Dronacharya Group of Institutions, Greater Noida

Department of Computer Science and Engineering

Database Management System (BCS-501)

Course/Semester: B.Tech V **Session:2025-26**

Assignment-4

Date of Issue: -25/11/2025 **Date of submission: -01/12/2025**

Q. No.	Question	CO
1.	What do you mean by Conflict Serializable Schedule?	CO4
2.	What do you understand by ACID properties of transaction? Explain in details.	CO4
3.	What is schedule? What are its types? Explain view serializable and cascadeless schedule with suitable example of each.	CO4
4.	Explain I in ACID Property.	CO4
5.	What do you mean by serializability? Discuss the conflict and view serialzability with example. Discuss the testing of serializability also.	CO4
6.	What is transaction? Draw a state diagram of a transaction showing its state.	CO4
7.	Explain with suitable examples what are cascadeless and recoverable schedules?	CO4
8.	Which of the following schedules are conflicts serializable? For each serializableschedule find the equivalent serial schedule. S_1: $r_1(x); r_3(x); w_3(x); w_1(x); r_2(x)$ S_2: $r_3(x); r_2(x); w_3(x); r_1(x); w_1(x)$ S_3: $r_1(x); r_2(x); r_3(y); w_1(x); r_2(z); r_2(y); w_2(y)$	CO4
9.	Consider the three transactions T_1, T_2, and T_3, and the schedules S_1 and S_2 given below. Draw the serializability (precedence) graphs for $S_1$and S_2 and state whether each schedule is serializable or not. If a schedule is serializable, write down the equivalent serial schedule(s). T_1: $r_1(X); r_1(Z); w_1(X);$ T_2: $r_2(Z); r_2(Y); w_2(Z); w_2(Y);$ T_3: $r_3(X); r_3(Y); w_3(Y);$ S_1: $r_1(X); r_2(Z); r_1(Z); r_3(X); r_3(Y); w_1(X); w_3(Y); r_2(Y); w_2(Z); w_2(Y);$ S_2: $r_1(X); r_2(Z); r_3(X); r_1(Z); r_2(Y); r_3(Y); w_1(X); w_2(Z); w_3(Y); w_2(Y);$	CO4
10.	Consider the following two transactions: T1: read(A); read(B);	CO4

	if A = 0then B := B + 1;
	write(B).
	T2: read(B);
	read(A);
	if B = 0then A := A + 1;
	write(A).
	Let the consistency requirement be A = 0 v B = 0, with A = B = 0 the initial values.
	a) Show that every serial execution involving these two transactions preserves the consistency of the database.
	b) Show a concurrent execution of T1 and T2 that produces a non-serializable schedule.
	c) Is there a concurrent execution of T1 and T2 that produces a serializableschedule?	