Name = M. Junaid Saleem Qadri

Class : BSC-4B

E. no: 02-131202-057
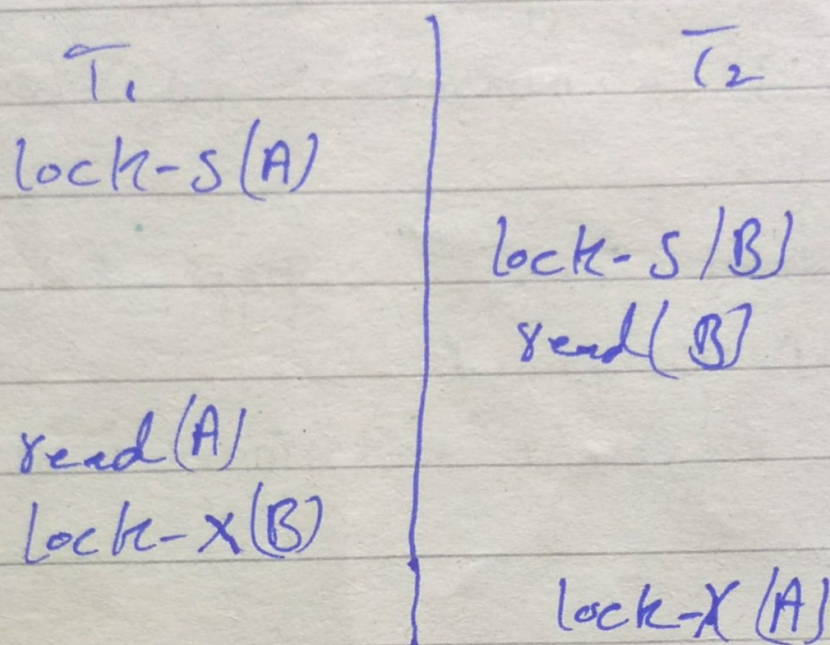
QI

lock & unlock instruction

T_1 : lock-S (A)

read(A)

lock-X (B)

read(B)

if A=0

then B := B+1

write(B)

unlock (A)

unlock(B)

T_2 : lock-S (B)

read(B)

lock-X (A)

read (A)

if B=0

then A := A+1

write (A)

unlock (B)

unlock (A)

Yes Execution of these transactions can result in deadlock. for example:

T_1	T_2
lock-S (A)	
	lock-S (B)
	read (B)
read (A)	
lock-X (B)	
	lock-X (A)

The transactions are now deadlocked.

Q2

Beginning of log
<T0 start>
<T0, B, 2000, 2050>
<T1 start>
<checkpoint {T0, T1}>
<T1, C, 700, 600>
<T1 commit>
<T2 start>
<T2, A, 500, 400>
<T0, B, 2000>
————— system crash ——

Here T0 and T2 are incomplete at crash

und list : T0 and T2

Redo list : T1

log records added during recovery

$\langle T0, B, 2000 \rangle$

$\langle T0 \text{ abort} \rangle$

$\langle T2, A, 500 \rangle$

$\langle T2 \text{ abort} \rangle$