

0/11 Questions Answered

Vitamin 8

STUDENT NAME

Q1

1 Point

What is a transaction?

- ☐ A sequence of unrelated operations
- ☐ A sequence of operations that are together a logical unit
- ☐ A type of operator
- ☐ Multiple sequences of operations that are each independent logical units

Save Answer

Q2

4 Points

Select the property that prevents the following issues:

Data read by transaction 2 was a mix of data from before transaction 1 and data from after transaction 1

- ☐ Atomicity

- ☐ Consistency
- ☐ Isolation
- ☐ Durability

Uniqueness constraints were violated

- ☐ Atomicity
- ☐ Consistency
- ☐ Isolation
- ☐ Durability

Only half of the operations of a transaction were executed

- ☐ Atomicity
- ☐ Consistency
- ☐ Isolation
- ☐ Durability

Transaction commits, but the stored data is unchanged

- ☐ Atomicity
- ☐ Consistency
- ☐ Isolation
- ☐ Durability

Save Answer

Q3

8 Points

Q3.1

2 Points

A serial schedule is one that interleaves operations from different transactions.

- ☐ True
- ☐ False

Two schedules can be equivalent if they involve different transactions.

- ☐ True
- ☐ False

A schedule is serializable if it is equivalent to some serial schedule.

- ☐ True
- ☐ False

Save Answer

Q3.2

2 Points

T1	R(A)	W(B)	
T2	R(B)	R(A)	W(C)

Which of the following operations have a conflict?

☐ T1's R(A) and T1's W(B)

☐ T1's W(B) and T2's R(B)

☐ T1's R(A) and T2's R(A)

☐ T1's R(A) and T2's W(C)

The above schedule is conflict serializable.

☐ True

☐ False

Save Answer

Q3.3

2 Points

T1	R(A)		W(C)
T2	W(A)	W(B)	
T3		W(A)	W(B) W(C)

The above schedule is conflict serializable.

☐ True

☐ False

All serializable schedules are conflict serializable.

☐ True

☐ False

Save Answer

Q3.4

2 Points

All conflict serializable schedules are view serializable.

☐ True

☐ False

Save Answer

Q4 Deadlocks

4 Points

Q4.1

If T1 wants a resource held by T2, and T1 has higher priority than T2, and we are using wait-die:

☐ T1 aborts

☐ T1 waits for T2

☐ T2 aborts

☐ T2 waits for T1

Q4.2

If T1 wants a resource held by T2, and T1 has lower priority than T2, and we are using wait-die:

and we are using wait die.

- ☐ T1 aborts
- ☐ T1 waits for T2
- ☐ T2 aborts
- ☐ T2 waits for T1

Q4.3

If T1 wants a resource held by T2, and T1 has higher priority than T2, and we are using wound-wait:

- ☐ T1 aborts
- ☐ T1 waits for T2
- ☐ T2 aborts
- ☐ T2 waits for T1

Q4.4

If T1 wants a resource held by T2, and T1 has lower priority than T2, and we are using wound-wait:

- ☐ T1 aborts
- ☐ T1 waits for T2
- ☐ T2 aborts
- ☐ T2 waits for T1

Save Answer

Q5 Deadlocks Part 2

1 Point

T1	S(A)		S(C)
T2		X(B)	X(A)
T3			S(A) S(C)

Consider the schedule above. Is there a deadlock?

- ☐ Yes
- ☐ No

Save Answer

Q6 Two Phase Locking

4 Points

Two Phase Locking allows for releasing locks before the end of the transaction.

- ☐ True
- ☐ False

Two Phase Locking prevents cascading aborts.

- ☐ True
- ☐ False

Strict Two Phase Locking allows for releasing locks before the end of the transaction.

- ☐ True
- ☐ False

False

Strict Two Phase Locking prevents cascading aborts.

- ☐ True
- ☐ False

Save Answer

Q7 Latency and Throughput

3 Points

Jimmy Neutron is trying to improve his concurrent database's performance. Determine how his changes affect latency and throughput.

Q7.1

Jimmy quadruples the number of cores in his system.

- ☐ Increase Latency
- ☐ Reduce Latency
- ☐ Increase Throughput
- ☐ Reduce Throughput

Q7.2

Jimmy halves the number of cores in his system.

- ☐ Increase Latency
- ☐ Reduce Latency
- ☐ Increase Throughput
- ☐ Reduce Throughput

Q7.3

Jimmy removes his database's concurrency, so now each transaction runs serially.

☐ Increase Latency☐ Reduce Latency☐ Increase Throughput☐ Reduce Throughput

Q8 ACID

3 Points

Uh oh, it turns out Jimmy's database has some serious bugs. Determine which properties of ACID each of the following bugs violate.

Q8.1

Jimmy runs three transactions (T1, T2, and T3) concurrently. T1 finishes executing and commits its changes. T3 writes some records to a table, but before T3 executes the rest of its reads and writes, T2 reads those new records and commits. Horrified, Jimmy Neutron pulls the plug on the machine, shutting it down. He then reboots, and the database's state is the way it was before any of these transactions ran.

☐ Atomicity☐ Consistency☐ Isolation

☐ Durability**Q8.2**

Jimmy tunes the database and runs three transactions again (T1, T2, and T3). All three transaction fail, but some of the tables in the database are now different. Appalled, Jimmy Neutron shuts down the machine again and reboots. The database's state is the way it was before any of these transactions ran.

☐ Atomicity☐ Consistency☐ Isolation☐ Durability**Q8.3**

Jimmy tunes the database again and runs three transactions (T1, T2, and T3). After the three transactions run, Jimmy notices that two of the records in his precious pets table have the same primary key. He knows that this wasn't the case before the transactions ran. Apoplectic, Jimmy destroys his machine and vows to start over.

☐ Atomicity☐ Consistency☐ Isolation☐ Durability[Save Answer](#)

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