1. Serializability (10 points)

Consider a relation that is accessed by transactions. Suppose A, B, and C are three records in the relation.

For each schedule, circle all the categories that the schedule is part of or “none”. You must show brief justification for each answer. (2 points each)

a) R1(A), W3(B), R3(C), W2(A), W2(B), W1(C)

serial conflict-serializable none

b) R3(A), W2(C), W2(B), R2(A), R2(B), R1(A), R1(C), W2(A)

serial conflict-serializable none

c) R2(B); R1(B); R3(B); W3(A); W2(C); R1(A); R1(C); R3(C); W1(C); W3(A); R2(C);

serial conflict-serializable none

d) R1(B); W1(C); R1(A); W1(B); W1(A); R3(A); W3(A); W2(A); W2(B); R2(A)

serial conflict-serializable none
e) Suppose that Inc(X) means increment record X. Inc is commutative with other Inc on the same record but not commutative with Read or Write on the same record.

R2(A); Inc1(A); Inc2(A); W3(B); R3(A); W2(C); R1(A)

serial conflict-serializable none