Branch : CSE & IT　　　　Batch : Hinglish

Database Management System
Transaction & Concurrency Control　　DPP 04

[MCQ]

1. Consider the following statements:

P:　If a schedule is allowed by 2PL, it guarantee conflict serializable.

Q:　A conflict serializable schedule is always allowed by 2PL.

Which of the following is/are correct?

(a)　P only

(b)　Q only

(c)　Both P and Q

(d)　Neither P nor Q

[MSQ]

2. Consider the following schedule: -

S: $R_1(P)$; $W_1(P)$; $R_2(P)$; $R_2(Q)$; $R_1(Q)$; $W_1(Q)$; C_1; C_2;

Which of the following is correct?

(a)　S is conflict serializable.

(b)　S is not conflict serializable.

(c)　S is allowed by 2PL.

(d)　S is not allowed by 2PL.

[MCQ]

3. Consider the following statements:

P : A schedule allowed by 2PL is always strict – recoverable

Q : A strict recoverable schedule is always allowed by 2PL.

Which of the following statement is/are CORRECT?

(a)　Q only

(b)　Neither P nor Q

(c)　P only

(d)　Both P and Q

[MSQ]

4. Consider the following schedule –

S : $R_x(A)$; $W_y(A)$; $W_y(B)$; $R_z(B)$; $R_z(C)$; $W_x(C)$; C_x; C_y; C_z;

Which of the following is/are CORRECT?

(a)　The given schedule is conflict serializable.

(b)　The given schedule is allowed by 2PL.

(c)　The given schedule is not allowed by 2PL.

(d)　The given schedule is not conflict serializable.

[MSQ]

5. Consider the following schedule –

S : $W_2(P)$; $W_1(P)$; $W_2(Q)$; $W_3(P)$; $W_1(Q)$; $W_3(Q)$; C_1; C_2; C_3;

Which of the following is/are correct?

(a)　S is not allowed by 2PL.

(b)　S is allowed by 2PL.

(c)　The equivalent serial schedule to S is $T_3 \rightarrow T_2 \rightarrow T_1$.

(d)　The equivalent serial schedule to S is $T_2 \rightarrow T_1 \rightarrow T_3$.

[MSQ]

6. Consider the following schedule –

S : $W_2(P)$; $W_1(P)$; $W_3(P)$; $W_2(Q)$; $W_1(Q)$; $W_3(Q)$; C_1; C_2; C_3;

Which of the following is/are correct?

(a)　S is conflict serializable.

(b)　S is allowed by 2PL.

(c)　S is not allowed by 2PL.

(d)　Serial schedule equivalent to S is $T_2 \rightarrow T_1 \rightarrow T_3$.

[MCQ]

7. Which of the following is FREE from deadlock?

(a)　Basic 2PL.

(b)　Strict 2PL.

(c)　Conservative 2PL.

(d)　Rigorous 2PL.

[NAT]

8. Consider the following schedule (S):

S : $R_1(A)$; $W_2(A)$; $W_1(A)$; $W_3(A)$; C_1; C_2; C_3;

(i)　S is conflict serializable.

(ii)　S is not conflict serializable.

(iii)　S is not allowed by 2PL.

How many statements is/are correct for above schedule(s)? ____.

[MCQ]

9. Consider the following transaction for schedule(S)
S:

T_1	T_2	T_3
R(A)		
	W(A)	
	W(B)	
		R(B)
		R(C)
W(C)		

For schedule(S) which of the following is true?

(a) Conflict serializable and allowed by 2PL.

(b) Not conflict serializable and not allowed by 2PL.

(c) Conflict serializable but not allowed by 2PL.

(d) None of the above.

[MCQ]

10. Consider the following schedule(S)

S : $W_2(A)$; $W_1(A)$; $W_2(B)$; $W_3(A)$; $W_1(B)$; $W_3(B)$; C_1; C_2; C_3;

Which of the following is INCORRECT?

(a) S is recoverable.

(b) S is cascade recoverable.

(c) S is conflict serializable

(d) S is not view serializable.

[MCQ]

11. Which of the following is true about 2PL?

(a) If schedule is allowed by 2PL then, there is no lost update problem.

(b) If schedule is allowed by 2PL then, there is no starvation.

(c) If schedule is allowed by 2PL then, there is possibility of deadlock.

(d) None of the above.

[MCQ]

12. Consider the following schedule(s);

T_1	R(A)		W(A)		C	
T_2		R(A)		W(A)		C

Which of the following is true about above schedule(S):

(a) S is free from deadlock.

(b) S is allowed by 2PL.

(c) S is conflict serializable.

(d) None of the above.

[MCQ]

13. Consider the following statements:

S_1 : Every serial schedule is not strict 2PL schedule.

S_2 : If schedule allowed by 2PL then it's may / may not be allowed by strict 2PL.

S_3 : Every serial schedule may not be conflict serializable schedule.

Which of the following is INCORRECT?

(a) S_1 only.

(b) S_2 and S_3 only.

(c) S_1 and S_3 only.

(d) S_1, S_2 and S_3.

Answer Key

1. (a)
2. (b, d)
3. (b)
4. (c, d)
5. (b, d)
6. (a, c, d)
7. (c)

8. (2)
9. (b)
10. (d)
11. (c)
12. (d)
13. (d)

Hints & Solutions

1. (a)

If a schedule is allowed by 2PL then, it is always conflict serializable. But vice-versa not true.
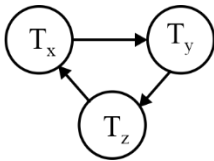
2. (b, d)

Precedence graph -
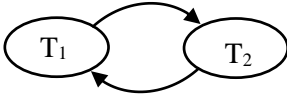
Not conflict serializable and not allowed by 2PL.

3. (b)

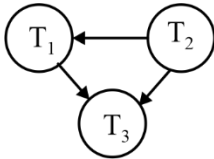Bothe statements are INCORRECT.

4. (c, d)

Precedence graph

→ Since a cycle exists, it is not conflict serializable

↓

Hence, it is not allowed by 2PL.

5. (b, d)

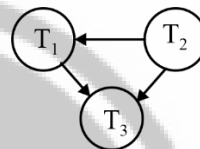→ It is conflict serializable

2PL Testing-

T₁	T₂	T₃
	lock x(P)	
	W₂(P)	
	lock x (Q)	
	unlock (P)	
lock x (p)		
W₁(P)		
	W₂(Q)	
	unlock (Q)	
lock X(Q)		
unlock (P)		
		lock X(P)
		W₃(P)
W₁(Q)		
unlock (Q)		
		lock X(Q)
		W₃(Q)
		unlock (P)
		unlock (Q)

It is allowed by 2PL

Equal serial schedule – T₂ → T₁ → T₃ (based on point order)

6. (a, c, d)

Precedence graph -

S:

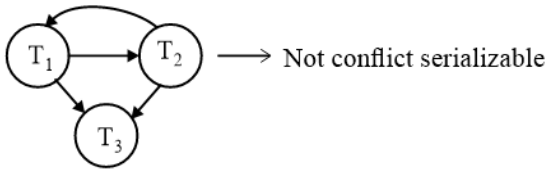→ S is conflict serializable

T₂ → T₁ → T₃

2PL testing;

T₁	T₂	T₃
	lock x(P)	
	W₂(P)	
	lock x (Q)	
	unlock (P)	
lock x (p)		
W₁(P)	Not possible	
	unlock (Q)	
not possible		
Lock X(Q)		
not possible		
unlock (P)		denied
		Lock x (P)
		W₃(P)
	W₂(Q)	
	unlock(Q)	
W₁(Q)		
		W₃(Q)

Hence, the above schedule is not allowed by 2PL.

7. **(c)**

Conservative 2PL is free from deadlock and remaining are not free from deadlock.
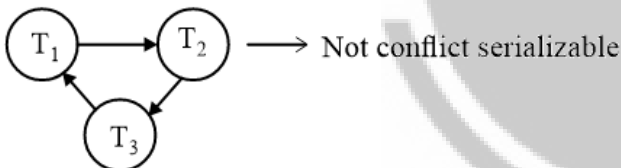
8. **(2)**

T_1	T_2	T_3
X(A)		
R(A)		
	X(A) → denied	
	W(A)	
W(A)		
		W(A)

Not allowed by 2PL

Only (2) statement are correct.

9. **(b)**

- Not allowed by 2PL because $R_3(C)$ and $W_1(C)$ will conflict for X(c) and S(A).
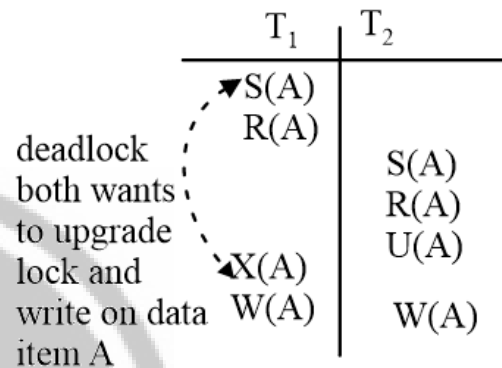
10. **(d)**
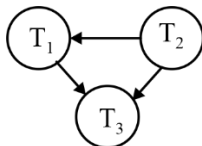
- No cycle so conflict serializable.
- If schedule is conflict serializable then it will be view serializable also.
- Hence, option (d) is correct.

11 **(c)**

- 2PL condition not sufficient to avoid irrecoverable, cascading roll back and lost update problem.
- 2PL restriction may lead to starvation and deadlock.
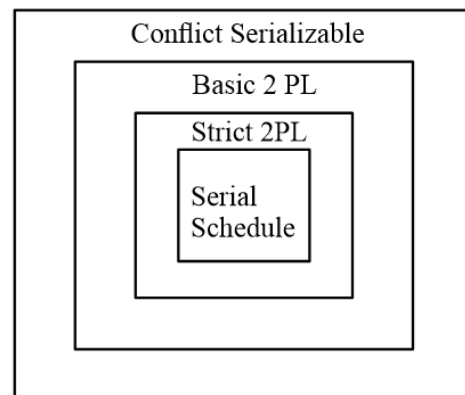
Hence, option (c) is correct.

12. **(d)**

- Not allowed by 2PL

- S is not conflict serializable

Hence option (d) is correct.

13. **(d)**

All statements are incorrect.

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PW Mobile APP: https://smart.link/7wwosivoicgd4