Group 55. Transaction Management – Chapter 15
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Self-Check Questions

1. In the case that an error occurs during a transaction, which SQL statement would be used to recover?
   a. END TRANSACTION
   b. COMMIT
   c. BEGIN TRANSACTION
   d. ROLLBACK

2. If a user USER1 holds a Shared Lock, which of the following can another user USER2 be granted immediately?
   a. Exclusive (X) Lock
   b. Shared (S) Lock
   c. Both
   d. Neither

3. If a user USER3 holds an Intent Exclusive (IX) Lock, which of the following can another user USER4 NOT be granted immediately?
   a. Intent Shared (IS) Lock
   b. Intent Exclusive (IX) Lock
   c. Shared (S) Lock
   d. All of the above can be granted immediately

A transaction is considered “commit”-ed when its log records are on stable storage.

4. Using the above definition for commit, in the Immediate Update Approach, which kinds of transactions would not need any undo or redo?
   a. Transactions that start and finish before the checkpoint
   b. Transactions that start before the checkpoint, but commit before failure
   c. Transactions that start and commit after the checkpoint but before failure
   d. Transactions that start before the checkpoint, and are not committed at failure

5. Which problem can occur when the Repeatable Read Level of Isolation is set?
   a. Phantom Reads
   b. Non-repeatable reads
   c. Scholar’s lost updates
   d. No problems are permitted under this isolation level

Discussion Questions

6. Describe what a Deadlock is and give an example of a counter-measure employed by DBMSs to prevent this from happening.
ANSWER KEY:

1. d. ROLLBACK
2. b. Shared (S) Lock
3. c. Shared (S) Lock
4. a. Transactions that start and commit before the checkpoint
5. a. Phantom Reads

6. A Deadlock is a state that is achieved when two or more users hold a lock and are dependent on each other to move forward, causing a complete halt in progress for both users.

One example of a strategy utilized by DBMSs is the Two-Phase Locking Protocol, another is using an Update Lock.