CSCI3170 Short Assignment #5 (Solution)

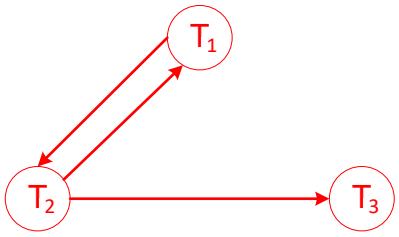
Name: Pass / Fail

Student ID:

1. Consider the following history:

T_1	T_2	T_3
Read[b]		
	Write[b]	
Write[b]		
	Write[a]	
		Read[a]

a) Draw the conflict serialization graph of the above history. Please arrange your nodes as follows.
Ans:



b) Is the history in part (a) conflict serializable? Why?
Ans:
No, because there is a cycle in the serialization graph.

2. Suppose each log record for recovery describes a single database write with the following fields <Transaction name, Data item name, Old value, New value>. After a crash failure, the following log records are found in disk.

Log Record
<T1, start>
<T1, A, 0, 100>
<T2, start>
<T1, B, 0, 200>
<T1, commit>
<T2, B, 200, 300>

Suppose the values of A and B found in the disk after the crash are 0 and 300 respectively.

a) Which recovery strategy (deferred update or immediate update) is used by the system? Please explain.

Ans:

It is immediate update as the values are written into the database before a transaction has committed.

b) Which transaction has committed before the Crash?

Ans:

T1

c) Please fill the action (redo/undo/no action) and the values of A and B in the following table after each log record for write operation is considered in the recovery process.

Ans:

	Action(redo/undo/no action)	A	B
		0	300
<T2,B,200,300>	undo	0	200
<T1,B,0,200>	no action	0	200
<T1,A,0,100>	redo	100	200