Quiz 3

_____
Score (out of 10)

Taken by: _____ _____
Name **Student ID**

Graded by: _____ _____
Name **Student ID**

- You will have **15** minutes to finish this quiz.
- Please don't start the quiz until the instructor directs you to do so. On the flip side, when the time is up, please stop writing when the instructor directs you to do so.
- We will discuss the answers right after the quiz. You will grade another student's quiz. For this, please switch quizzes with another student.
- When you get your quiz back, make sure that the "Graded by" fields are filled out.

Take AB&C's ER diagram on the last page. You may detach that page if you want to.
In case an entity set's or an attribute's name contain a space, remove that space for your SQL statements. Our goal is a relational schema based on (parts of) that diagram.

The IMEI (15 decimal digits: 14 digits plus a check digit) is a number that identifies a mobile device and includes information on the origin, model, and serial number of the device.

1. What is a good data type for storing the IMEI of a device and why? Options are INT, VARCHAR, CHAR – 1 point

   CHAR(15), because an IMEI always has the same length. INT is bad because it ends at 4294967295. Also, it truncates leading zeroes.

2. Where would you store the relationship set between customer and phone line and why? – 1 point

   As a column in PhoneLine, because it is a 1:m relationship.

3. Give the SQL query for creating the Phone Line table. Do not enforce referential integrity yet. – 2 points (1 for attributes, 1 for primary and foreign key)

```
CREATE TABLE PhoneLine (
   PhoneNumber CHAR(10),
   AccountNumber INT,
   PRIMARY KEY (PhoneNumber),
   FOREIGN KEY (AccountNumber) REFERENCES Customer
   )
```

4. What part has to be added to or modified in your CREATE statement for PhoneLine so that a phone line gets deleted when the customer record is deleted? – 1 point

```
FOREIGN KEY (AccountNumber) REFERENCES Customer ON DELETE CASCADE
```

5. You are asked to also include the date when a phone line was opened ("Date Opened") into the Phone Line table. Write the SQL query for modifying the existing table. – 1 point

```
ALTER TABLE PhoneLine ADD COLUMN DateOpened DATE
```

6. Write a good SQL statement to insert a new device model (Noika's 3310, which runs BrickOS) into the database. – 1 point

```
INSERT INTO DeviceModel (Manufacturer, Name, Platform)
VALUES ("Noika", "3310", "BrickOS")
```

```
INSERT INTO DeviceModel VALUES ("Noika", "3310", "BrickOS")
```

is not a good answer (and may be wrong), because it assumes a certain order of the columns.

7. Write an SQL query that returns all phone models made by Nokia. – 1 point

```
SELECT * FROM DeviceModel WHERE Manufacturer = "Nokia"
```

8. Connect these options for referential integrity (`ON DELETE _____`) with their meaning – 2 points