COS418 Precept 8 - Consistency

11/16/18

Circle the degree of consistency satisfied by each of the following sequence of reads and writes. Curly braces indicate operations within a transaction.

Q1		
P1: {W(x) 1, W	(y) 2} {R(y) 4}	Strictly Serializable
P2: {W(x) 1, R(y) 4}		Linearizability
P3: {W(x) 0, W(y) 4}		Sequential consistency
		Causal+ consistency
P4: {R($\{x\} = \{R(x) = 1\}$	Eventual consistency
Q2		
P1: W(x) 1	R(y) 4	Linearizability
P2: R(x)	1 R(y) 4	Sequential consistency
P3: R(x) 1 W(y) 4		Causal+ consistency
P3: R(x) 1 W(y) 4		Eventual consistency
P4: R(x)	1 R(y) 4	
Q3		
P1: W(x) 3	W(y) 7	Linearizability
P2: W(x) 1		Sequential consistency
P3:	R(x) 1 R(x) 3 R(y	Causal+ consistency
P4:	R(x) 1 R(x) 3 R(y	y) 7 Eventual consistency
P5:	R(x) 1 R(x) 3 R(y	/) 7

Q4	
P1: W(x) 3 W(y) 7	Linearizability
P2: W(x) 1	Sequential consistency
P3: R(x) 1 R(x) 3 R(y) 7	Causal+ consistency
P4: R(x) 3 R(x) 1 R(y) 7	Eventual consistency
P5: R(x) 1 R(x) 3 R(y) 7	
Q5	
P1: W(x) 1	Linearizability
P2: W(x) 3	Sequential consistency
P3: W(x) 7	Causal+ consistency
P4: R(x) 3 R(x) 7 R(x) 1	Eventual consistency
P5: R(x) 3 R(x) 1 R(x) 7	
Q6	
P1: W(x) 1	Linearizability
P2: W(x) 3	Sequential consistency
P3: R(x) 3 W(x) 7	Causal+ consistency
P4: R(x) 3 R(x) 7 R(x) 1	Eventual consistency
P5: R(x) 3 R(x) 1 R(x) 7	·
Q7	
P1: W(x) 1	Linearizability
P2: R(x) 1 W(x) 3	Sequential consistency
P3: R(x) 3 W(x) 7 P4: R(x) 3 R(x) 7 R(x) 1	Causal+ consistency
P5: R(x) 3 R(x) 1 R(x) 7	Eventual consistency