Question 1

Correct

Mark 1.00 out of 1.00

Flag question

The tautology $(p \wedge (p \rightarrow q)) \rightarrow q$ stands for which rule of inference

Select one:

- a. None of the above
- b. Modus Tollens
- c. Modus Ponens ✓
- d. Hypothetical

The correct answer is: Modus Ponens

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

Which of these is not a step in mathematical induction

Select one:

- a. termination step ✓
- b. base step
- c. none of the given option
- d. inductive step

The correct answer is: termination step

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

If x is a set and the set contains the real number between 5 and 6, then the set is _____.

Select one:

- a. Empty set
- b. Finite set
- c. Infinite set ✓
- d. None of the mentioned

The correct answer is: Infinite set

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

The argument "if Rohan is an engineer then he likes motorcycle. If Rohan loves traveling then he is fit. If Rohan likes motorcycle the he loves traveling.

Therefore, if Rohan is an engineer then he is fit" is

Select one:

- a. valid ✓
- b. inconsistant
- c. Invalid
- d. insufficient data

The correct answer is: valid

Question 5

Correct

Mark 1.00 out of 1.00

Flag question

Let P(x) be the statement

"the word x contains the letter a."

What is the truth value of P(False)

Answer: true ✓

The correct answer is: T

Question 6

Correct

Mark 1.00 out of 1.00

Flag question

What is the negation of the following logical expression

$\forall x \exists y (F(x,y) \rightarrow (G(x,y) \vee H(x,y)))$

Select one:

a. $\exists x \forall y (F(x,y) \wedge G(x,y) \wedge H(x,y))$

b. $\exists x \forall y (F(x,y) \wedge G(x,y) \wedge \neg H(x,y))$

c. $\exists x \forall y (\neg F(x,y) \wedge \neg G(x,y) \wedge \neg H(x,y))$

d. $\exists x \forall y (F(x,y) \wedge \neg G(x,y) \wedge \neg H(x,y))$ ✓

The correct answer is: $\exists x \forall y (F(x,y) \wedge \neg G(x,y) \wedge \neg H(x,y))$

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

State which rule of inference is the basis of following argument:

"If it raining today, the campus will be closed. The campus is not closed today. Thus, it did not raining today."

Select one:

a. Simplification

b. Hypothetical syllogism

c. Modus tollens ✓

d. Conjunction

The correct answer is: Modus tollens

The correct answer is: Modus tollens

Question 8

Correct

Mark 1.00 out of 1.00

Flag question

Considering the following premises:

¬p

r→p

¬r→s

s→t

what would be the conclusion

Select one:

- a. r
- b. the given premises are inconsistant
- c. ¬s
- d. t ✓

The correct answer is: t

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

A compound proposition that is neither a contradiction nor a tautology is called a _____

Select one:

- a. Condition
- b. Inference
- c. Equivalence
- d. Contingency ✓

The correct answer is: Contingency

Question 10

Correct

Mark 1.00 out of 1.00

Flag question

Which logical operator is having the highest preference

Answer: not ✓

The correct answer is: Not

Question 11

Correct

Mark 1.00 out of 1.00

Flag question

If X is any propositional statement, then which of the following is not a contradiction?

Note:-(Multiple right answers with negative marking)

Select one or more:

- [ ] a. $X \wedge F$
- [ ] b. $X \wedge \neg X$
- [x] c. $\neg X \vee \neg T$ ✓
- [x] d. $X \vee F$ ✓

The correct answers are: $X \vee F$, $\neg X \vee \neg T$

Question 12

Correct

Mark 1.00 out of 1.00

Flag question

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

Select one:

- ( ) a. None of the mentioned
- (•) b. Tautology ✓
- ( ) c. Contingency
- ( ) d. Contradiction

The correct answer is: Tautology

Question 13

Correct

Mark 1.00 out of 1.00

Flag question

"Rohan is out for a trip or it is not raining" and "It is raining or Riya is playing football" conclude that _____

Select one:

- a. Riya is playing chess
- b. Rohan is out for a trip and Riya is playing chess
- c. Rohan is out for a trip or Riya is playing chess ✓
- d. Rohan is out for trip

The correct answers are: Rohan is out for trip, Rohan is out for a trip or Riya is playing chess

Question 14

Partially correct

Mark 0.67 out of 1.00

Flag question

Which of the following is/ are true?

Note:-(Multiple right answers with negative marking)

Select one or more:

- [ ] a. $\forall x \exists y (P(x,y)) \Rightarrow \exists x \forall y (P(x,y))$
- [ ] b. $\forall x \forall y (P(x,y)) \Leftrightarrow \exists y \exists x (P(x,y))$
- [x] c. $\forall x \forall y (P(x,y)) \Leftrightarrow \forall y \forall x (P(x,y))$ ✓
- [x] d. $\exists x \forall y (P(x,y)) \Rightarrow \forall y \exists x (P(x,y))$ ✓
- [ ] e. $\forall x \exists y (P(x,y)) \Rightarrow \exists x \exists y (P(x,y))$
- [ ] f. $\forall x \exists y (P(x,y)) \Rightarrow \exists x \forall y (P(x,y))$

The correct answers are: $\forall x \exists y (P(x,y)) \Rightarrow \exists x \exists y (P(x,y))$, $\exists x \forall y (P(x,y)) \Rightarrow \forall y \exists x (P(x,y))$, $\forall x \forall y (P(x,y)) \Leftrightarrow \forall y \forall x (P(x,y))$

Question 15

Correct

Mark 1.00 out of 1.00

Flag question

Let

P(x): x is superb

and

Q(x): x is your friend

then what will the correct representation of

"atleast one of your friend is superb"

Select one:

- a. $\forall x[Q(x) \wedge P(x)]$
- b. $\exists x[Q(x) \rightarrow P(x)]$
- c. $\forall x[Q(x) \rightarrow P(x)]$
- d. $\exists x[Q(x) \wedge P(x)]$ ✓

The correct answer is: $\exists x[Q(x) \wedge P(x)]$