

Unit 5 - Week 3

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

- Motivational example
- Introduction to Statements
- Examples and Non-examples of Statements
- Introduction to Negation
- Negation - Explanation
- Negation - Truthtable
- Examples for Negation
- Motivation for OR operator
- Introduction to OR operator
- Truthtable for OR operator
- OR operator for 3 Variables
- Truthtable for AND operator
- AND operator for 3 Variables
- Primitive and Compound statements - Part 1
- Primitive and Compound statements - Part 2
- Problems involoving NOT, OR and AND operators
- Introduction to implication
- Examples and Non-examples of Implication - Part 1
- Examples and Non-examples of Implication - Part 2
- Explanation of Implication
- Introduction to Double Implication
- Explanation of Double Implication
- Converse, Inverse and Contrapositive
- XOR operator - Part 1
- XOR operator - Part 2
- XOR operator - Part 3
- Problems
- Tautology, Contradiction - Part 1
- Tautology, Contradiction - Part 2
- Tautology, Contradiction - Part 3
- SAT Problem - Part 1
- SAT Problem - Part 2
- Logical Equivalence - Part 1
- Logical Equivalence - Part 2
- Logical Equivalence - Part 3
- Logical Equivalence - Part 4
- Motivation for laws of logic
- Double negation - Part 1
- Double negation - Part 2
- Laws of Logic
- De Morgan's Law - Part 1
- De Morgan's Law - Part 2
- Rules of Inferences - Part 1
- Rules of Inferences - Part 2
- Rules of Inferences - Part 3
- Rules of Inferences - Part 4
- Rules of Inferences - Part 5
- Rules of Inferences - Part 6
- Rules of Inferences - Part 7
- Conclusion
- Quiz : Assignment 3
- Week 3 Feedback

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Text Transcripts

Download Videos

Assignment 3

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2020-02-19, 23:59 IST.

1) Simplification of $(p \vee q) \wedge \neg(\neg p \wedge q)$ is

1 point

$p \vee q$

$p \wedge \neg q$

p

$p \wedge q$

No, the answer is incorrect. Score: 0

Accepted Answers: p

2) Consider the following sentences.

1 point

p : 8 is a prime number
 q : How is the whether today?

p is a statement, q is a statement

p is a statement, q is not a statement

p is not a statement, q is a statement

p is not a statement, q is not a statement

No, the answer is incorrect. Score: 0

Accepted Answers: p is a statement, q is not a statement

3) What can we infer from the below statements?

1 point

If Rahul plays basketball in the afternoon, then he doesn't watch television in the evening. Rahul watched television in the evening.

Rahul didn't play basketball in the afternoon.

Rahul played basketball in the afternoon.

Rahul did not watch television in the evening.

None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: Rahul didn't play basketball in the afternoon.

4) Identify Associative law among the following expressions:

1 point

$p \wedge (q \vee r) \equiv (p \vee q) \wedge (p \vee r)$

$p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$

$p \vee (q \vee r) \equiv (p \vee q) \wedge r$

$p \vee (q \vee r) \equiv (p \vee q) \vee r$

No, the answer is incorrect. Score: 0

Accepted Answers: $p \vee (q \vee r) \equiv (p \vee q) \vee r$

5) For how many assignments of p, q and r , is the $q \wedge (\neg r \rightarrow p)$ true?

1 point

3

6

2

4

No, the answer is incorrect. Score: 0

Accepted Answers: 3

6) Let p be a statement. Which of the following is a tautology?

1 point

$p \wedge T$

$p \vee F$

$p \vee T$

$p \wedge F$

No, the answer is incorrect. Score: 0

Accepted Answers: $p \vee T$

7) Which of the following is NOT an equivalence statement of $p \vee q$?

1 point

$(p \vee q) \wedge \neg(p \wedge q)$

$(p \wedge \neg q) \vee (\neg p \wedge q)$

$(p \wedge q) \vee (\neg p \wedge \neg q)$

$(p \vee q) \wedge (\neg p \vee \neg q)$

No, the answer is incorrect. Score: 0

Accepted Answers: $(p \wedge q) \vee (\neg p \wedge \neg q)$

8) Equivalent statement of "It is not the case that ground is not wet" is

1 point

The ground is not wet

The ground is wet

It is the case that the ground is not wet

None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: The ground is wet

9) Given compound statements are true.

1 point

p
 $p \rightarrow \neg q$
 $\neg q \rightarrow \neg r$

What can you infer from the above true statements?

$\neg p$ is true

$\neg r$ is true

q is true

r is true.

No, the answer is incorrect. Score: 0

Accepted Answers: $\neg r$ is true

10) Consider the following two statements.

1 point

p : A number is divisible by 5.
 q : A number is divisible by 15.

Which of the following is true?

$p \rightarrow q$

$q \rightarrow p$

$p \leftrightarrow q$

$q \rightarrow \neg p$

No, the answer is incorrect. Score: 0

Accepted Answers: $q \rightarrow p$