



Gradiance Online Accelerated Learning

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Homework Assignment Submitted Successfully.

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You obtained a score of 51.0 points, out of a possible 102.0 points.
You have answered 3 questions correctly.
You have answered 3 questions incorrectly.
For each correct answer, you received 17.0 points
and for each incorrect answer, you lost 0.0 points.

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Submission number: 521443
Submission certificate: DG972736
Submission time: 2020-04-06 21:39:26 PST (GMT - 8:00)

Help

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Number of questions: 6
Positive points per question: 17.0
Negative points per question: 0.0
Your score: 51

1. Let R be the transaction $[X := X + 10; Z := Z - 1]$, S be the transaction $[X := X + 15; Y := Y * 2]$ and T be the transaction $[Y := Y + 10; Z := Z - 5]$. What values of X, Y and Z could appear on disk when the undo log has the sequence of records:

```
(START R);
(START S);
(R, X, 5);
(R, Z, 10);
(COMMIT R);
(S, X, 15);
(S, Y, 20);
(START T);
(COMMIT S);
(T, Y, 40);
(T, Z, 9);
a) X = 5; Y = 40; Z = 4;
b) X = 5; Y = 50; Z = 9;
c) X = 30; Y = 10; Z = 4;
d) X = 30; Y = 40; Z = 9;
```

Answer submitted: **d)**

You have answered the question correctly.

2. At the time of a system crash, let the log segment (in the undo/redo logging

scheme) be as follows:

```
(START R);
(R, B, 1, 20);
(R, A, 13, 15);
(COMMIT R);
(START T);
(T, A, 15, 16);
(START CKPT(T));
(T, B, 20, 10);
(START S);
(COMMIT T);
(S, A, 16, 10);
(END CKPT);
(S, B, 10, 50);
(COMMIT S).
```

What are the possible values of A and B on disk when the crash occurred (i.e. before recovery from the crash)?

- a) A = 10; B = 50;
- b) A = 15; B = 50;
- c) A = 13; B = 1;
- d) A = 15; B = 1;

Answer submitted: **a)**

You have answered the question correctly.

3. Let a database contain initial values of X = 5, Y = 13 and Z = 6. In the redo logging scheme, let the redo log contain the sequence of records:

```
(START, R);
(R, Y, 15);
(R, X, 15);
(COMMIT R);
(START S);
(S, X, 10);
(START T);
(S, Z, 16);
(T, Y, 20);
(COMMIT T).
```

Which of the following could be the state of the database on disk?

- a) X = 5; Y = 13; Z = 16;
- b) X = 15; Y = 15; Z = 6;
- c) X = 5; Y = 20; Z = 16;
- d) X = 15; Y = 13; Z = 16;

Answer submitted: **c)**

Your answer is incorrect.

4. Consider the following sequence of records present in an undo/redo log:

```
(START, S); (S, A, 10, 20); (START T); (COMMIT S); (T, B, 5, 15); (START
U); (T, A, 20, 30); (COMMIT T); (U, B, 15, 25); (U, A, 30, 40).
```

Let both A and B fit in the same database block (i.e., both are INPUT from disk to memory together and both are OUTPUT from memory to disk together). Assuming that a quiescent checkpoint occurred just before S started, determine what are the possible values of A and B on disk. Identify one such possibility from the list below.

- a) $A = 30; B = 5$
- b) $A = 40; B = 15$
- c) $A = 40; B = 25$
- d) $A = 10; B = 15$

Answer submitted: **c)**

You have answered the question correctly.

5. Let a database has the constraint " $X > Y > 0$ ". Which of the following transactions does NOT preserve the consistency of the database? (Assume X and Y are real numbers - not necessarily integers).

- a) $X := X * 2; Y := Y * 2$
- b) $X := Y + 1; Y := X - 1$
- c) $X := X + 20; Y := Y * 2$
- d) $X := X * 2; Y := X - 2 * Y$

Answer submitted: **b)**

Your answer is incorrect.

6. Which of the following transactions does NOT preserve the consistency of the database that has the constraint "A must be less than B"? (Assume A and B are integers { not necessarily positive.})

- a) $A := A + 2 * B; B := A + B$
- b) $A := A - 5; B := B - 2$
- c) $A := B - 2 * A; B := A + 7$
- d) $A := A + 5; B := B + 7$

Answer submitted: **b)**

Your answer is incorrect.