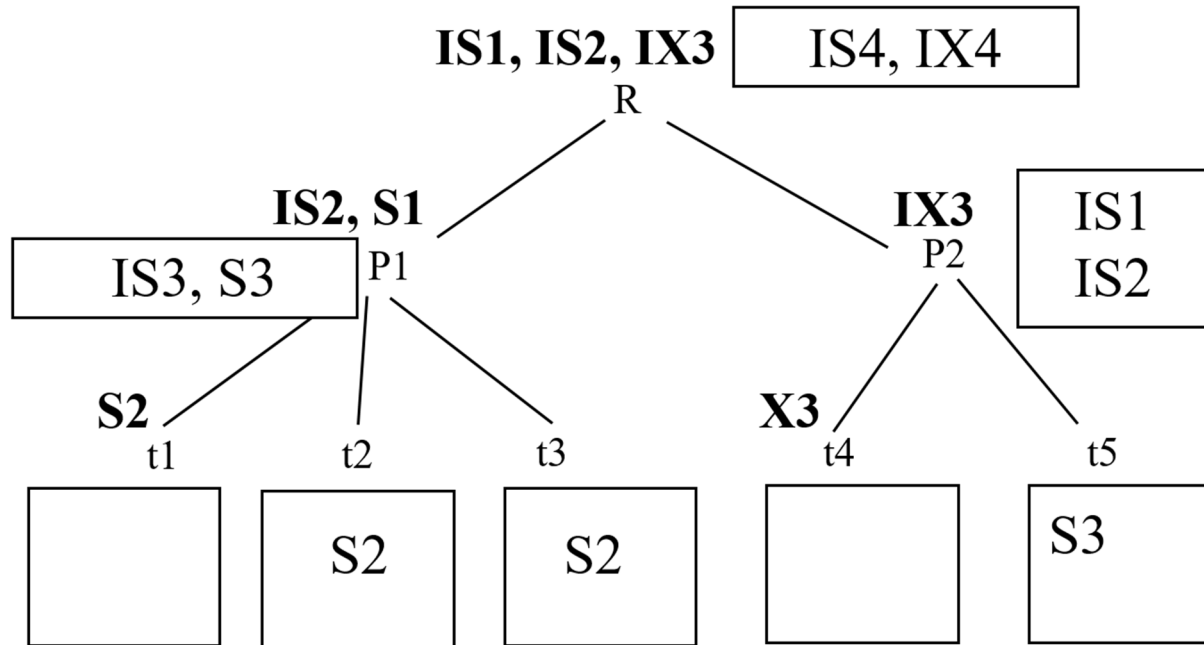


Section A

Question 1.



## Question 2

A

B X = 20/100  
Y = 0, 30, 40

C No problem

### Log 1

< T<sub>1</sub>, Start >

< T<sub>2</sub>, Start >

< T<sub>1</sub>, X, 0, 10 >

< T<sub>2</sub>, X, 10, 20 > ⇐ incomplete log record IC1

< Checkpoint Start >

< T<sub>1</sub>, Y, 0, 30 > ⇐ incomplete log record IC2

< T<sub>3</sub>, Start >

< T<sub>1</sub>, Y, 30, 40 >

< Checkpoint End >

< T<sub>1</sub>, commit >

< T<sub>3</sub>, X, 20, 100 > ⇐ incomplete log record IC3

**SYSTEM CRASH AT THIS POINT !!!!!**

A

B X = 10/100  
Y = 20/30/40

C Yes. Schedule is not  
recoverable as there is  
a dirty read (T<sub>1</sub> reads  
Y from T<sub>2</sub> which aborted)

### Log 2

< T<sub>1</sub>, Start >

< T<sub>2</sub>, Start >

< T<sub>1</sub>, X, 0, 10 >

< T<sub>2</sub>, Y, 0, 20 > ⇐ incomplete log record IC1

< Checkpoint Start >

< T<sub>1</sub>, Y, 20, 30 >                      ⇐ incomplete log record IC2

< T<sub>3</sub>, Start>

< T<sub>1</sub>, Y, 30, 40 >

< Checkpoint End>

< T<sub>1</sub>, commit >

< T<sub>3</sub>, X, 10, 100 >                      ⇐ incomplete log record IC3

**SYSTEM CRASH AT THIS POINT !!!!!**

A    B and C = same as Log 2

### **Log 3**

< T<sub>1</sub>, Start >

< T<sub>2</sub>, Start >

< T<sub>1</sub>, X, 0, 10 >

< T<sub>2</sub>, Y, 0, 20 > ⇐ incomplete log record IC1

< Checkpoint Start>

< T<sub>2</sub>, Y, 20, 30 >                      ⇐ incomplete log record IC2

< T<sub>3</sub>, Start>

< T<sub>1</sub>, Y, 30, 40 >

< Checkpoint End>

< T<sub>1</sub>, commit >

< T<sub>3</sub>, X, 10, 100 >                      ⇐ incomplete log record IC3

**SYSTEM CRASH AT THIS POINT !!!!!**