CSPB 2824 - Stade - Discrete Structures

Started on	Thursday, 7 December 2023, 2:09 PM
State	Finished
Completed on	Thursday, 7 December 2023, 2:10 PM
Time taken	27 secs

Question **1**

Correct

Marked out of 2.00

Let A be the set of all people and $R \subseteq A \times A$ be such that $(a, b) \in R$ if and only if a is older than b. Which property or properties does R satisfy? Check all that apply.

Select one or more:

- [ ] a. reflexivity
- [ ] b. symmetry
- [x] c. anti-symmetry ✔
- [x] d. transitivity ✔

Your answer is correct.

Question **2**

Correct

Marked out of 2.00

Let A be the set of all people and $R \subseteq A \times A$ be such that $(a, b) \in R$ if and only if a was born on the same day as b. Which property or properties does R satisfy? Check all that apply.

Select one or more:

- [x] a. reflexivity ✔
- [x] b. symmetry ✔
- [ ] c. anti-symmetry
- [x] d. transitivity ✔

Your answer is correct.

Question **3**

Correct

Marked out of 2.00

Let A be the set of all people and $R \subseteq A \times A$ be such that $(a, b) \in R$ if and only if a shares a grandparent with b. Which property or properties does R satisfy? Check all that apply.

Select one or more:

- [x] a. reflexivity ✔
- [x] b. symmetry ✔
- [ ] c. anti-symmetry
- [ ] d. transitivity

Your answer is correct.

Question **4**

Correct

Marked out of 2.00

Let $A = \{a, b, c, d\}$ and $R = \{(a, a), (a, b), (b, c), (c, c), (c, d), (d, a), (d, b)\}$. Mark the property or properties that R satisfies. **Hint**: Draw the graph associated with R.

Select one or more:

- [ ] a. reflexivity
- [ ] b. symmetry
- [x] c. anti-symmetry ✔
- [ ] d. transitivity

Your answer is correct.

Question **5**

Correct

Marked out of 2.00

Let A be the set of natural numbers and define the relation R on A by $R = \{(m, n) \mid m - n \text{ is even}\}$. Mark the property or properties that R satisfies.

Select one or more:

- [x] a. reflexivity ✔
- [x] b. symmetry ✔
- [ ] c. anti-symmetry
- [x] d. transitivity ✔

Your answer is correct.

Question **6**

Correct

Marked out of 2.00

Let $A = \{1, 2, 3\}$ and $R = \{(1, 2), (2, 3), (3, 1)\}$. Mark all elements below which must be added to R to obtain S,, the transitive closure of R (i.e. elements in $S - R$).

Select one or more:

- [x] a. (1,1) ✔
- [x] b. (2,2) ✔
- [x] c. (3,3) ✔
- [x] d. (1,3) ✔
- [x] e. (2,1) ✔
- [x] f. (3,2) ✔

Your answer is correct.