CS348 Quiz 4 (LE2)

Name: _____
PSO: _____

Please fill your answers in the following table:

1	2	3	4	5	6	7	8

1. Which of QBEs will delete all tuples with rating > 10 from the Sailors relation?

Sailors	sid	sname	rating	age
		D.	> 10	

A.

Sailors	sid	sname	rating	age
D.			> 10	

B. /.

Sailors	sid	sname	rating	age
D.		D.	> 10	

C.

Sailors	sid	sname	rating	age
	D.	D.	> 10	

D.

E. None of the above

2. Use the following functional dependencies to find $\{AE\}^+$.

$$A \rightarrow BC,\ CE \rightarrow D,\ DF \rightarrow CG,\ AG \rightarrow F$$

A. {A, B, C, E}

B. {A, B, C, D, E}

C. {A, B, C, D, E, F}

D. {A, B, C, D, E, G}

E. {A, B, C, D, E, F, G}

3. REMOVED ~~Which statement is CORRECT about dependency preserving decompositions?~~

   A. ~~A Decomposition is dependency preserving if all subsets of R contains all of the dependencies in R.~~

   B. ~~The projection of F on R_i is a subset of F^+.~~

4. Consider the relation R(A, B, C, D, E, F) and the following functional dependencies. Which decomposition is a loss-less decomposition when tested with the non-additive join test for binary decompositions (NJB).

$$AB \rightarrow C,\ B \rightarrow DF,\ BC \rightarrow E$$

A. R1(A, B, C), R2(D, E, F)

B. R1(A, B, C), R2(B, C, D, E)

C. R1(A, B, C), R2(B, C, D, E, F)

D. R1(A, B, C, D), R2(D, E, F)

E. R1(A, C, E), R2(B, D, F)

5. For the functional dependency $X \rightarrow Y$, which of the following interpretations is not correct?

A. Both X and Y can be set of attributes.

B. If X is the key of R, Y could be any attribute in R.

C. For $t_1, t_2 \in R$, if $t_1[Y] = t_2[Y]$, then $t_1[X] = t_2[X]$.

D. The dependency works as a constraint and holds for every instance in R.

E. It's impossible to prove this dependency from a particular state.

6. Consider the relation R(A,B,C,D,E,F) and following functional dependencies, what is the key for R?
$AB \rightarrow E,\ F \rightarrow CD,\ AD \rightarrow F$

A. F

B. AB

C. AD

D. ABF

E. ADF

7. The _____ property is required for a key but is optional for a superkey.

A. Uniqueness.

B. Minimality.

C. Maximality.

D. Dependency.

E. None of the above.

8. Which of the following statements is FALSE about normal forms?

A. BCNF is stricter than 3NF.

B. Lossless, dependency-preserving decomposition into 3NF is always possible.

C. Lossless, dependency-preserving decomposition into BCNF is always possible.

D. Any relation with two attributes is in BCNF.

E. BCNF is an extended 3NF.