER JOIN between the Employees and Departments tables. 2 marks

Question 15:
Perform a RIGHT JOIN to list all departments and the employees in them, including departments with no employees.
1 mark

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5. Subqueries

Question 16:
List employees who belong to the department that has the maximum average salary. 1 mark

Question 17:
List employees whose salary is greater than the average salary of all employees. 1 mark

Question 18:
Find the average salary in each department, using a subquery. 1 mark

Question 19:
Delete employees who have the lowest salary in their respective department. 2 marks

Question 20:
Find the department(s) with the highest salary expenditure (use a subquery to find total salary by department and compare with the highest total). 2 marks