Review Test Submission: Quiz 4

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Unit	Discrete Structures
Test	Quiz 4
Started	6/06/17 9:23 AM
Submitted	6/06/17 9:23 AM
Status	Completed
Attempt Score	0 out of 100 points
Time Elapsed	0 minute
Instructions	You will have 2 attempts. The higher score will count to your mark. The deadline is Friday May 5, at 11:59pm.
Results Displayed	All Answers, Correct Answers

Question 1

0 out of 5 points

True or false: $(A \rightarrow B) \wedge B \models A$

Answers: True

✅ False

Question 2

0 out of 5 points

True or false: $(A \vee \neg B) \wedge B \models A$

Answers: ✅ True

False

Question 3

0 out of 5 points

True or false: $(A \wedge B) \wedge C \models B$

Answers: ✅ True

False

Question 4

0 out of 5 points

True or false: $(A \rightarrow B) \wedge (A \rightarrow C) \models A \rightarrow (B \wedge C)$

Answers: ✅ True

False

Question 5

0 out of 5 points

True or false: $(A \rightarrow (B \wedge C)) \wedge \neg B \models \neg C$

Answers: True

✅ False

Question 6

0 out of 5 points

Logical implications can be used to make a substitution:

Answers: only in proofs, where the right hand side of the logical implication is known to be true.

✅
only in cases where the left hand side of the logical implication is known to be true, such as in a proof.

wherever the left hand side of the logical implication appears in a Boolean formula.

not ever. Logical implications cannot be used to make substitutions.

Question 7

0 out of 5 points

The following proof is incomplete.

$$A \to B$$
$$B \to C$$
$$\dfrac{B}{A \to C}$$
$$?????$$

Which of the following propositions *cannot* be the conclusion?

Answers:

$\neg C$ ✓

$B \wedge C$

$\neg C \to \neg A$

C

Question 8

0 out of 5 points

The following proof is incomplete.

$$A \vee \neg B$$
$$\neg A$$
$$?????$$

Which of the following propositions *can* be the conclusion?

Answers:

$\neg A \to B$

$\neg A \wedge B$

B

$\neg B$ ✓

Question 9

0 out of 5 points

Which of the following statements does not describe a valid way of adding new lines to a proof:

Answers: Adding the right hand side of a logical implication if the left hand side already appears in the proof

Forming the AND of two lines that already appear

✅ Making a substitution using a logical implication

Making a substitution using a logical equivalence

Question 10

0 out of 5 points

Determine the truth value of the following fully quantified predicate:

$$\forall x \in \{-1, 0, 1\} \ (x^2 = x)$$

Answers: True

✅ False

Question 11

0 out of 5 points

Determine the truth value of the following fully quantified predicate:

$$\exists x \in \{-1, 0, 1\} \forall y \in \{-1, 1\} \ (y^2 = x)$$

Answers: ✅ True

False

Question 12

0 out of 5 points

Determine the truth value of the following fully quantified predicate:

$$\forall x \in \{-1, 0, 1\} \exists y \in \{-1, 1\} \ (y^2 = x)$$

Answers: True

✅ False

Question 13

0 out of 5 points

Which statement most accurately describes the following predicate?

$$\forall x \exists y \ p(x, y)$$

Answers: The predicate has a free parameter x ↕

The predicate is not well formed.

✅ The predicate is fully quantified.

The predicate has a free parameter y ↕

Question 14

0 out of 5 points

Which statement most accurately describes the following predicate?

$$\forall x \ p(x, y)$$

Answers: The predicate is not well formed.

The predicate has a free parameter x ↕

✅ The predicate has a free parameter y ↕

The predicate is fully quantified.

Question 15

0 out of 5 points

Which statement most accurately describes the following predicate?

$$\forall x \exists x \ p(x, y)$$

Answers: ✅ The predicate is not well formed.

The predicate is fully quantified.

The predicate has a free parameter y ↕

The predicate has a free parameter x ↕

Question 16

0 out of 5 points

Choose the english sentence which most closely gives the meaning of

$$\exists z \in \mathbb{N} \; (x = yz \land y \neq x \land z \neq x)$$

Answers: y and z are divisors of x ↕

x is a composite number ↕

x is prime ↕

✅ y divides x ↕

Question 17

0 out of 5 points

Choose the english sentence which most closely gives the meaning of

$$\exists y \in \mathbb{N} \; (x = y^2)$$

Answers: x is a composite number ↕

x is prime ↕

✅ x is a square ↕

y is a square ↕

Question 18

0 out of 5 points

Which of the following has the same meaning as $S \cap T \neq \emptyset$?

Answers:

$$\forall x \in S \cup T \; (x \in S)$$

$$\exists x \in T \; (x \in S)$$
✅

$$\exists x \in T \; (x \notin S)$$

$$\forall x \in S \; (x \in T)$$

Question 19

0 out of 5 points

Which of the following has the same meaning as $S \subseteq T$?

Answers:

$\exists x \in T \ (x \notin S)$

$\exists x \in T \ (x \in S)$

$\forall x \in S \cup T \ (x \in S)$

$\forall x \in S \ (x \in T)$ ✓

Question 20

0 out of 5 points

Which of the following most accurately describes the use of a proof?

Answers: A proof demonstrates that the conclusion must be true.

✓ A proof shows that the premises together logically imply the conclusion.

A proof shows that the OR of all the premises logically implies the conclusion.

A proof is only useful for demonstrating the validity of syllogisms.

Tuesday, 6 June 2017 9:23:11 AM AEST

← **OK**