

CS304

Database System Concepts

03/23/2012

Quiz-4

1. Suppose $R=\{A,B,C,G,H,I\}$ and a set of functional dependencies $F=\{A \rightarrow B, A \rightarrow C, CG \rightarrow H, CG \rightarrow I, B \rightarrow H\}$ on R , what's the value of $(AG)^+$?

- a) AG
- b) ABCG
- c) ABCGH
- d) ABCGHI

2. Suppose $R=\{A,B,C\}$ and a set of functional dependencies $F=\{A \rightarrow BC, B \rightarrow C, A \rightarrow B, AB \rightarrow C\}$ on R , what's the canonical cover of F ?

- a) $\{A \rightarrow B, B \rightarrow C\}$
- b) $\{A \rightarrow C, B \rightarrow C\}$
- c) $\{A \rightarrow BC, B \rightarrow C\}$
- d) $\{A \rightarrow C, A \rightarrow B\}$

3. Which statement about BCNF and 3NF is **NOT** correct?

- a) It's always possible to get a BCNF decomposition that is lossless-join
- b) It's always possible to get a BCNF decomposition that is dependency preserving
- c) It's always possible to get a 3NF decomposition that is lossless-join
- d) It's always possible to get a 3NF decomposition that is dependency preserving

4. Which rule is correct according to Armstrong's axiom?

- a) if $X \rightarrow Y$, $WY \rightarrow Z$ then $WX \rightarrow Z$
- b) if $X \subset Y$ then $X \rightarrow Y$
- c) if $XY \rightarrow Z$ then $X \rightarrow Z$, $Y \rightarrow Z$
- d) if $X \cap Y = \emptyset$ then $X \rightarrow Y$

5. What's the relationship between lossless-join decomposition and dependency preservation decomposition?

- a) lossless-join implies dependency preservation.
- b) dependency preservation implies lossless-join.
- c) Either both of them are satisfied or none of them are satisfied.
- d) They are unrelated.

6. What's the relationship between attribute A and B if $A \rightarrow B$?

- a) A:B one-to-one
- b) A:B one-to-many
- c) A:B many-to-one
- d) A:B many-to-many

7. Which statement about BCNF is **NOT** correct?

- a) If R is in 4NF then R is in BCNF
- b) BCNF can avoid insertion anomaly
- c) We can use simplified test to check a relation schema is in BCNF
- d) If R is in BCNF then R is in 3NF

8. Which statement about 3NF is **NOT** correct?

- a) 3NF allows redundancy
- b) Testing for 3NF is a NP-hard problem
- c) Decomposition into 3NF can be done in polynomial time
- d) After decomposing to 3NF, we need to compute a join when judging functional dependencies.

9. Which RAID level shall we use if data safety is not important?

a) RAID 0

b) RAID 1

c) RAID 2

d) RAID 5

10. Which file organization can store related records from different relations on the same block?

a) Heap file organization

b) Sequential file organization

c) Hashing file organization

d) Multitable clustering file organization