SELF TEST ANSWERS

Describe Each Data Manipulation Language (DML) Statement

1. ☑ **B, C, D, F.** These are the DML commands: they can all be rolled back.

   ☒ **A, E.** COMMIT terminates a transaction, which can then never be rolled back. TRUNCATE is a DDL command and includes a built-in COMMIT.

2. ☑ **B.** Assuming no constraint violations, the primary key can updated like any other column.

   ☒ **A, C, D. A** is wrong because there is no restriction on updating primary keys (other than constraints). **C** is wrong because there is no need to do it in such a complex manner. **D** is wrong because the UPDATE will apply its own lock: you do not have to lock the row first.

3. ☑ **C.** This is the expected behavior: the statement is rolled back, and the rest of the transaction remains uncommitted.

   ☒ **A, B, D. A** is wrong because, while this behavior is in fact configurable, it is not enabled by default. **B** is wrong because, while this is in fact possible in the event of space errors, it is not enabled by default. **D** is wrong because only the one statement will be rolled back, not the whole transaction.

Insert Rows into a Table

4. ☑ **D. A, B,** and **C** will all succeed, even though **B** will force the database to do some automatic type casting.

   ☒ **A, B, C, E. A, B,** and **C** are wrong because each one will succeed. **E** is wrong because **A**, **B**, and **C** will all succeed.

5. ☑ **D.** The syntax is wrong: use either the VALUES keyword or a subquery, but not both. Remove the VALUES keyword, and it will run. C3 and C4 would be populated with NULLs.

   ☒ **A, B, C, E. A** is wrong because there is no need to provide values for columns not listed. **B** and **C** are wrong because an INSERT can insert a set of rows, so there is no need to restrict the number with a WHERE clause or by using MAX or MIN to return only one row. **E** is wrong because the statement is not syntactically correct.

6. ☑ **C.** The statement is syntactically correct, and the use of "MAX(REGION_ID) + 1" guarantees generating a unique number for the primary key column.

   ☒ **A, B, D. A** is wrong because the function will generate a unique value for the primary key. **B** is wrong because there is no problem using a scalar subquery to generate a value for a VALUES list. What cannot be done is to use the VALUES keyword and then a single nonscalar subquery to provide all the values. **D** is wrong because if there is a third column, it will be populated with a NULL value.

Update Rows in a Table

7. ☑ **A.** This is the simplest (and therefore the best) way.

☒ **B, C, D.** All these will work, but they are all needlessly complicated: no programmer should use unnecessary statements.

8. ☑ **D.** Any arithmetic operation on a NULL returns a NULL, but all other rows will be updated.

☒ **A, B, C. A** and **B** are wrong because the lack of a WHERE clause means that every row will be processed. **C** is wrong because trying to do arithmetic against a NULL is not an error (though it isn't very useful, either).

Delete Rows from a Table

9. ☑ **C.** An UPDATE, without a WHERE clause, is the only way.

☒ **A, B, D. A** is wrong because there is no such syntax: a DELETE affects the whole row. B is wrong because there is no such syntax: a TRUNCATE affects the whole table. **D** is wrong because, while this command does exist (it is part of the ALTER TABLE command), it will remove the column completely, not just clear the values out of it.

10. ☑ **A, C.** The TRUNCATE will be faster, but the DELETE will get there too.

☒ **B** is wrong because this will remove the table as well as the rows within it. **D** is wrong because the rows will still be there—even though they are populated with NULLs.

Control Transactions

11. ☑ **B.** The principle of isolation means that only JOHN can see his uncommitted transaction.

☒ **A, C, D. A** is wrong because transaction isolation means that no other session will be able to see the changes. **C** and **D** are wrong because a committed transaction can never be rolled back.

12. ☑ **C.** Transaction isolation means that no other session will be able to see the changes until they are committed.

☒ **A, B, D. A** is wrong because locking is not relevant; writers do not block readers. **B** is wrong because isolation restricts visibility of in-progress transactions to the session making the changes; the schema the users are connecting to does not matter. **D** is wrong because savepoints are only markers in a transaction; they do not affect publishing changes to other sessions.

13. ☑ **A, C, F.** COMMIT and ROLLBACK are the commands to terminate a transaction explicitly; TRUNCATE will do it implicitly.

☒ **B, D, E. B** is wrong because DELETE is a DML command that can be executed within a transaction. **D** and **E** are wrong because creating savepoints and rolling back to them leave the transaction in progress.