HW8

Question 1. (14 pts)

Given a relation R (A, B, C, D, E, F) in 1 NF and its functional dependency set:  F = { A → CE, E → F, D → B}.

(i) Find candidate key of R

(ii) Decompose R into 3NF

**Submit Q1.pdf/Q1.docx file. Please Show all the working. Do not simply write answers. If essential steps, such as edge diagrams, transitive inferences are missing, points will be deducted.**

Question 2. (14 pts)

Given a relation R (A, B, C, D, E, F) in 1 NF and its functional dependency set:  F = { B → CD, E → A, C → DF}.

(i) Find candidate key of R

(ii) Decompose R into BCNF

**Submit Q2.pdf/Q2.docx file. Please Show all the working. Do not simply write answers. If essential steps, such as edge diagrams, transitive inferences are missing, points will be deducted.**

Question 3. (12 pts)

Given a relational R with a function dependency: F = X →Y

Answer the following questions:

1. If X is non-prime attribute and Y is prime attribute, select the right answer:
2. R is not in 2NF
3. R is in 2NF, but not 3NF
4. R is in 3NF, but not BCNF
5. R is in BCNF
6. If X is a subset of Candidate Key and Y is non-prime attribute, select the right answer:
7. R is not in 2NF
8. R is in 2NF, but not 3NF
9. R is in 3NF, but not BCNF
10. R is in BCNF
11. If X is non-prime attribute and Y is non-prime attribute, select the right answer:
12. R is not in 2NF
13. R is in 2NF, but not 3NF
14. R is in 3NF, but not BCNF
15. R is in BCNF
16. If X is Candidate Key attribute and Y is prime attribute, select the right answer:
17. R is not in 2NF
18. R is in 2NF, but not 3NF
19. R is in 3NF, but not BCNF
20. R is in BCNF

**Submit Q3.pdf/Q3.docx file. Please give some brief explanations of your choices.**