Quiz 4 **Score (out of 9) _____**

Taken by: Name_____ Student ID_____

Graded by: Name_____ Student ID_____

Each question is worth one point.

Suppose that a pharmacy uses a database with two tables as defined below. Example tuples are **Drug**('abc', 'Advil', 300) and **Supplier**('Pfizer', 'Advil', 10.9).

> **Drug** (did CHAR(3), dname VARCHAR(10), qty INTEGER, PRIMARY KEY(id))
> **Supplier** (sname VARCHAR(10), dname VARCHAR(10), price REAL, primary key (sname, dname), foreign key (dname) REFERENCES Drug(dname))

Question 1: Relational Algebra

1. If the quantity for a drug is lesser than 10, it needs to be restocked. Write a relational algebra expression to find names of drugs that need to be restocked. Call this resulting relation **Ra**.

2. Write a relational algebra expression to find names of suppliers for drugs whose quantity is between 11 and 20 (both inclusive).

3. Give a relational algebra expression to compute names of suppliers that make all the drugs that need to be restocked. You are allowed to use the results **Ra** from question (1).

4. Are Supplier and Drug relations union-compatible?

5. What is the degree of "Drug X Supplier" (cross product)?

6. While computing Drug X Supplier, we see these two relations have an attribute with the same name. What operation could you use to resolve this conflict?

Question 2: SQL

1. Write a SELECT SQL query to find names of drugs whose quantity is 30.

2. Write a SQL query to find all distinct drugs with a name of at least 4 characters and starting and ending with 'M'. Name the result column 'MCPD'.

3. Write a SQL query to find the names of suppliers for those drugs which have quantity between 11 and 20 (inclusive).