CS & IT ENGINEERING

Database Management System

Transaction & Concurrency Control

DPP – 02 Discussion Notes

By- Vijay Agarwal sir

01 Question

02 Discussion

Q.1

Consider the following schedule S of transaction T_1, T_2 and T_3.

S: $r_1(x); r_2(x); r_3(y); w_1(x); r_2(z); r_2(y); w_2(y); w_1(z);$

Which one of the schedule below is the correct serialization of the above.

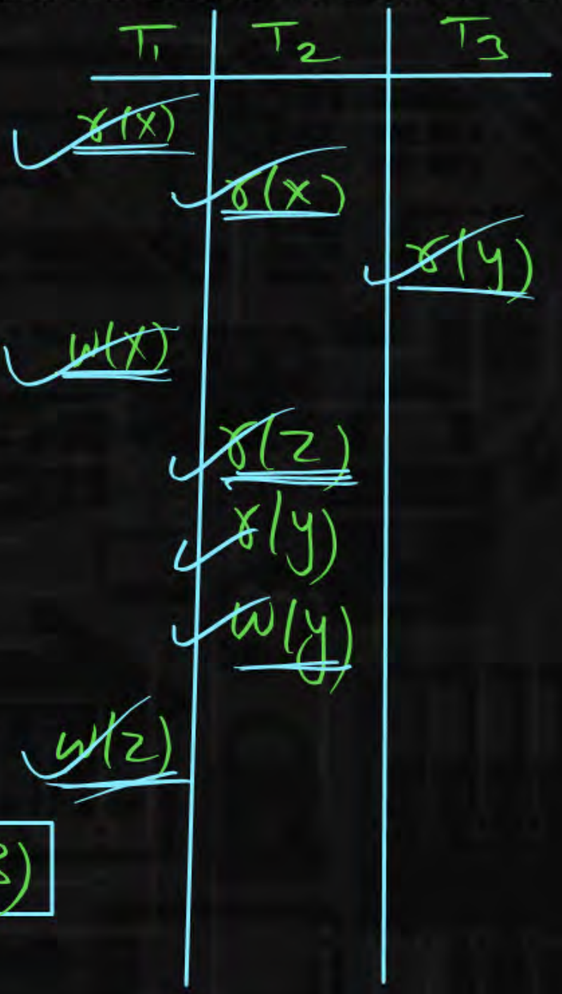
[MCQ]

A. $T_2 \rightarrow T_1 \rightarrow T_3$

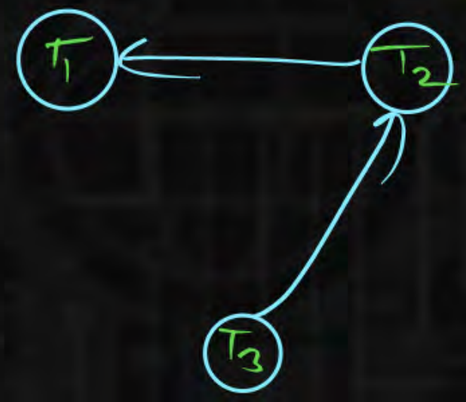
B. $T_3 \rightarrow T_2 \rightarrow T_1$

C. $T_3 \rightarrow T_1 \rightarrow T_2$

D. $T_2 \rightarrow T_3 \rightarrow T_1$



Ans(B)



$< T_3\ T_2\ T_1 >$

Q.2

Consider the transactions T_1, T_2 and T_3 and the schedules S_1 and S_2 given below.

T_1: $r_1(A); r_1(C); w_1(A); w_1(C)$

T_2: $r_2(B); r_2(C); w_2(C)$

T_3: $r_3(B); r_3(A); w_3(B)$

S_1: $r_1(A); r_3(B); r_3(A); r_2(B); r_2(C); w_3(B); w_2(C); r_1(C); w_1(A); w_1(C)$

S_2: $r_1(A); r_3(B); r_2(B); r_3(A); r_1(C); r_2(C); w_3(B); w_1(A); w_2(C); w_1(C)$

Which one of the following statements about the schedule is TRUE? [MCQ]

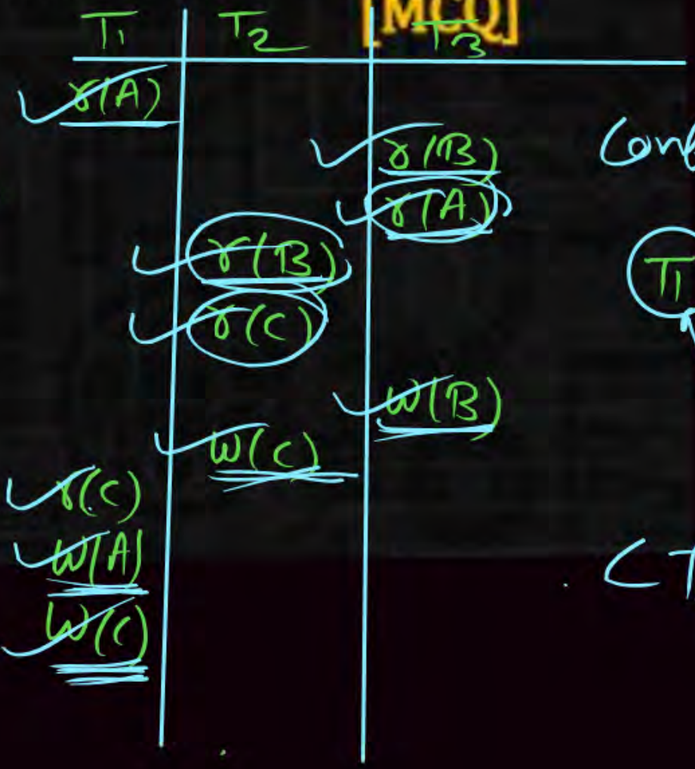
A. Only S_1 is conflict serializable.

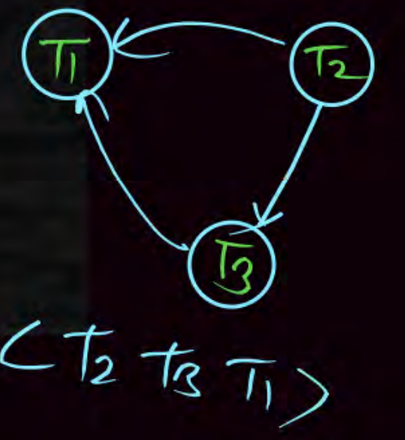
B. Only S_2 is conflict serializable.

C. Both S_1 and S_2 are conflict serializable.

D. Neither S_1 nor S_2 is conflict serializable.

Ans(A)





Conflict Serializable

< T2 T3 T1 >

Q.2

Consider the transactions T_1, T_2 and T_3 and the schedules S_1 and S_2 given below.

T_1: $r_1(A); r_1(C); w_1(A); w_1(C)$

T_2: $r_2(B); r_2(C); w_2(C)$

T_3: $r_3(B); r_3(A); w_3(B)$

S_1: $r_1(A); r_3(B); r_3(A); r_2(B); r_2(C); w_3(B); w_2(C); r_1(C); w_1(A); w_1(C)$

S_2: $r_1(A); r_3(B); r_2(B); r_3(A); r_1(C); r_2(C); w_3(B); w_1(A); w_2(C); w_1(C)$

Which one of the following statements about the schedule is TRUE? [MCQ]

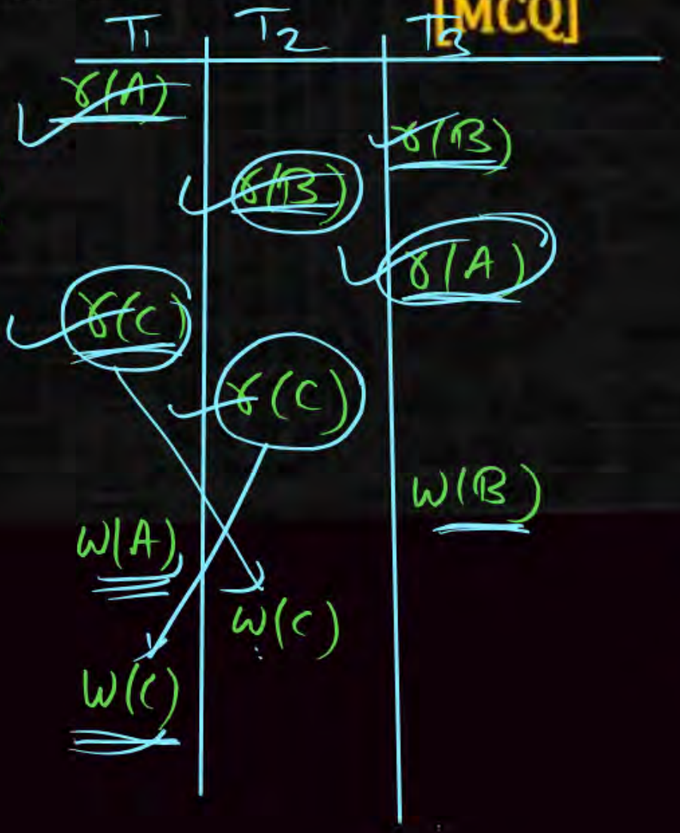
A. Only S_1 is conflict serializable.

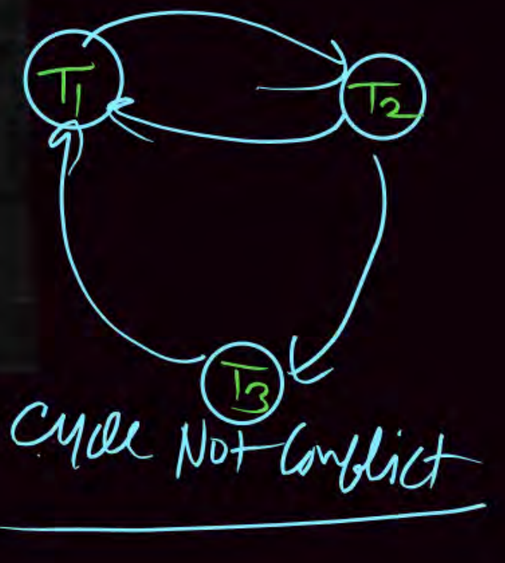
B. Only S_2 is conflict serializable.

C. Both S_1 and S_2 are conflict serializable.

D. Neither S_1 nor S_2 is conflict serializable.

Ans (A)





Cycle Not Conflict

Q.3

Which of the following schedule is view serializable but not conflict serializable.

[MCQ]

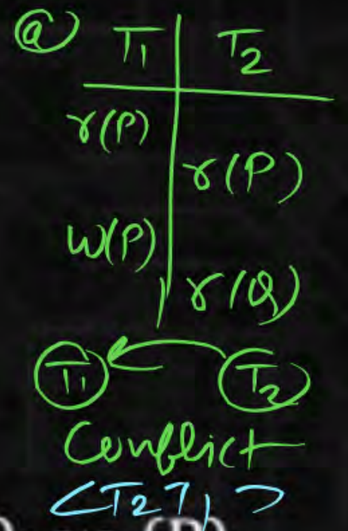
A. $r_1(P); r_2(P); w_1(P); r_2(Q)$

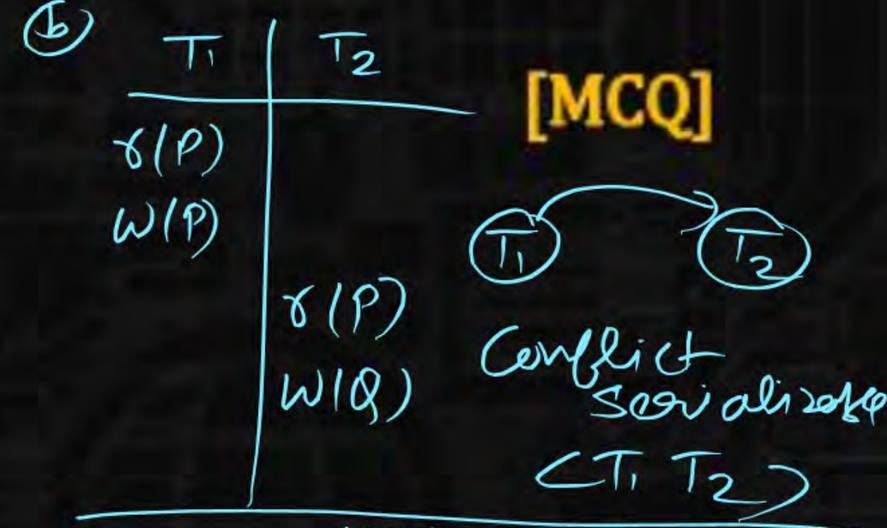
B. $r_1(P); w_1(P); r_2(P); w_2(Q)$

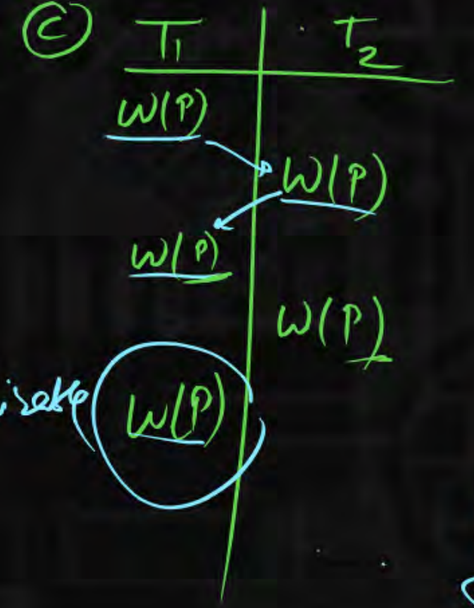
C. $w_1(P); w_2(P); w_1(P); w_2(P); w_1(P)$

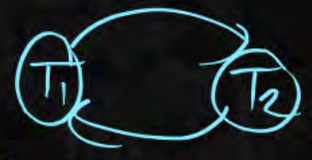
D. None of these.

Ans (C)

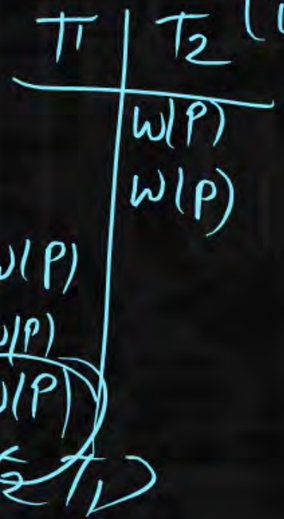








Cycle Not conflict But View Serializable



Q.4

Consider the following transactions T_1 and T_2:

T_1	T_2
Read(A);	Read(A);
Update A = A + 100;	
	Update A = A – 50;
Write(A);	
	Write(A);

If Two Different transaction Perform Write Operation & between these 2 write operation there is No Read Operation, then Here 2nd write operation over written the first write operation.

Lost of Updation(T_1)

⇓

Lost Update Problem

The above transaction has ____.

[MCQ]

Ans (A)

A. Lost update problem

B. Dirty read problem

C. Unrepeatable read problem

D. Incorrect summary problem

Q.5

Consider the following schedule.

Time	T_1	T_2
t_0	Read Item(A);	
t_1		Read Item(A);
t_2		A = A + X;
t_3		Write Item(A);
t_4	Read Item(A);	

Which of the following concurrency problem exists in the above given schedule?

[MCQ]

A. Dirty read

B. Unrepeatable read

C. Lost update

D. Both a and b

Q.6

_____Problem occurs when a transaction reads data from a database, then another transaction reads the same database data, and this particular data is deleted by an operation of the first transaction.

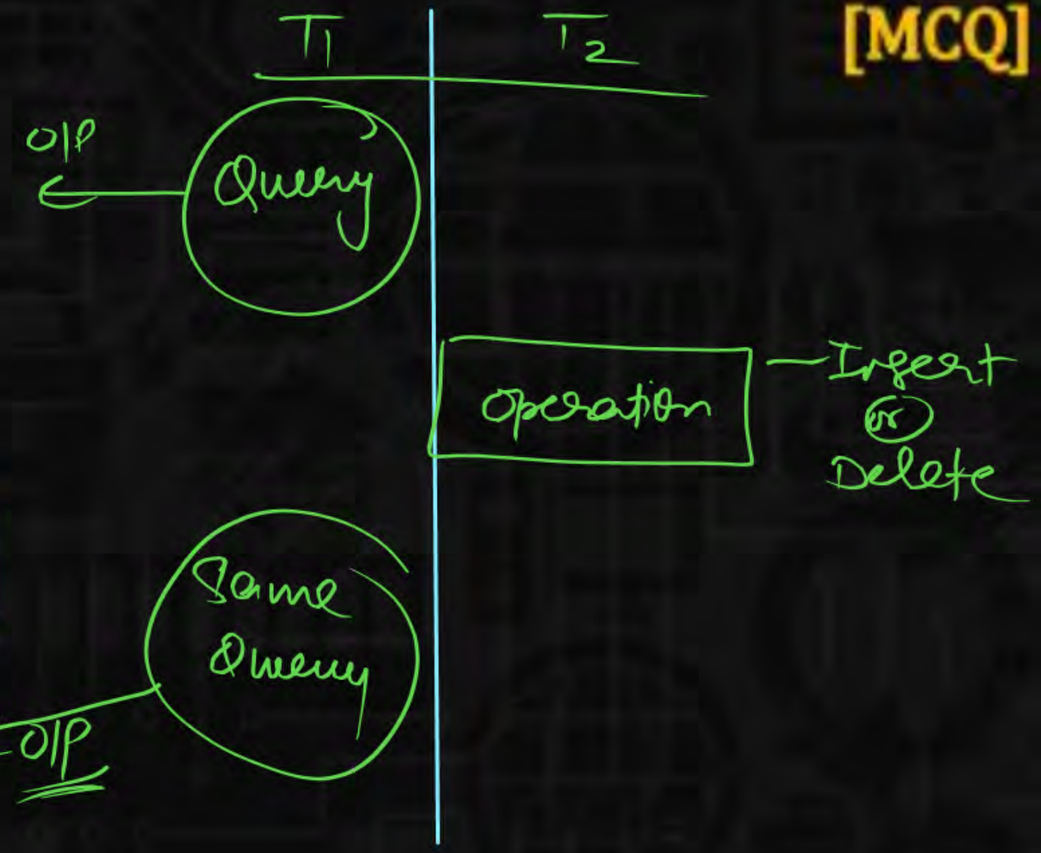
[MCQ]

A. Dirty read

B. Unrepeatable read problem

C. Phantom read

D. Lost update problem



Avg(C).

Q.7

Consider a schedule S:

$r_1(x), r_2(y), w_2(x), w_3(z), r_4(z), r_3(x), w_3(y), r_4(x), w_4(y)$

Choose the correct statements for the above schedule S.

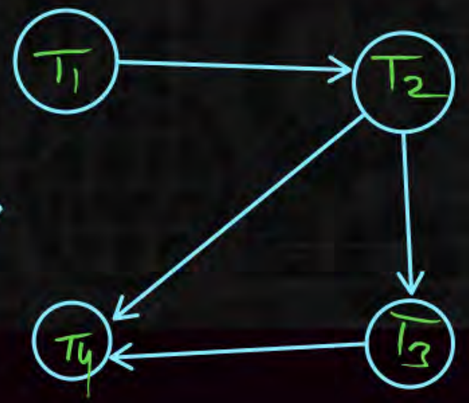
[MCQ]

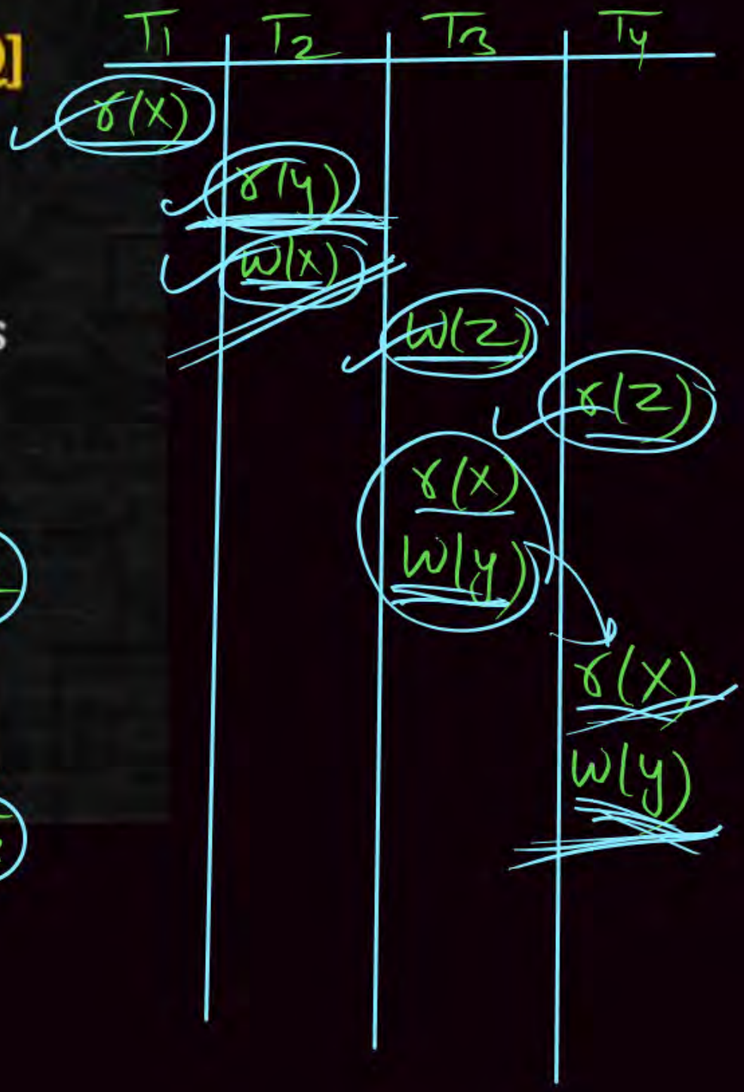
A. The schedule S is not serializable.

B. The schedule S is conflict serializable with schedule S as $T_1 \rightarrow T_2 \rightarrow T_3 \rightarrow T_4$.

C. The schedule S is not view serializable.

D. None of the above.





CT1 T2 T3 T4>

Ans (B)

Q.8

Consider the below schedule.

S: $r_1(A), r_2(B), w_2(A), r_3(A), w_1(B)\ w_3(A)$

Choose the correct statement from the following.

[MCQ]

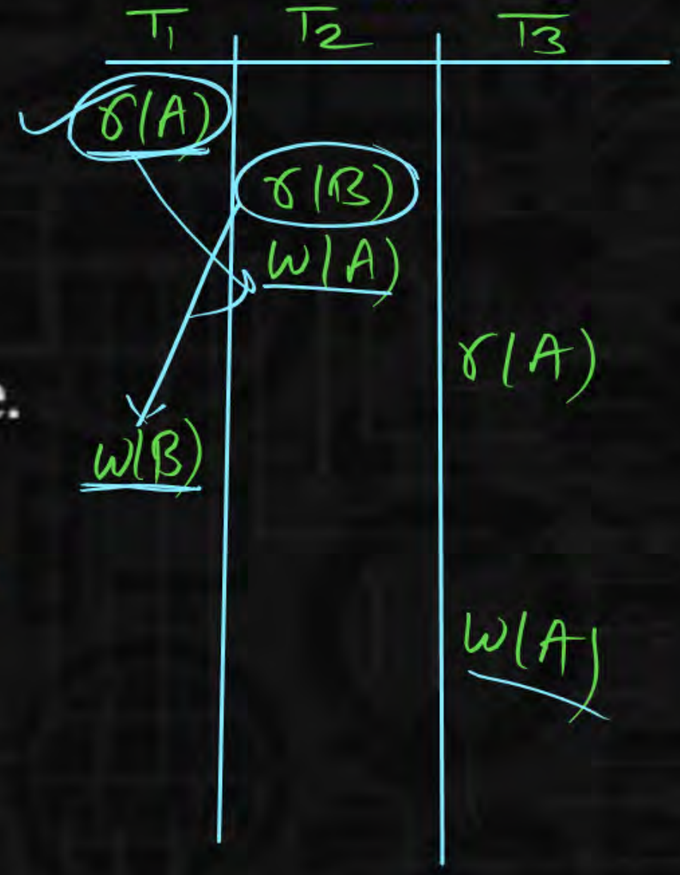
A. S is conflict serializable schedule.

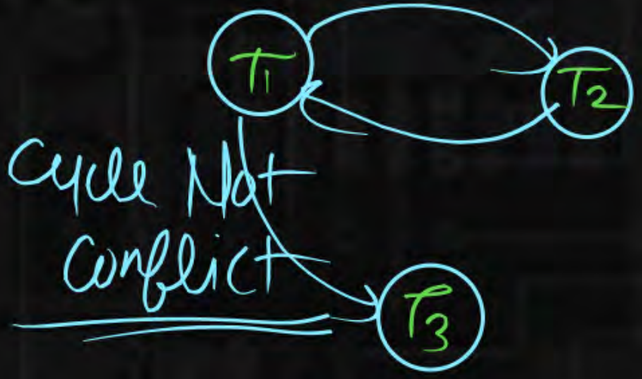
B. S is not conflict serializable schedule.

C. S may or may not be view serializable schedule.

D. None of these

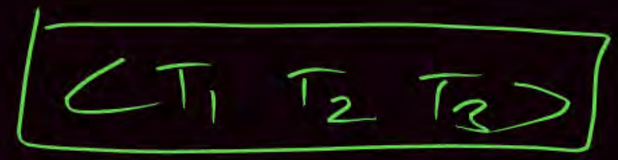
Ans (B)





View Serializable

3 Transaction ⇒ 3! ⇒ 6 Serial Schedule



$\langle T_1\ T_3\ T_2 \rangle$

$\langle T_2\ T_3\ T_1 \rangle$

$\langle T_3\ T_2\ T_1 \rangle$

$\langle T_3\ T_1\ T_2 \rangle$

Dummy

1. Initial Read
2. final write
3. write - Read (Updated - Read)

Q.8 Consider the below schedule.

S: $r_1(A), r_2(B), w_2(A), r_3(A), w_1(B)\ w_3(A)$

Choose the correct statement from the following.

[MCQ]

A. S is conflict serializable schedule.

B. S is not conflict serializable schedule.

C. S may or may not be view serializable schedule.

D. None of these

Checking View

(T1 T2 T3)

T1	T2	T3
r(A)		
w(B)		
	r(B)	
	w(A)	
		r(A)
		w(A)

(1) Initial Read ⇓ on Data Item B Not Satisfy

Not View of (T1 T2 T3)

(T2 T1 T3)

T1	T2	T3
	r(B)	
	w(A)	
r(A)		
w(B)		
Initial Read On A ⇓ Not Satisfied		r(A)
Not View		w(A)

Given Question

T1	T2	T3
r(A)		
	r(B)	
	w(A)	
		r(A)
w(B)		
		w(A)

Q.9

Choose the correct statements from the following.

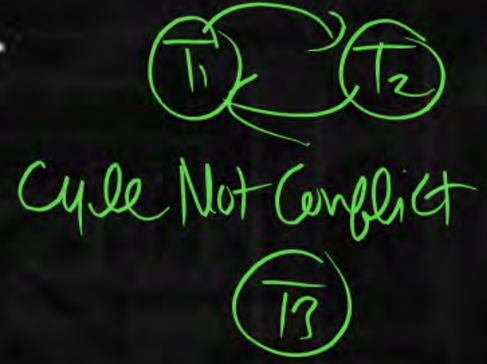
[MSQ]

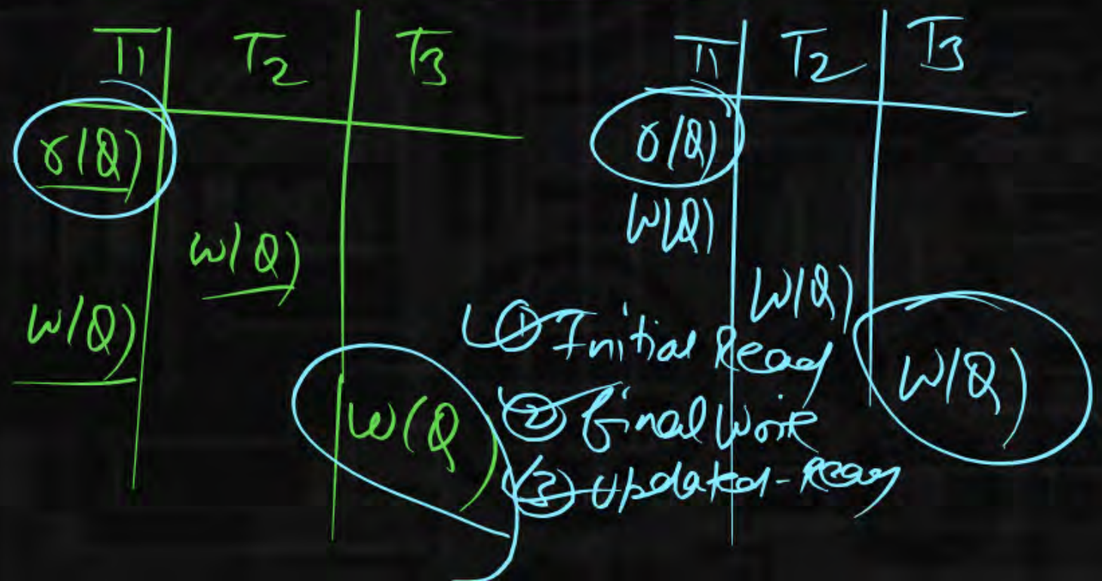
A. To test view serializability we make use of precedence graph

B. To test conflict serializability we make use of precedence graph.

C. If there exists no blind write and the schedule is not conflict serializable then we can conclude that it is not view serializable.

D. All of the above.





Precedence graph

↓

To Test Conflict Serializability

⇓

CNC ⇒ Cycle Not Conflict

↳ May (or) May Not be View Serializable


THANK YOU GW
SOLDIERS !