Task 1.

The difference between DDL and DML is in its purposes. DDL – Data Definition Language is needed to create, delete or change the whole table. DML – Data Manipulation Language is needed to change the content of the table.

   a) CREATE, DROP, ALTER;
   b) INSERT, SELECT, DELETE, UPDATE;

Task 2.

```
CREATE TABLE products (
    id          varchar PRIMARY KEY,
    name        varchar NOT NULL UNIQUE,
    description text,
    price       double precision NOT NULL CHECK (price > 0)
);
```

```
CREATE TABLE customers (
    id                integer PRIMARY KEY,
    full_name         varchar(50) NOT NULL,
    timestamp         timestamp NOT NULL,
    delivery_address  text NOT NULL
)
```

```
CREATE TABLE orders (
    code          integer PRIMARY KEY,
    customer_id   integer NOT NULL references customers(id),
    total_sum     double precision NOT NULL,
    is_paid       boolean NOT NULL
)
```

```
CREATE TABLE order_items (
    order_code    integer,
    product_id    varchar,
    quantity      integer NOT NULL CHECK(quantity > 0),
    PRIMARY KEY(order_code, product_id),
    FOREIGN KEY(order_code) references orders(code),
    FOREIGN KEY(product_id) references products(id)
)
```

Task 3.

```
CREATE TABLE students_info (
    id          varchar(5) PRIMARY KEY,
    full_name   varchar(100) NOT NULL,
    age         integer NOT NULL,
```

```sql
    birth_date       date NOT NULL,
    gender           char NOT NULL CHECK(gender In('m', 'f')),
    info             text,
    add_info         text
)

CREATE TABLE students_uni_info (
    student_id       varchar(5) references student_info(id) PRIMARY KEY,
    average_grade    numeric(2,1) NOT NULL CHECK(average_grade > 0 and
average_grade <= 4),
    dorm             boolean NOT NULL
)

---

CREATE TABLE instructors (
    id               varchar(4) PRIMARY KEY,
    full_name        varchar(100) NOT NULL,
    remote_lessons   boolean NOT NULL
)

CREATE TABLE languages_list (
    instructor_id    varchar(4) references instructors(id),
    language         varchar(100) PRIMARY KEY,
    level            varchar(15) NOT NULL
)

CREATE TABLE work_experience (
    instructor_id    varchar(4) references instructors(id),
    company_name     varchar(50) NOT NULL,
    work_begin       date NOT NULL,
    work_end         date NOT NULL,
    CHECK(work_end > work_begin),
    PRIMARY KEY(instructor_id, company_name)
)

---

CREATE TABLE lessons_list (
    id               varchar(4) PRIMARY KEY,
    title            varchar(100) NOT NULL,
    instructor_id    varchar(4) references instructors(id)
)

CREATE TABLE lesson_details (
    lesson_id   varchar(4) references lessons_list(id),
    begin_time  time NOT NULL,
    end_time    time NOT NULL,
    room        integer NOT NULL CHECK(room > 0),
      CHECK(end_time > begin_time),
    PRIMARY KEY(begin_time, room)
)

CREATE TABLE students_list (
    student_id        varchar(5) references student_info(id),
    lesson_in_schedule  varchar(4) references lessons_list(id),
    PRIMARY KEY(student_id, lesson_in_schedule)
)
```

Task 4.

```sql
INSERT INTO customers(id, full_name, delivery_address) VALUES
    (1, 'Raiymbek Baktybayev', 'Kazybek Bi'),
    (2, 'Medina Musina', 'Kalkaman'),
    (3, 'Adil Zhapar', 'Gorniy Gigant'),
    (4, 'Zhaksylyk Ashimov', 'Samal'),
    (5, 'Sharafitdin Jangalala', 'JK LEGENDA');

INSERT INTO products VALUES
    (1, 'potato', 'yellow ball', 200),
    (2, 'RTX 30100', '10000 fps graphics card', 10000),
    (3, 'retake', 'something that brings sadness', 180000),
    (4, 'goodair book', 'something you dont want to lose', 255000);

INSERT INTO orders VALUES
    (1, 4, 255000, false),
    (2, 1, 200, true),
    (3, 3, 180000, true),
    (4, 3, 180000, true),
    (5, 2, 10000, true),
    (6, 4, 255000, false);

DELETE FROM orders WHERE total_sum > 100;

UPDATE products SET price = price + 10000
    WHERE price > 100000;

INSERT INTO orders VALUES
    (1, 2, 530000, true),
    (2, 5, 1000, true);

INSERT INTO order_items VALUES
    (1, 4, 2),
    (2, 1, 5);

UPDATE customers SET full_name = 'Nurassyl Turdalin'
    WHERE full_name = 'Sharafitdin Jangalala';

DELETE FROM order_items WHERE quantity > 1;

DELETE FROM orders WHERE is_paid = true;
```