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Unit Code: FIT3171
Applied Class No: 06

Comments for your marker:

(a)

TIME	**TRANS**	**ACTION**	**A**	**B**	**C**	**D**
0	**T1**	**UPDATE A**	X(T1)			
1	**T1**	**UPDATE B**		X(T1)		
2	**T2**	**READ C**			S(T2)	
3	**T2**	**READ D**				S(T2)
4	**T3**	**UPDATE A**	T3 wait T1			
5	**T2**	**UPDATE C**			X(T2)	
6	**T1**	**ROLLBACK**	X(T3)			
7	**T3**	**UPDATE C**			T3 wait T2	
8	**T2**	**UPDATE B**		X(T2)		
9	**T2**	**UPDATE A**	T2 wait T3			

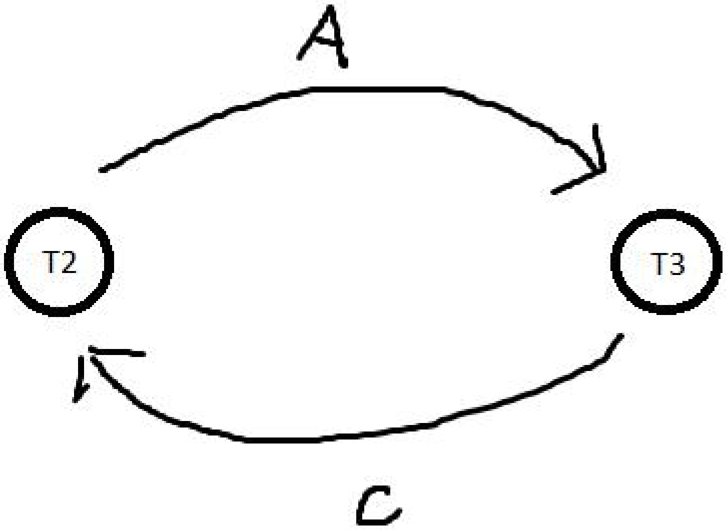
- Does a deadlock exist in this transaction sequence?
- Explain why you came to this conclusion.

At time **4,** transaction **T3** waits on **T1** to complete in order to use the resource **A** as **T1** has an exclusive lock on the resource. However, a little down the line (2 time slots later), **T1** uses a rollback and this frees up resource **A** allowing **T3** to proceed and get an exclusive lock on resource **A**.

At time **7**, transaction **T3** waits on **T2** to complete in order to use the resource **C** as **T2** has an exclusive lock on the resource.

Meanwhile, at time **9**, transaction **T2** waits on **T3** to complete in order to use the resource **A** as **T3** has an exclusive lock on the resource (after attaining it after **T1** rollback).

Based on this we notice that there is a loop whereby **T3** is waiting on **T2** to complete but **T2** requires **T3** to complete so that it can access resource. Since there is a loop between the transactions, it can be concluded that there is a deadlock present.



Hence, there **is** a deadlock present.

(b)

TRL ID	TRX NUM	PREV PTR	NEXT PTR	OPERATION	TABLE	ROW ID	ATTRIBUTE	BEFORE VALUE	AFTER VALUE
101	601	Null	102	Start	****Start Transaction				
102	601	101	103	UPDATE	PRODUCT	ABC	PROD_QOH	1205	1206
103	601	102	104	UPDATE	PART	A	PART_QOH	567	566
104	601	103	110	UPDATE	PART	B	PART_QOH	98	97
110	601	104	121	UPDATE	PART	C	PART_QOH	549	548
121	601	110	null	COMMIT	****End of Transaction				

…. add extra rows as needed