GLA University, Mathura

Department of Computer Engineering & Applications

Course: B. Tech CSE **Year: 2nd**

Subject: Database Management Systems

Note: You have to submit your assignment on university portal along with your class roll number and name in each page.

1. Which of the following schedules is (conflict) serializable? For each serializable schedule, determine the equivalent serial schedules.
    a. r1(X); r3(X); w1(X); r2(X); w3(X);
    b. r1(X); r3(X); w3(X); w1(X); r2(X);
    c. r3(X); r2(X); w3(X); r1(X); w1(X);
    d. r3(X); r2(X); r1(X); w3(X); w1(X);

2. Consider the schedules S1 and S2 given below. Draw the serializability (precedence) graphs for S1 and S2, and state whether each schedule is serializable or not. If a schedule is serializable, write down the equivalent serial schedule(s).

    S1: r1 (X); r2 (Z); r1 (Z); r3 (X); r3 (Y); w1 (X); w3 (Y); r2 (Y); w2 (Z);w2 (Y);
    S2: r1 (X); r2 (Z); r3 (X); r1 (Z); r2 (Y); r3 (Y); w1 (X); w2 (Z); w3 (Y);w2 (Y);

3. Consider schedules S3, S4, and S5 below. Determine whether each schedule is cascadeless, recoverable, or nonrecoverable.

    S3: r1 (X); r2 (Z); r1 (Z); r3 (X); r3 (Y); w1 (X); c1; w3 (Y); c3; r2 (Y); w2 (Z); w2 (Y); c2;
    S4: r1 (X); r2 (Z); r1 (Z); r3 (X); r3 (Y); w1 (X); w3 (Y); r2 (Y); w2 (Z); w2 (Y); c1; c2; c3;
    S5: r1 (X); r2 (Z); r3 (X); r1 (Z); r2 (Y); r3 (Y); w1 (X); c1; w2 (Z); w3 (Y); w2 (Y); c3; c2;

4. Consider the following schedules involving 2 transactions. Which one of the following statements are true?
    S1: r1(X); r1(Y); r2(X); r2(Y); w2(Y); w1(X)
    S2: r1(X); r2(X); r2(Y); w2(Y); r1(Y); w1(X)
    (a) Both S1 and S2 are conflicted serializable
    (b) S1 is conflict serializable and S2 is not conflict serializable
    (c) S1 is not conflict serializable and S2 is conflict serializable
    (d) Both S1 and S2 are not conflict serializable

5. Consider the following schedule:
    S1: R1(A); R1(C); R2(B); W2(B); R3(B); R1(A); R3(C); W3(C); W1(A)

S2: R2(A); R1(C); R2(B); R3(B); W2(B); R1(A); R3(C); W3(C); W1(A)

Which of the above schedules are conflict serializable?
(a) S1 only
(b) S2 only
(c) Both S1 and S2 only
(d) Neither S1 nor S2

6. Which of the following schedules are recoverable?
S1: r1(x), r2(z), r1(z), r3(x), r3(y), w1(x), C1, w3(y), C3, r2(y), w2(y), w2(z), C2
S2: r1(x), r2(z), r1(z), r3(x), r3(y), w1(x), w3(y), r2(y), w2(z), w2(y), C1, C2, C3
S3: r1(x), r2(z), r3(x), r1(z), r2(y), r3(y), w1(x), C1, w2(z), w3(y), w2(y), C3, C2

(a) Only S1
(b) Only S1, S3
(c) Only S2, S3
(d) All S1, S2, S3

7. Consider the following schedules:
S1: R1(A), W1(A), R2(B), R1(B), W1(B), W2(A), R2(C), R1(C)
S2: R2(B), W2(A), R1(A), W1(A), R1(B), W1(B), R2(C), R1(C)

Which of the above schedule(s) is/are conflict serializable?
(a) S1 and S2 only
(b) S2 only
(c) S1 only
(d) None of these

8. Consider the following schedules:
S1: R1(A), W1(A), R2(B), W2(A), R1(B), W1(B), R1(C), R2(C)
S2: R2(B), R1(A), W2(A), W1(A), R1(B), W1(B), R2(C), R1(C)

Which of the above schedule(s) is/are conflict serializable?
(a) S1 and S2 only
(b) S2 only
(c) S1 only
(d) None of these