

Answer to question no: 1

Primary Key: A primary key is a single column in a table that uniquely identifies each record in that table. It must have unique values and cannot contain null values.

Composite Primary Key: A composite primary key is a combination of two or more columns in a table. Together, these columns uniquely identify each record.

Answer to the question no: 2

Join Query: Join queries are optimized by the database management system (DBMS) to improve query performance and reduce data duplication.

Not Using Join Query: Not using JOIN queries and relying on multiple separate queries on each table can increase inefficiency and workload on the database server.

Answer to the question no: 3

TABLE OF EMPLOYEES

```
CREATE TABLE Employees
(
FIRST_NAME VARCHAR(50) NOT NULL
LAST_NAME VARCHAR(50) NOT NULL
DATE_OF_NAME INT NOT NULL
DEPARTMENT_ID INT PRIMARY KEY
SALARY DECIMAL(8,2) NOT NULL
);
```

TABLE OF DEPARTMENTS

```
CREATE TABLE Departments
(
DEPARTMENT_ID INT PRIMARY KEY,
DEPARTMENT_NAME VARCHAR(50) NOT NULL,
FOREIGN KEY (DEPARTMENT_ID) REFERENCES EMPLOYEES(DEPARTMENT_ID)
);
```

Answer to the question no: 4

```
SELECT DISTINCT SALARY
FROM EMPLOYEES
ORDER BY SALARY DESC
```

LIMIT 1
OFFSET 1;

Answer to the question no: 5

```
SELECT DEPARTMENT_NAME, AVG(SALARY) AS AVERAGE_SALARY
FROM EMPLOYEES
JOIN DEPARTMENTS
ON EMPLOYEES.DEPARTMENT_ID =
DEPARTMENTS.DEPARTMENT_ID
GROUP BY DEPARTMENT_NAME
```

Answer to the question no: 6

We have 2 tables,

Name	department-id
Steven	100
Neena	101
Lex	102
Alexander	103
David	105

Employees Table

department-id	department-name
101	IT
103	sales
107	marketing
105	purchasing
104	publicRela

Department Table

Inner Join: The inner join selects records that have matching values in both tables, based on our join condition.

Example:

Employees Departments.

Fig- Inner Join

Left Join: The left join returns all records from the left table, and the matching records from the right table, based on our join condition.

Example:

employees departments.

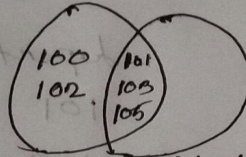


Fig - Left Join

Right Join: The right join returns all records from the right table and the matching records from the left table, based on the join condition.

Example:

employees Department

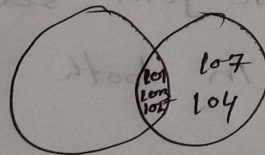


Fig - Right Join

Self Join: A self-join is a process in which a table is joined with itself, meaning it's treated as if it were two tables, temporarily, during the database query.

Example:

-- From Dummydb database

```
SELECT m.FIRST_NAME, e.FIRST_NAME
FROM EMPLOYEES AS e
JOIN EMPLOYEES AS m
ON e.EMPLOYEE_ID = m.MANAGER_ID;
```

Answer to the question no: 7

A subquery is a query that is nested inside a SELECT, INSERT, UPDATE, or DELETE statement, or inside another subquery.

Example Subquery:-

```
SELECT *  
FROM EMPLOYEES  
WHERE SALARY < (SELECT SALARY  
                 FROM EMPLOYEES  
                 WHERE FIRST_NAME = 'STEVEN' AND LAST_NAME = 'KING'  
                );
```

Answer to the question no: 8

```
SELECT *  
FROM EMPLOYEES  
WHERE SALARY < (SELECT SALARY  
                 FROM EMPLOYEES  
                 WHERE FIRST_NAME = 'STEVEN' AND LAST_NAME = 'KING'  
                );
```

Answer to the question no: 9

```
SELECT JOB_TITLE AS JOB_TYPE, COUNT(*) AS EMPLOYEE_NUMBER  
FROM JOBS  
GROUP BY JOB_TITLE;
```

Answer to the question no: 10

```
SELECT DEPARTMENTS.DEPARTMENT_NAME  
FROM DEPARTMENTS  
LEFT JOIN EMPLOYEES  
ON DEPARTMENTS.DEPARTMENT_ID =  
EMPLOYEES.DEPARTMENT_ID  
WHERE EMPLOYEES.DEPARTMENT_ID IS NULL;
```