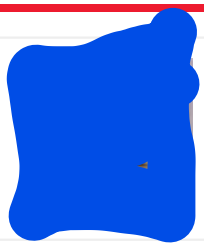

Started on	Saturday, 17 April 2021, 6:36 PM
State	Finished
Completed on	Saturday, 17 April 2021, 6:56 PM
Time taken	20 mins 1 sec

Question 1

Complete

Marked out of 1.00

$\{a, c\} \in \{a, b, c, \{a, b, c\}\}$

Select one:

- True
- False

Question 2

Complete

Marked out of 1.00

Consider the statement, "Either $-2 \leq x \leq -1$ or $1 \leq x \leq 2$." The negation of this statement is

Select one:

- a. $x \leq -2$ or $2 \leq x$ or $-1 < x < 1$
- b. $x < -2$ or $2 < x$ or $-1 < x < 1$
- c. $x < -2$ or $2 < x$
- d. $-1 < x < 1$
- e. $-2 < x < 2$

Question 3

Complete

Marked out of 1.00

The two propositions "P: I will go to the mall tonight" and "Q: There is no class tomorrow" are equivalent.

Select one:

- a. No
- b. Yes
- c. Cannot be Determined

Question 4

Complete

Marked out of 1.00

Among the integers 1 to 1000,
(a) Compute how many of them are not divisible by 3, nor by 5, nor by 7?
(b) Compute how many are not divisible by 5 and 7 but divisible by 3?

(Note: Write the numerical value in the answer separated by comma without any space e.g., 100,200)

Answer: 132

Question 5

Complete

Marked out of 1.00

"Every car is fast and dangerous."

The symbolic expression of the given sentence is:

Select one:

- a. $\forall x\ (F(x) \wedge D(x))$
- b. $\exists\ x\ (F(x) \wedge D(x))$
- c. $\exists\ x(F(x) \rightarrow D(x))$
- d. $\forall x(F(x) \rightarrow D(x))$

Question 6

Complete

Marked out of 1.00

Show that any positive integer n greater than or equal to 2 is either a prime or a product of primes. Here, in the base case we consider value of $n = 3$.

Select one:

- True
- False

Question 7

Complete

Marked out of 1.00

Support of a fuzzy set given as {(a,0.15), (b,0.9), (c,1), (d,0), (e,0.5)}, with a universal set X = {a, b, c, d, e} is given as

Select one:

- a. {a, b, c, e}
- b. {a, b, d, e}
- c. {(a,0.15), (b,0.9), (c,1), (e,0.5)}
- d. {(a,0.9), (b,0.9), (c,0.9), (d,0.9), (e,0.9)}

Question 8

Complete

Marked out of 1.00

The following argument is valid:

If I go to the movies, I will not do my homework.
I do my homework.
Therefore, I did not go to the movies.

Select one:

- True
- False

Question 9

Complete

Marked out of 1.00

The set Q of rational numbers is

Select one:

- a. Countably infinite
- b. Countably finite
- c. Uncountably infinite
- d. None

Question 10

Complete

Marked out of 1.00

. If set A has 4 elements, then number of elements in A X A X A are _____

(Note: Write the answer as a numerical value only like 12)

Answer: 64

Question 11

Complete

Marked out of 1.00

The two propositions "P: Ram was born in 1934" and "Q: Ram will be 60 years old in 1994" are equivalent.

Select one:

- a. No
- b. Yes
- c. Cannot be Determined

Question 12

Complete

Marked out of 1.00

Comment about proposition P1:
P1: $(p \vee q) \wedge (q \rightarrow r) \vee (r \vee p)$

Select one:

- a. P1 is tautology
- b. If p is true and q is false and r is false, then P1 is true
- c. If p is true and q is true and r is false, then P1 is true
- d. P1 is satisfiable

Question 13

Complete

Marked out of 1.00

Let A be the set of comfortable houses and B be the set of affordable houses given as follows.
Fuzzy set A={(a,0.8), (b,0.9), (c,0.1), (d,0.7), (e,0.5)}
Fuzzy set B={(a,0.9), (b,0.8), (c,0.6), (d,0.2), (e,0.4)}

Then the set of comfortable and affordable houses is

Select one:

- a. {(a,0.8), (b,0.8), (c,0.1), (d,0.2), (e,0.5)}
- b. {(a,0.7), (b,0.7), (c,0.7), (d,0.9), (e,0.5)}
- c. {(a,0.8), (b,0.8), (c,0.1), (d,0.2), (e,0.4)}
- d. {(a,0.9), (b,0.9), (c,0.6), (d,0.7), (e,0.5)}

Question 14

Complete

Marked out of 1.00

$p \rightarrow q$ is logically equivalent to _____

Select one:

- a. $\neg p \vee \neg q$
- b. $\neg p \vee q$
- c. $p \vee \neg q$
- d. $\neg p \wedge q$

Question 15

Complete

Marked out of 1.00

Which of the following propositions is a tautology?

Select one:

- a. $(p \vee q) \rightarrow q$
- b. $p \vee (q \rightarrow p)$
- c. $p \vee (p \rightarrow q)$
- d. Both (b) & (c)