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Each multiple-choice quiz problem is based on a "root question," from which the system generates different correct and incorrect choices each time you take the quiz. Thus, you can test yourself on the same material multiple times. We strongly urge you to continue testing on each topic until you complete the quiz with a perfect score at least once. Simply click the "Reset" button at the bottom of the page for a new variant of the quiz.

After submitting your selections, the system will score your quiz, and for incorrect answers will provide an "explanation" (sometimes for correct ones too). These explanations should help you get the right answer the next time around. To prevent rapid-fire guessing, the system enforces a minimum of 10 minutes between each submission of solutions.

Multiple Choice

4/4 points (graded)

[Q1] Here is an instance of a relation R(A,B,C):

A	B	C
1	2	3
1	3	2
1	2	2
3	2	1
3	2	3

Which of the following multivalued dependencies does this instance of R **not** satisfy?

- BC ↠ A
- A ↠ B ✔
- AB ↠ A
- AB ↠ C

[Q2] Here is an instance of a relation R(A,B,C,D):

A	B	C	D
1	2	3	4
1	3	3	3
1	3	3	4
1	2	3	3
2	2	4	4
2	4	2	4
2	4	4	4
2	2	2	4

Which of the following multivalued dependencies does this instance of R satisfy?

- BD ↠ A
- B ↠ C
- B ↠ A
- AB ↠ C ✔

[Q3] Consider relation R(A,B,C,D,E) with multivalued dependencies:

A ↠ B, B ↠ D

Suppose R contains the tuples (0,1,2,3,4) and (0,5,6,7,8). Which of the following tuples must also be in R?

- (0,1,2,7,8)
- (0,5,2,7,8)
- (0,5,6,3,8) ✔
- (0,5,6,3,4)

[Q4] Here is an instance of a relation R(A,B,C,D):

A	B	C	D
1	2	3	7
1	2	3	8
4	2	5	7
4	2	5	8

Consider the following three multivalued dependencies:

(1) AB ↠ C, (2) CD ↠ A, (3) D ↠ C

The following (M,n) pairs say that to satisfy multivalued dependency M (M=1, M=2, or M=3), a minimum of n tuples must be added to the given instance of R. Only one such pair is correct; which one?

- (2,2)
- (1,1)
- (2,0) ✔
- (2,4)

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