1. a) Data Definition Language deals with database schemas and descriptions, of how the data should reside in the database.

• CREATE – to create database and its objects like (table, index, views, store procedure, function and triggers).
• ALTER – alters the structure of the existing database.
• DROP – delete objects from the database.
• RENAME – rename an object.

b) Data Manipulation Language deals with data manipulation and it is used to store, modify, retrieve, delete, and update data in database.

• SELECT – retrieve data from one or more tables.
• INSERT – insert data into a table.
• UPDATE – updates existing data within a table.
• DELETE – delete all records from a table.
• MERGE – UPSERT operation (insert or update).

2.

```
create table customers(
    id              SERIAL PRIMARY KEY,
    full_name       VARCHAR(50),
    timestamp_      TIMESTAMP ,
    delivery_address  TEXT
);
create table orders(
    code            INT PRIMARY KEY,
    customer_id     INT REFERENCES customers(id) on update cascade on delete cascade,
    total_sum       DOUBLE PRECISION,
    is_paid         BOOLEAN
);

drop table order_items;
create table order_items(
    order_code    INT REFERENCES orders(code) on update cascade on delete cascade,
    product_id    VARCHAR REFERENCES products(id) on update cascade on delete cascade,
    quantity      INT,
    UNIQUE(order_code,product_id)
);

create table products(
    id              VARCHAR PRIMARY KEY,
    name_           VARCHAR NOT NULL UNIQUE,
    description     TEXT,
    price           DOUBLE PRECISION
);
```

3.

```
CREATE TABLE students.students(
        full_name VARCHAR(30),
        age INT CONSTRAINT students_age_check CHECK (age>0 AND age<100),
        birth_date DATE,
        gender gender,
        average_grade real CONSTRAINT grade_check CHECK (average_grade>=0 AND
       average_grade<=100),
        nationality VARCHAR(30),
        phone_number VARCHAR(30),
        social_category VARCHAR(30)
);
CREATE TABLE students.instructors(
        full_name VARCHAR(30),
        speaking_lang VARCHAR[],
        work_exp CHAR(100),
        possible_remote BOOLEAN NOT NULL
);
CREATE TABLE students.students_relatives(
       full_name VARCHAR(30),
       address CHAR(50),
       phone_number VARCHAR(30),
       position VARCHAR(50)
);
CREATE TABLE students.student_social(
       school VARCHAR(50),
       graduation_date DATE,
       address VARCHAR(50),
       country VARCHAR(30),
       gpa float(3) CONSTRAINT gpa_check CHECK ( gpa>0.0 AND gpa<4.0),
       honors float(3) CONSTRAINT honors_check CHECK ( honors>0.0 AND honors<4.0
);
```

4.

```
INSERT INTO cutomers (full_name, timestamp)  VALUES ('Ali', 'GETDATE()');
UPDATE cutomers
SET timestamp = ‘2022-10-06 13:00:00’ WHERE full_name = ‘Ali’;

DELETE FROM customers where full_name = 'Ali' ;
```