Q1:

CREATE TABLE IF NOT EXISTS city (

id int NOT NULL,

city varchar(255),

state varchar(255),

country varchar(255),

PRIMARY KEY (id)

);

CREATE TABLE IF NOT EXISTS planes (

plane\_number int NOT NULL,

model varchar(255),

capacity int,

create\_year int,

PRIMARY KEY (plane\_number)

);

CREATE TABLE IF NOT EXISTS pilot (

ssn int NOT NULL,

home\_city int,

fullname varchar(255),

day\_of\_birth int,

month\_of\_birth int,

year\_of\_birth int,

salary int,

PRIMARY KEY (ssn),

FOREIGN KEY (home\_city) REFERENCES city(id)

);

CREATE TABLE IF NOT EXISTS flight (

time\_takeoff int,

time\_landing int,

flight\_number int NOT NULL,

captain\_ssn int,

plane\_number int,

takeoff\_city int,

landing\_city int,

PRIMARY KEY (flight\_number),

FOREIGN KEY (captain\_ssn) REFERENCES pilot(ssn),

FOREIGN KEY (plane\_number) REFERENCES planes(plane\_number),

FOREIGN KEY (takeoff\_city) REFERENCES city(id),

FOREIGN KEY (landing\_city) REFERENCES city(id)

);

Q2:

Select city

From city

Where country = ‘Germany’

Q3:

Select P.fullname

From city C, pilot P

Where C.id = P.home\_city

And C.country = ‘Germany’

Q4:

Select P.fullname

From pilot P

Where P.ssn in (Select F.captain\_ssn

From flight F

Where

F.take\_off\_city in (Select C.id

From City C

Where C.country = ‘Germany’)

Or F.landing\_city in (Select C.id

From City C

C.country = ‘Germany’))

Q5:

Select Distinct P.model

From planes P

Where P.plane\_number in (Select F.plane\_number

From flight F

Where

F.take\_off\_city in (Select C.id

From City C

Where C.country = ‘US’)

Or F.landing\_city in (Select C.id

From City C

C.country = ‘US’))

Q6:

Select Distinct P.model

From planes P

Where P.plane\_number in (Select F.plane\_number

From flight F

Where (F.take\_off\_city in (select C.id

From city C

Where C.country = ‘US’)

And F.landing\_city NOT in (select C.id

From city C

Where C.country = ‘US’))

Or

(F.take\_off\_city NOT in (select C.id

From city C

Where C.country = ‘US’)

And F.landing\_city in (select C.id

From city C

Where C.country = ‘US’))

Q7:

A,b,c,d

a,b,c

Q8:

1. 13
2. Find planes’ information which take off from Pittsburgh

First do natural join, so we won’t join all the tuples, so it’s more effient.

Select P.\*

From city C, planes P

Where P.plane\_number in (Select F.plane\_number

From city C, flight F

Where C.city = ‘Pittsburgh’

And C.id = F.take\_off\_city )