Tutorial 2

CSN-351/AID-523 Database Management Systems

1. Consider a relation scheme R = (A, B, C, D, E, H) on which the following functional dependencies hold:
 A–>BE
 BC–> D
 E–>C
 D–>A
What are the candidate keys of R and find a closure of AD,B?

2. Give a relation R=(ABCDEFGH) having a following functional dependency:
A→BC
CD→E
E→C
D→AEH
ABH→BD
DH→BC
Is a functional dependency BCD→H valid or not?

3.For A relation R (A, B, C, D) having two FD sets S1 = {A->B, B->C, AB->D} and S2= {A->B, B->C, A->C, A->D}.Which of the following is correct ?

a) S1⊂S2
b) S1⊃S2
c) S1=S2
d) None of the above

4. relation R (A , C , D , E , H) is having two functional dependencies sets F and G as shown-
 Set F- (A → C, AC → D, E → AD, E → H)
 Set G- (A → CD ,E → AH)
Which of the following holds true?
(A) G ⊇ F
(B) F ⊇ G
(C) F = G
(D) All of the above

5. X → W

WZ → XY

Y → WXZ
Write the canonical cover for this set of functional dependencies.

6.Give a relation R(ABCDEF)

AB→C

DC→AE

E→F

Find the prime attribute of a relation?

7. In a given relation schema R (A , B , C , D), having following functional dependency:

$A \rightarrow B$

$B \rightarrow C$

$C \rightarrow D$

$D \rightarrow B$

Find if the decomposition of R into R_1 (A , B) , R_2 (B , C) and R_3 (B , D) is lossless or lossy