

1) Given a relation  $R(A,B,C,D)$  and functional dependency set  $FD = \{AB \rightarrow D, B \rightarrow C\}$ , determine whether the relation is in a 2NF? and determine the table decomposed.

2) Find the minimal cover of  $R(W X Y Z)$

FD:  $x \rightarrow w$

$wz \rightarrow xy$

$y \rightarrow wxz$

3) Check whether following schedule is conflict serializable or not? If it is not conflict serializability then find the serializability order.

T1	T2	T3
R(A)		
	R(B)	
		R(B)
	W(B)	
W(A)		
		W(A)
	R(A)	
	W(A)	

4) Consider a relation  $R(ABC)$  with the following FD:  $A \rightarrow B, B \rightarrow C$  and  $C \rightarrow A$ . What is the normal form of R ?

- 5) Consider the following sequence of action listed in order they are submitted to DBMS sequences S1:

R1(A)W2(B);R1(B);R3(C);W2(C);W4(B);W3(A);

Draw a wait for a graph in case of a deadlock situation.

- 6) Consider the Relation (A C D E H) having two sets of functional dependency  $F = \{ A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H \}$  and  $G = \{ A \rightarrow CD, E \rightarrow AH \}$

- 7) Given FD's for a relation R(A,B,C,D,E,F) .Find the closure of FD said by applying Armstrong's Axioms

$A \rightarrow B$  ,  $A \rightarrow C$  ,  $CD \rightarrow E$  ,  $CD \rightarrow F$  ,  $B \rightarrow E$

8)

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