

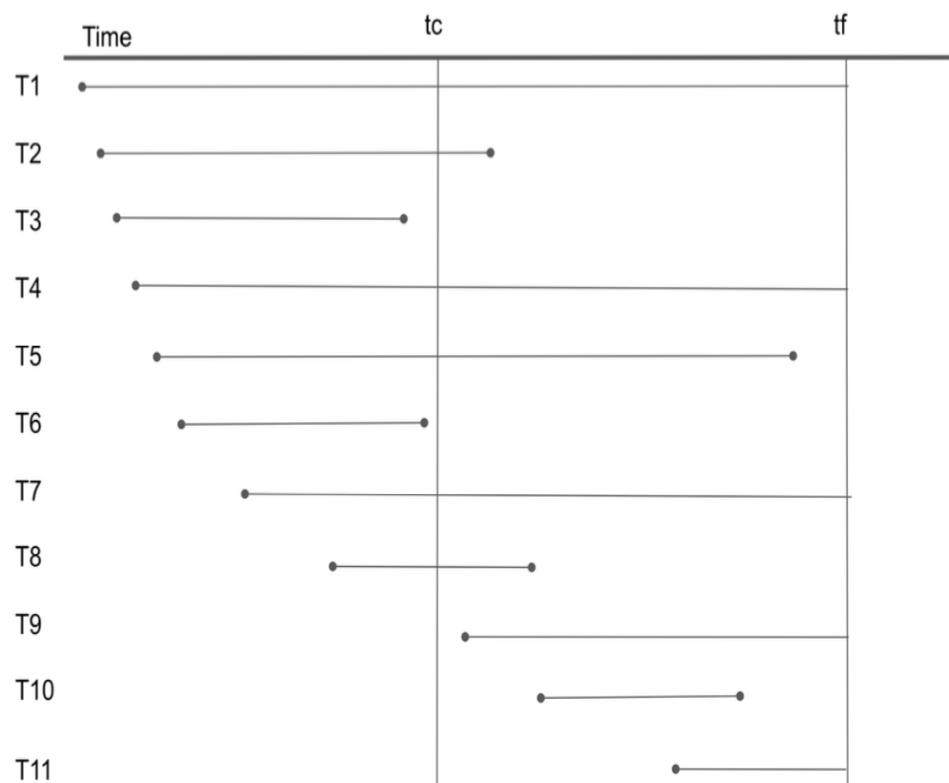
--Student ID: 34165479

--Student Name: Akshit Mehdiratta

--Unit Code: FIT9132

--Applied Class No: 04\_OnCampus

### 5.a)



#### 3 stages

##### Between start and tc

T3 is in data base already as it is committed before the check point.

##### Between tc and tf

T2, T5, T8 start before the check point but are committed after the check point.

T10 starts and is committed both after the check point.

Hence, T2, T5, T8, T10 would all be part of redo list.

**After Tf**

T1, T4, T7, T9, T11 are not committed before the failure and hence are put into the undo list

All the transactions in the redo list are deleted with their previous logs and then redone before saving their logs. All the transactions in the undo list are undone and their logs are deleted.

REDO LIST				UNDO LIST				
T2	T5	T8	T10	T1	T4	T7	T9	T11

5b.

**(i) States at Time 34:**

A – T10 WAIT T12

B – NO WAIT

C - T11 WAIT T12

D – T12 WAIT T4

E – T8 WAIT T2

F – T2 WAIT T3

G – T4 WAIT T9 AND T3 WAIT T9

H – NO WAIT

(ii)

TIME	TRANS	ACTION	A	B	C	D	E	F	G	H
0	T1	Read A	S(T1)							
1	T2	Read B		S(T2)						
2	T1	Read C			S(T1)					
3	T4	Read D				S(T4)				
4	T5	Read A	S(T5)							
5	T2	Read E					S(T2)			
6	T2	Update E					X(T2)			
7	T3	Read F						S(T3)		
8	T2	Read F						S(T2)		
9	T5	Update A	X(T5)							
10	T1	Commit								
11	T6	Read A	T6 WAIT T5							
12	T5	Rollback	S(T6)							
13	T6	Read C			S(T6)					
14	T6	Update C			X(T6)					
15	T7	Read G							S(T7)	
16	T8	Read H								S(T8)
17	T9	Read G							S(T9)	
18	T9	Update G							T9 wait T7	
19	T8	Read E					T8 wait T2			
20	T7	Commit							X(T9)	
21	T9	Read H								S(T9)

22	T3	Read G							T3 WAIT T9	
23	T10	Read A	S(T10)							
24	T9	Update H								X(T9)
25	T6	Commit								
26	T11	Read C			S(T11)					
27	T12	Read D				S(T12)				
28	T12	Read C			S(T12)					
29	T2	Update F						T2 WAIT T3		
30	T11	Update C			T11 Wait T12					
31	T12	Read A	S(T12)							
32	T10	Update A	T10 WAIT T12							
33	T12	Update D				T12 Wait T4				
34	T4	Read G							T4 Wait T9	

(iii) no deadlock

: