

## Quiz (Transactions and Locks)

**Instructions:** For each problem, you must perform all of the following tasks correctly in order to get credit.

1. Circle all SQL commands that block.
2. Write an X through all commands that error.
3. If a command causes a deadlock, write DEADLOCK and stop the problem.
4. Write the output of each SELECT statement.

You are allowed to use a computer and access the internet, but you are not allowed to connect to postgres and run postgres commands.

### Problem 1:

#### Session 1

```
1 CREATE TABLE t (a INT PRIMARY KEY);
2 CREATE TABLE u (b INT REFERENCES t (a));
3 BEGIN;
4
5
6 INSERT INTO t VALUES (9);
7
8 COMMIT;
```

#### Session 2

```
1
2
3
4 BEGIN ISOLATION LEVEL
5 REPEATABLE READ;
6
7 SELECT count (*) FROM u;
8
9 INSERT INTO u VALUES (9);
10 COMMIT;
```

## Problem 2:

Session 1	Session 2
1 CREATE TABLE t ( 2     a INT UNIQUE 3     DEFERRABLE INITIALLY DEFERRED 4     ); 5 BEGIN ISOLATION LEVEL 6 READ UNCOMMITTED; 7 INSERT INTO t VALUES (5); 8 9 10 11 INSERT INTO t VALUES (6); 12 13 14 15 COMMIT;	1 2 3 4 5 6 7 8 BEGIN; 9 SELECT count(*) FROM t; 10 INSERT INTO t VALUES (6); 11 12 SELECT count(*) FROM t; 13 INSERT INTO t VALUES (5); 14 ABORT; 15 16 SELECT count(*) FROM t;

### Problem 3:

#### Session 1

```
1 CREATE TABLE t ( a INT );
2 INSERT INTO t VALUES (9);
3 INSERT INTO t VALUES (10);
4 BEGIN;
5
6
7 UPDATE t SET a = a+1;
8
9 COMMIT;
```

#### Session 2

```
1
2
3
4
5 BEGIN ISOLATION LEVEL
6 REPEATABLE READ;
7
8 DELETE FROM t WHERE a=10;
9
10 COMMIT;
```

#### Problem 4:

##### Session 1

```
1 CREATE TABLE t (a INT PRIMARY KEY);
2
3
4
5
6 BEGIN;
7 INSERT INTO t VALUES (1);
8 INSERT INTO t VALUES (2);
9 INSERT INTO u VALUES (2);
10
11
12
13 SELECT count(*) FROM t;
14
15 INSERT INTO t VALUES (3);
16 COMMIT;
17
18
19
20 SELECT count(*) FROM t;
```

##### Session 2

```
1
2 CREATE TABLE u (
3     b INT REFERENCES t(a)
4     DEFERRABLE INITIALLY DEFERRED
5 );
6
7
8
9
10 BEGIN ISOLATION LEVEL
11 REPEATABLE READ;
12 INSERT INTO u VALUES (3);
13
14 INSERT INTO u VALUES (1);
15
16
17 UPDATE u SET b=5;
18 COMMIT;
19 SELECT count(*) FROM t;
```