Date: 21/04/2018 Time : 12.02 Hrs

Second Assignment on DBMS for CSE-2018 (4th Sem.)

Q1). Write all the rules of Armstrong Axioms and Use the Basic Armstrong Axioms to prove the Pseudo Transitivity rule.

Q2). What is minimization of Functional dependency set/Conical Cover of Functional dependency Set?

Q3a). What is the difference between 3NF and BCNF?

Q3b). With Suitable example, show that when two functional dependency set will be equivalent?

Q4a). i) What is Multivalued Dependency and how it is related to 4NF?

ii) What is Join Dependency and how it is related to 5NF?

Q4b). Discuss about Loss-less decomposition with suitable example.

Q5). Consider the following Relation Schema and set of Functional Dependency

R= {A, B, C, D, E, F, G, H, I, J}

FD: {AB ->C}, {A ->DE}, {B -> F}, {F -> GH}, {D -> IJ}

i) What are the Candidate Keys for relation R?
ii) Check whether R is in 3NF or not? If not decompose the relation R into 3NF and ensure the Loss-less decomposition Properties and Functional Dependency Properties.

Q6). What are essential properties of a Transaction and it's States? Discuss.

Q7). Discuss the following Concurrent Transaction problems.

i) Lost Update Problem
ii) Dirty read Problem
iii) Phantom Tuple
iv) Un-Repeatable Read Problem

Q8). What do you mean by serializability? Whether the following schedules is conflict serializability or view serializability or both?

Schedule 1: R_1 (A), R_3 (A), W_3 (A), W_1 (A), R_2 (A)

Schedule2: R_3 (A), R_2 (A), R_1 (A), W_3 (A), W_1 (A)

Q9). Write all conditions to check whether two concurrent schedules are view equivalent or not?

Q 10) Consider the given schema of Holiday trip database, In the 'Reserve' table, sailor_id and boat_id are the foreign key.

Sailor (sailor_id, sailor_name, rating, age),
Boats (boat_id, boat_name, color)
Reserve (sailor_id, boat_id, day)

Write the following queries using SQL and relational algebra.

a) Find the names of the sailors who have reserved a red color boat.
b) Find the name of the boat, which has been reserved on SUNDAY.
c) Find the name of the sailor, whose rating is greater than equal to 4 and age is in between 30 and 35.

Q 11) Discuss about B^+ Tree file organization.

Note: Dear Students, you will find all the questions in 2nd Internal from this assignment only. However, the combination and order of questions may vary in original question paper. Furthermore, although I have not discussed some of the questions like Q1), Q4 (a) and Q7 (iii), still I have asked you all to prepare these questions for this internal. Therefore, I do expect you all will prepare the entire assignment set for this internal assessment.

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