

Exam: MST-I_Sept-2021_CS3BS03 Discrete Mathematics

Discrete Mathematics (T)

0/40

1

Not Answered

A variable on its own or in its complemented form is known as a _____

- | | |
|--|--------------|
| A. | Product Term |
| <input checked="" type="checkbox"/> B. | Literal |
| C. | Sum Term |
| D. | Word |

2

Not Answered

_____ and _____ are the two binary operations defined for lattices.

- | | |
|--|---------------------------------|
| <input checked="" type="checkbox"/> A. | Join, meet |
| B. | Addition, subtraction |
| C. | Union, intersection |
| D. | Multiplication, modulo division |

3

Not Answered

$|p(p(p(\phi)))| = \dots$

- | | |
|--|-------------|
| A. | 0 |
| B. | $2n(n+1)/2$ |
| C. | 3 |
| <input checked="" type="checkbox"/> D. | 4 |

4

Not Answered

If A {1, 2, 3, 4, 5, 6, 7} and B {5, 6, 7, 8, 9, 10} then: A U B

- | | |
|--|---------------------------------|
| <input checked="" type="checkbox"/> A. | {1, 2, 3, 4, 5, 6, 7, 8, 9, 10} |
| B. | {1, 3, 5, 7, 9} |
| C. | {2, 4, 6, 8, 10} |
| D. | {0} |

5

Not Answered

Minimization of function $F(A,B,C) = AB(B+C)$ is _____

- | | |
|--|--------|
| A. | a) AC |
| B. | b) B+C |
| C. | c) B' |
| <input checked="" type="checkbox"/> D. | d) AB |

6

Not Answered

If $A \subset B$ (proper set), then which of the following is not TRUE

- | | |
|--|---------------------|
| A. | $A \cup B = B$ |
| B. | $A \cap B = A$ |
| C. | $BC \subset AC$ |
| <input checked="" type="checkbox"/> D. | $B - A = \emptyset$ |

7

Not Answered

If $A^*B = B^*A$, (Where A and B are general matrices) then

A.	$A=B'$
B.	$B=A'$
<input checked="" type="checkbox"/> C.	$B=A$
D.	None of them

8

Not Answered

A relation R on a set A is called a partial order relation if it satisfies the following three properties:

A.	$aRa \forall a \in A$.
B.	aRb and $bRa \Rightarrow a = b$.
C.	aRb and $bRc \Rightarrow aRc$.
<input checked="" type="checkbox"/> D.	All of the above

9

Not Answered

$\neg(A \vee q) \wedge (A \wedge q)$ is a _____

A.	Tautology
<input checked="" type="checkbox"/> B.	Contradiction
C.	Contingency
D.	None of the mentioned

10

Not Answered

Let R be a binary relation on the set of all positive integers such that $R=\{(a,b):a-b \text{ is an odd positive integer}\}$. Is R?

A.	Reflexive
B.	Symmetric
C.	AntiSymmetric
<input checked="" type="checkbox"/> D.	Transitive

11

Not Answered

A boolean lattice is a lattice which is

A.	Complemented and Modular
B.	distributed and complete
<input checked="" type="checkbox"/> C.	Complemented and distributive
D.	Complete and module

12

Not Answered

In a poset (S, \preceq) , if there is no element $n \in S$ with m

A.	an element n exists for which $m = n$
<input checked="" type="checkbox"/> B.	An element m is maximal in the poset
C.	A set with the same subset of the poset
D.	An element m is minimal in the poset

13

Not Answered

In which of the following sets $A - B$ is equal to $B - A$?

A.	$A = \{1, 2, 3\}$, $B = \{2, 3, 4\}$
----	---------------------------------------

B.	$A = \{1, 2, 3\}, B = \{1, 2, 3, 4\}$
<input checked="" type="radio"/> C.	$A = \{1, 2, 3\}, B = \{2, 3, 1\}$
D.	$A = \{1, 2, 3, 4, 5, 6\}, B = \{2, 3, 4, 5, 1\}$

14

Not Answered

If set $|A|=m$ & $|B|=n$, How many possible number of functions?

<input checked="" type="radio"/> A.	nm
B.	mn
C.	$(mn)n$
D.	$(mn)m$

15

Not Answered

Ais an ordered collection of objects.

A.	Relation
B.	Function
<input checked="" type="radio"/> C.	Set
D.	Proposition

16

Not Answered

Two finite sets A and B have m and n elements respectively. If the total number of subsets of A is 240 more than the total number of subsets of B, then the value of n is

A.	2
<input checked="" type="radio"/> B.	4
C.	6
D.	8

17

Not Answered

Let a set $S \{1,2,3,4,5,6\}$ and $<$ be the partial order defined by $S < R$ if a divides b . Which of the following is minimal element of Hasse Diagram?

<input checked="" type="radio"/> A.	1
B.	3
C.	5
D.	All of these

18

Not Answered

$(X+Y^{\circ})(X+Z)$ can be represented by _____

<input checked="" type="radio"/> A.	a) $(X+Y^{\circ} Z)$
B.	b) $(Y+X^{\circ})$
C.	c) XY°
D.	d) $(X+Z^{\circ})$

19

Not Answered

If each non empty set of a lattice has a least upper bound and greatest lower bound , then the lattice is called .

<input checked="" type="radio"/> A.	Complete Lattice
B.	Associative lattice
C.	Absorption
D.	Commutative lattice

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Not Answered

Evaluate the expression: $(X + Z)(X + XZ') + XY + Y$.

A. a) $XY+Z'$ B. b) $Y+XZ'+Y'Z$ C. c) $X'Z+Y$ D. d) $X+Y$ **21**

Not Answered

Suppose a relation $R = \{(3, 3), (5, 5), (5, 3), (5, 5), (6, 6)\}$ on $S = \{3, 5, 6\}$. Here R is known as _____

A. equivalence relation

B. reflexive relation

C. symmetric relation

D. transitive relation

22

Not Answered

What is the cardinality of the set of odd positive integers less than 10?

A. 10

B. 5

C. 3

D. 20

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Not Answered

Consider the relation: R' (x, y) if and only if $x, y > 0$ over the set of non-zero rational numbers, then R' is _____

A. not equivalence relation

B.	transitive and asymmetry relation
C.	reflexive and antisymmetric relation
<input checked="" type="checkbox"/> D.	an equivalence relation

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Not Answered

A relation $R=\{(1,1),(2,2),(3,3)\}$? over set $A\{1,2,3\}$ is

A.	Transitive relation
B.	rreflexive relation
C.	Symmetric relation
<input checked="" type="checkbox"/> D.	All of them

25

Not Answered

Let $N= \{1,2,3, ___ \}$ be ordered by divisibility, which of the following subset is totally ordered

<input checked="" type="checkbox"/> A.	(2,4,6)
B.	(3,5,15)
C.	(2,9,16)
D.	(4,15,30)

26

Not Answered

Relations may exist between?

A.	objects of the same set
B.	between objects of two or more sets.
<input checked="" type="radio"/> C.	A and B Both
D.	None of these

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Not Answered

If A & B are sets and $A \cap B = A \cup B$, then which one of them is FALSE

A.	$A \subseteq B$
B.	$B \subseteq A$
C.	$A = B$
<input checked="" type="radio"/> D.	None of these

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Not Answered

A free semilattice has the _____ property.

A.	intersection
B.	commutative and associative
C.	identity
<input checked="" type="radio"/> D.	universal

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Not Answered

Minimize the Boolean expression using Boolean identities: $A'B + ABC' + BC' + AB'C'$.

<input checked="" type="radio"/> A.	a) $B(AC')' + AC'$
B.	b) $AC' + B'$

- | | |
|----|-------------------|
| C. | c) $ABC + B' + C$ |
| D. | d) $BC' + A'B$ |

30

Not Answered

Let set $A = \{-2, -1, 0, 1, 2\}$ & $f: A \rightarrow Z$ given by $f(x) = x^2 - 2x - 3$ on the basis of given equation, which number show the partial pre-image.

- | | |
|-------------------------------------|----|
| A. | 0 |
| B. | -3 |
| <input checked="" type="radio"/> C. | 5 |
| D. | 6 |

31

Not Answered

The Boolean function $x'y' + xy + x'y$ is equivalent to

- | | |
|-------------------------------------|-----------|
| A. | $x' + y'$ |
| B. | $x + y$ |
| C. | $x + y'$ |
| <input checked="" type="radio"/> D. | $x' + y$ |

32

Not Answered

Power set of empty set has exactly..... subset.

- | | |
|-------------------------------------|---|
| A. | 0 |
| <input checked="" type="radio"/> B. | 1 |
| C. | 2 |
| D. | 3 |

33

Not Answered

Which of the following two sets are equal?

- | | |
|-------------------------------------|---|
| A. | $A = \{1, 2\}$ and $B = \{1\}$ |
| B. | $A = \{1, 2\}$ and $B = \{1, 2, 3\}$ |
| <input checked="" type="radio"/> C. | $A = \{1, 2, 3\}$ and $B = \{2, 1, 3\}$ |
| D. | $A = \{1, 2, 4\}$ and $B = \{1, 2, 3\}$ View Answer |

34

Not Answered

Let $P = \{2, 3, 6, 12, 24, 36\}$ and $<$ be the relation "divides". Then $A = \{6, 12\}$, which of the following is false.?

- | | |
|-------------------------------------|---------------------------------|
| A. | the lower bounds are 2, 3, 6 |
| B. | the upper bounds are 12, 24, 36 |
| <input checked="" type="radio"/> C. | LUB is 224 |
| D. | GLB is 6 |

35

Not Answered

In the poset $(Z^+, |)$ (where Z^+ is the set of all positive integers and $|$ is the divides relation) are the integers 9 and 351 comparable?

- | | |
|-------------------------------------|-------------------------------|
| <input checked="" type="radio"/> A. | comparable |
| B. | not comparable |
| C. | comparable but not determined |
| D. | determined but not comparable |

36

Not Answered

For two distinct sets, A and B, having cardinalities m and n respectively, the maximum cardinality of a relation R from A to B is ?

A.	$m+n$
B.	m^n
C.	$2^{(m \cdot n)}$
<input checked="" type="checkbox"/> D.	None of these

37

Not Answered

What is the range of a function?

A.	the maximal set of numbers for which a function is defined
<input checked="" type="checkbox"/> B.	the maximal set of numbers which a function can take values
C.	it is set of natural numbers for which a function is defined
D.	none of the mentioned

38

Not Answered

A _____ has a greatest element and a least element which satisfy $0 \leq a \leq 1$ for every a in the lattice(say, L).

A.	semilattice
B.	join semilattice
C.	meet semilattice
<input checked="" type="checkbox"/> D.	bounded lattice

39

Not Answered

A self complemented distributive lattice is called

<input checked="" type="checkbox"/> A.	Boolean algebra
B.	Modular lattice
C.	Complete lattice

D.

Self dual lattice

40

Not Answered

A binary relation R on a single set A is a subset of?

 A. $A \cap A$ B. $A \wedge A$ C. $A \cup A$ D.

None of these