Q.1) Practical Questions on PostgresSQL the following database
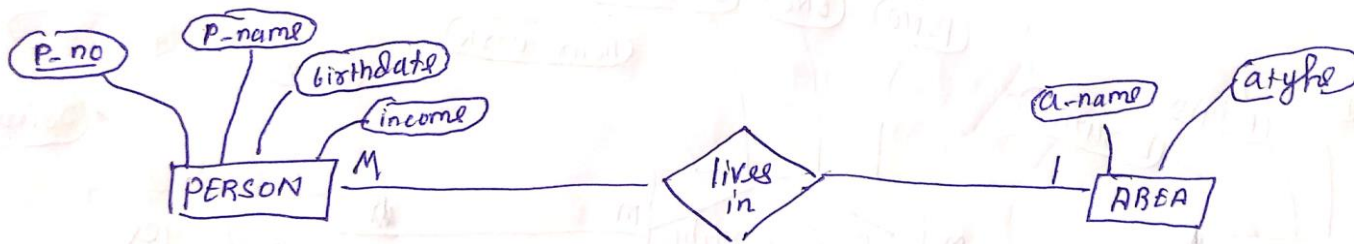
Person (pnumber, pname, birthdate, income)Area
(aname,area_type)

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 PostgresSQL 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,'Hrushi', '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 : [Marks 20]

a) List the names of all people living in 'Pune'area.
   SELECT pname FROM Person WHERE aname = 'Pune';

b) Give the count of people whose income is below Rs.10000 living in urban area.
   SELECT COUNT(*) FROM Person WHERE income < 10000 AND aname IN (SELECT aname FROM Area WHERE area_type = 'urban');

c) List all people in rural area having maximum income.
   SELECT pname, income FROM Person WHERE aname IN (SELECT aname FROM Area WHERE area_type = 'rural')AND income =(SELECT MAX(income) FROM Person WHERE aname IN (SELECT aname FROM Area WHERE area_type = 'rural'));

d) Delete information of all people staying in 'urban' area.
   DELETE FROM Person WHERE aname IN (SELECT aname FROM Area WHERE area_type = 'urban');