Started on	Wednesday, 24 January 2024, 3:50 PM
State	Finished
Completed on	Wednesday, 24 January 2024, 4:17 PM
Time taken	27 mins 18 secs
Grade	**14.00** out of 15.00 (**93.33**%)

Question **1**

Complete

Mark 1.00 out of 1.00

For all sets A, B, and C,
C ∩ (A ∪ B) = (C ∩ A) ∪ (C ∩ B)   by_____

- ⊙ a. Distributive law
- ○ b. Set Difference law
- ○ c. Non of these
- ○ d. Commutative law

The correct answer is: Distributive law

Question 2

Complete

Mark 1.00 out of 1.00

For all sets A, B, and C,
$(A \cup B) \cap (C - A)^c = (A \cup B) \cap (C \cap A^c)^c$
by _____

- ⦿ a. Set Difference law
- ○ b. Commutative law
- ○ c. Non of these
- ○ d. Distributive law

The correct answer is: Set Difference law

Question 3

Complete

Mark 1.00 out of 1.00

$x \in A$ and $x \in B$ mean taht:

- ⦿ a. $A \cap B$
- ○ b. $A \cup B$
- ○ c. $A \times B$
- ○ d. $A - B$

The correct answer is: $A \cap B$

Question 4

Complete

Mark 1.00 out of 1.00

To prove that a set X does not equal a set Y , you need to find an element that is in _____ and not _____ or that is in _____ and not _____.

fill the blanks from the options below

- a. Z; in X ; X ; in Z
- ○ b. X; in Y ; Y ; in X
- c. X; in X ; Y ; in Y
- d. all answers are wrong.

The correct answer is: X; in Y ; Y ; in X

Question 5

Complete

Mark 1.00 out of 1.00

For all sets A, B and C, if $B \cap C \subseteq A$, *then* $(C - A) \cap (B - A)$ equals:

- a. $C \subseteq A$ *and* $B \subset A$
- ○ b. $\varnothing$
- c. $C \cap B$
- d. $A \subseteq B \cap C$

The correct answer is: $\varnothing$

Question 6

Complete

Mark 1.00 out of 1.00

Let the universal set be the set R (of all real numbers) and let A = {x ∈ R | 0 < x ≤ 2}, B = {x ∈ R | 1 ≤ x < 4}, and C = {x ∈ R | 3 ≤ x < 9}. Find A ∩ B.

- a. A ∩ B = {x ∈ R | 1 < x ≤ 2}
- b. A ∩ B = {x ∈ R | 1 ≤ x < 2}
- c. A ∩ B = {x ∈ R | 0 < x < 4}
- d. None
- ⦿ e. A ∩ B = {x ∈ R | 1 ≤ x ≤ 2}
- f. A ∩ B = {x ∈ R | 2 < x ≤ 4}

The correct answer is: A ∩ B = {x ∈ R | 1 ≤ x ≤ 2}

Question 7

Complete

Mark 1.00 out of 1.00

To say that $x \in A \cap (B \cup C)$ means that:

- a. $x \in A$ and $x \in (B \cap C)^c$
- b. $x \in A$ and $x \notin (B \cup C)^c$
- c. $x \in A$ and $x \in (B \cup C)^c$
- ⦿ d. $x \in A$ and $x \in B \cup C$

The correct answer is: $x \in A$ and $x \in B \cup C$

Question **8**
Complete
Mark 1.00 out of 1.00

x ∈ A and x ∉ B mean taht:

○ a. A ∪ B

◉ b. A - B

○ c. A ∩ B

○ d. A x B

The correct answer is: A - B

Question **9**
Complete
Mark 1.00 out of 1.00

For all sets A, B and C, $(A - C) \cap (B - C) \cap (A - B)$ equals:

○ a. $(A \cup B) \cap (B \cup C)$

○ b. $(A \cup B) - C$

○ c. $(A \cap B) - C$

◉ d. Ø

The correct answer is: Ø

Question **10**

Complete

Mark 1.00 out of 1.00

To prove that a set A ∪ B is a subset of a set X, you start with any element x in A ∪ B and consider the two cases _____ and _____. You then show that in either case _____.

Select the correct options from the answers:

- a. all answers are wrong.
- b. $A - B \notin X$
- ⦿ c. $x \in A; x \in B; x \in X$
- d. A ∩ B = X

The correct answer is: $x \in A; x \in B; x \in X$

Question **11**

Complete

Mark 1.00 out of 1.00

Given sets A = {{1, 2}, {2, 3}}, B = {1, 2, 3}, which of the following is true?

- a. B a proper subset of A
- b. A a proper subset of B
- ⦿ c. Neither A a proper subset of B not B a proper subset of A

The correct answer is: Neither A a proper subset of B not B a proper subset of A

Question **12**

Complete

Mark 0.00 out of 1.00

Suppose A = {1} and B = {u, v}. Find P(A × B) where P is the power set.

- ⦿ a. P(A × B) = {∅, {(1, u)}, {(1, v)}, {(1, u), (1, v)}} ✓
- b. P(A × B) = {∅}
- c. None
- d. P(A × B) = {1, u, v}
- e. P(A × B) = {(1, u), (1, v)}

The correct answer is: P(A × B) = {(1, u), (1, v)}

Question 13

Complete

Mark 1.00 out of 1.00

For any sets A and B, if A ⊆ B, then

- ○ a. $A \cap B = A$ and $A \cup B = B^c$
- ○ b. $A \cap B^c = A$ and $A \cup B = B$
- ◉ c. $A \cap B = A$ and $A \cup B = B$
- ○ d. $A \cap B = A$ and $A^c \cup B^c = B$

The correct answer is: A ∩ B = A and A ∪ B = B

Question 14

Complete

Mark 1.00 out of 1.00

∃ a set S, ∀ sets T such that S ∩ T≠∅.

- ○ a. True and T=∅
- ○ b. True and T=S^c
- ◉ c. The statement is False
- ○ d. False and T=T^c

The correct answer is: The statement is False

Given sets A and B, A = B, if, and only if:

- ◉ a. *A⊆ B and B⊆ A*
- ○ b. *A⊆ B or B⊆ A*
- ○ c. *B⊆ A*
- ○ d. *A⊆ B*

The correct answer is: *A⊆ B and B⊆ A*