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

```
    birth_date      date NOT NULL,
    gender          char NOT NULL CHECK(gender In('m', 'f')),
    average_grade   numeric(2,1) NOT NULL CHECK(average_grade > 0 and
average_grade <= 4),
    info            text,
    dorm            boolean NOT NULL,
    add_info        text
)

CREATE TABLE instructors (
    id              varchar(4) PRIMARY KEY,
    full_name       varchar(100) NOT NULL,
    lang_list       varchar(1000) NOT NULL,
    work_exp        varchar(1000) NOT NULL,
    remote_lessons  boolean NOT NULL
)

CREATE TABLE lesson_participants (
    title               varchar(100) NOT NULL UNIQUE,
    instructor_name     varchar(100) NOT NULL,
    instructor_id       varchar(4) references instructors(id),
    students_list       varchar(1500) NOT NULL,
    room                integer NOT NULL CHECK(room > 0)
)
```

Task 4.

```
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;
```