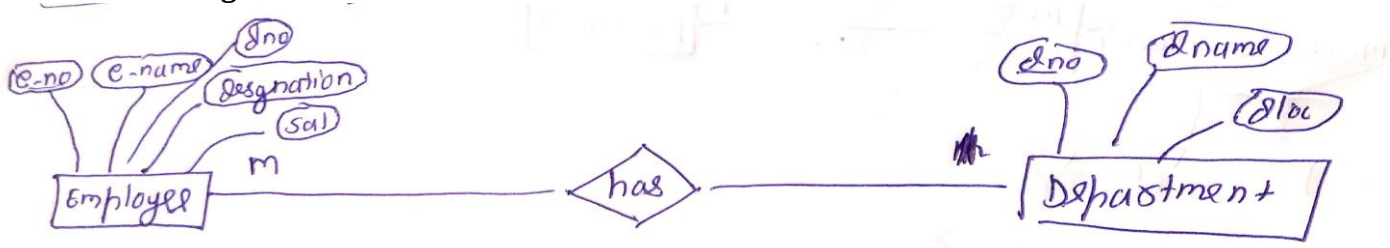
Q.1) Practical Questions on PostgresSQL Consider the following database

Employee (eno, ename, designation, sal)Department
(dno, dname, dloc)

There exists a one-to-many relationship between department and employee. Create the Relations accordingly, so that the relationship is handled properly and the relations are in normalized form(3NF).

a) Draw the ER diagram for above relational schema and normalize it in 3NF.



b) Create the above database in 3NF form in PostgresSQL using constraints.

```
CREATE TABLE Department (dno INT PRIMARY KEY, dname VARCHAR(50) NOT NULL, dloc
VARCHAR(50) NOT NULL);

CREATE TABLE Employee (eno INT PRIMARY KEY, ename VARCHAR(50) NOT NULL, designation
VARCHAR(50) NOT NULL, sal INT, dno INT, FOREIGN KEY (dno) REFERENCES Department(dno));

INSERT INTO Department (dno, dname, dloc) VALUES (101, 'Marketing', 'Mumbai'), (102, 'Sales', 'Delhi'), (103,
'Finance', 'Chennai');

INSERT INTO Employee (eno, ename, designation, sal, dno) VALUES (2001, 'Alice Smith', 'Manager', 35000, 101),
(2002, 'Bob Brown', 'Sales Representative', 22000, 102), (2003, 'Charlie Chen', 'Accountant', 28000, 103), (2004,
'David Davis', 'H.O.D.', 50000, 101), (2005, 'Emily Evans', 'Marketing Associate', 18000, 101);
```

Q2.) Using above database, solve the following queries:

a) List the details of employee whose designation is ‘H.O.D’

```
SELECT * FROM Employee WHERE designation = 'H.O.D';
```

b) List the name of employees whose salary is above 20000

```
SELECT ename FROM Employee WHERE sal > 20000;
```

c) Count the number of employees in each department.

```
SELECT D.dname, COUNT(*) AS num_employees FROM Department D INNER JOIN Employee E ON D.dno
= E.dno GROUP BY D.dname;
```

d) Display department wise employee list.

```
SELECT D.dname, E.eno, E.ename, E.designation, E.sal FROM Department D INNER JOIN Employee E ON
D.dno = E.dno ORDER BY D.dname;
```