UNIVERSITY
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"CELEBRATING DREAMS"

Roll No.....

2nd Midterm Examinations June 2022

B.Tech. (CSE)

(Database Management System)

(CSL 0407)

Time 1:30 hrs Max. Marks 30

Note: Attempt all questions. All questions carry equal marks

Q.1 a. Consider the universal relation R = {A, B, C, D, E, F, G, H, I, J} and the set of functional dependencies G = {{A, B}→{C}, {B, D}→{E, F}, {A, D}→{G, H}, {A}→{I}, {H}→{J} }. What is the key for R? Decompose R into 2NF and then 3NF relations. **6**

OR

b. What is BCNF? Prove with any example that a relation R in 3NF may not necessary to be in BCNF. **6**

Q.2a. Consider the following two sets of functional dependencies: F = {A →C, AC → D, E → AD, E → H} and G = {A→CD, E→AH}. Check whether they are equivalent.**6**

OR

b. What is 1 normal form? Explain with suitable example. **6**

Q.3 a. Which of the following schedules is (View) serializable? For each serializable schedule, determine the equivalent serial schedules. 6

a. r1(X); r3(X); w1(X); r2(X); w3(X);
b. r3(X); r2(X); r1(X); w3(X); w1(X);

OR

b. What is transaction? Explain the ACID property of transaction. 6

Q.4 a. Consider a given relation R={A,B,C,D} and set of functional dependency F={A→BC, B→C, A→B, AB→C}. Find the minimal set or canonical cover of functional dependency F. 6

OR

b. Consider the schedule S given below. Assume that the Initial value of data items A and B are 1000$ and 2000$ respectively. Find the value of A and B after the execution of schedule. 6

T1	T2
read(A)	
$A := A - 50$	
write(A)	
	read(A)
	$temp := A * 0.1$
	$A := A - temp$
	write(A)
read(B)	
$B := B + 50$	
write(B)	
commit	
	read(B)
	$B := B + temp$
	write(B)
	commit

Q.5 a. What is conflict secrializability? Explain the testing of conflict serializability with example. 6

OR

b. Explain the two phase locking protocol and various benefits from using it. **6**