

QUIZ 9

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Let S be a set. Consider the following statements:

- (i) $\{\} \in 2^S$
- (ii) $S \in 2^S$
- (iii) $\{\} \subseteq 2^S$
- (iv) $S \subseteq 2^S$

How many of these statements are correct?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

Let S be a set. Consider the following statements:

- (i) $2^{\{\}} = \{\}$
- (ii) $2^{\{\{\}} = \{\{\}}$
- (iii) $|2^S| = 2,428,602$
- (iv) $|2^S| = 9,576,931$

How many of these statements are correct or may be correct?

- A.** 0
 - B.** 1
 - C.** 2
 - D.** 3
 - E.** 4
-

Consider the following binary relation R on a set U :

$$\begin{pmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

Consider the four statements below:

- (i) R is reflexive
- (ii) R is symmetric
- (iii) R is antisymmetric
- (iv) R is transitive

How many of these statements are true?

- A.** 0
 - B.** 1
 - C.** 2
 - D.** 3
 - E.** 4
-

Consider the following binary relation R on a set U:

$$\begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \end{pmatrix}$$

Consider the four statements below:

- (i) R is reflexive
- (ii) R is symmetric
- (iii) R is antisymmetric
- (iv) R is transitive

How many of these statements are true?

- A.** 0 **B.** 1 **C.** 2 **D.** 3 **E.** 4
-

Consider the following binary relation R on a set U:

$$\begin{pmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{pmatrix}$$

Consider the four statements below:

- (i) R is reflexive
- (ii) R is symmetric
- (iii) R is antisymmetric
- (iv) R is transitive

How many of these statements are true?

- A.** 0 **B.** 1 **C.** 2 **D.** 3 **E.** 4
-

Consider the following binary relation R on a set U:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

Consider the four statements below:

- (i) R is reflexive
- (ii) R is symmetric
- (iii) R is antisymmetric
- (iv) R is transitive

How many of these statements are true?

- A.** 0 **B.** 1 **C.** 2 **D.** 3 **E.** 4
-

Consider the following binary relation R on a set U:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 \\ 1 & 1 & 1 & 1 \end{pmatrix}$$

Consider the four statements below:

- (i) R is reflexive
- (ii) R is symmetric
- (iii) R is antisymmetric
- (iv) R is transitive

How many of these statements are true?

- A.** 0 **B.** 1 **C.** 2 **D.** 3 **E.** 4
-

Consider the following binary relation R on a set U:

$$\begin{pmatrix} 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 \end{pmatrix}$$

Consider the four statements below:

- (i) R is reflexive
- (ii) R is symmetric
- (iii) R is antisymmetric
- (iv) R is transitive

How many of these statements are true?

- A.** 0 **B.** 1 **C.** 2 **D.** 3 **E.** 4
-

Consider the following binary relations on a set U:

$$\begin{pmatrix} 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 1 \end{pmatrix} \quad \begin{pmatrix} 0 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 0 \end{pmatrix} \quad \begin{pmatrix} 1 & 1 & 1 & 1 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

R **R₁** **R₂**

- A.** R is the inverse of itself
 - B.** R₁ is the inverse of R
 - C.** R₂ is the inverse of R
 - D.** None of the above
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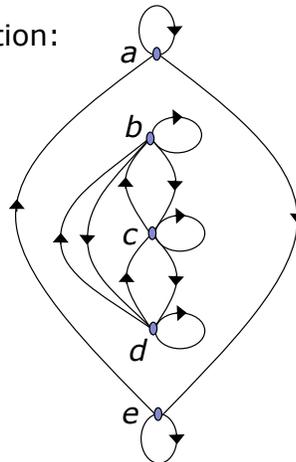
Consider the following binary relations on a set U:

$$\begin{array}{cccc}
 \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \end{pmatrix} &
 \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix} &
 \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 \\ 1 & 1 & 1 & 1 \end{pmatrix} &
 \begin{pmatrix} 1 & 1 & 0 & 1 \\ 0 & 1 & 1 & 0 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \end{pmatrix} \\
 \mathbf{R}_1 & \mathbf{R}_2 & \mathbf{R}_3 & \mathbf{R}_4
 \end{array}$$

How many of these relations are total order relations?

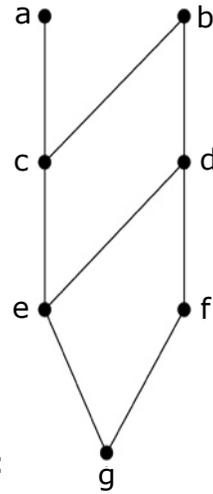
- A. 0
- B. 1**
- C. 2
- D. 3
- E. 4

Consider the following binary relation:



- A. It is an order relation.
- B. It is an equivalence relation and there is one equivalence class.
- C. It is an equivalence relation and there are two equivalence classes.**
- D. It is an equivalence relation and there are five equivalence classes.
- E. It is neither an equivalence relation nor an order relation.

Consider the order relation R represented by the following Hasse diagram:



Consider the following statements:

- (i) aRa
- (ii) aRc
- (iii) cRa
- (iv) gRc

How many of these statements are correct:

- A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. 4
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