

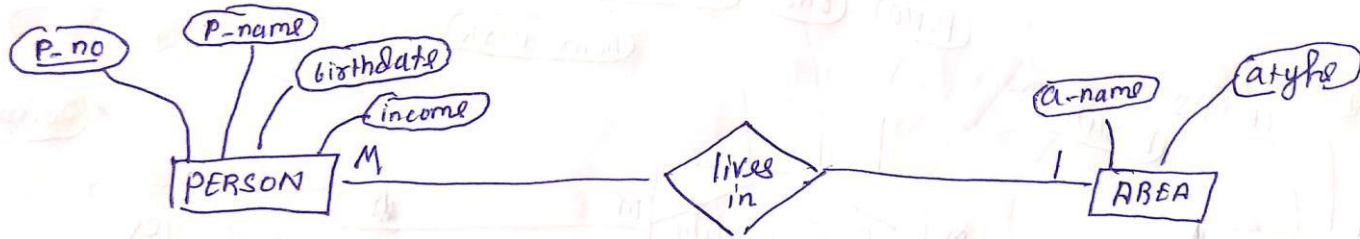
Q.1) Practical Questions on PostgreSQL the following database

Person (pnumber, pname, birthdate, income) Area (aname, area_type)

An area can have one or more person living in it, but a person belongs to exactly one area. The attribute 'area_type' can have values as either urban or rural.

Assume appropriate data types for all the attributes.

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



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

```
CREATE TABLE Area (aname VARCHAR(50) PRIMARY KEY, area_type VARCHAR(10));
```

```
CREATE TABLE Person (pnumber INT PRIMARY KEY, pname VARCHAR(50), birthdate DATE, income FLOAT, aname VARCHAR(50) REFERENCES Area);
```

```
INSERT INTO Area VALUES ('Pune', 'urban'), ('Mumbai', 'urban'), ('Alandi', 'urban'), ('Khed', 'rural'), ('Chakan', 'rural');
```

```
INSERT INTO Person VALUES (1,'Tushar', '2003-03-15', 15000.00, 'Pune'),(2,'Sujal', '2005-04-20', 12000.00, 'Pune'), (3,'Hrushika', '2004-02-19', 8000.00, 'Alandi'), (4,'Aditya', '18-06-2005', 11000, 'Alandi'),(5,'Sumeet', '07-06-2005', 9000, 'Mumbai'),(6,'Suyog', '01-05-2005', 20000, 'Khed'),(7,'Omkar', '23-07-2006', 9500, 'Chakan'),(8,'Shubham', '08-09-2005', 7500, 'Khed'),(9,'Raj', '01-02-2006', 13000, 'Mumbai'),(10,'Sarthak', '28-01-2004', 18000, 'Chakan');
```

Q2) Using above database, solve the following queries:

a) List the names of all people whose income is between Rs10,000 and Rs.20000.

```
SELECT pname FROM Person WHERE income BETWEEN 10000 AND 20000;
```

b) Find the count of people living in Pune area.

```
SELECT COUNT(*) FROM Person p JOIN Area a ON p.aname = a.aname WHERE a.aname = 'Pune';
```

c) List names of people area wise having minimum income.

```
SELECT pname, area_type FROM Person p JOIN Area a ON p.aname = a.aname WHERE (p.income, p.aname) IN (SELECT MIN(income), aname FROM Person GROUP BY aname);
```

d) Update income to Rs. 10000 of people staying in 'urban' area and having income less than Rs5000.

```
UPDATE Person SET income = 10000 WHERE aname IN ( SELECT aname FROM Area WHERE area_type = 'urban') AND income < 5000;
```