EE1001
Foundations of Digital Techniques

Logic

Assignment #3

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Please submit assignment #3 on or before 28 March 2021 Sunday, 23:59

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Logic

Assignment 3

Validity and Soundness of Argument
Propositional Logic
Conditionals

Q1

- $A = \{4, 14, 66, 70\}$, $x \in A$ such that x is an odd number. Determine whether the statement is T or F.

Q2

- $A = \{1, 2, 3\}$, $p: \forall x \in A, x < 4$. Determine whether the statement is T or F.

Q3

- Write the negations of following statements.
- i. $\forall\, n \in N,\ n + 1 > 2$.
- ii. $\forall\, x \in N,\ x\ 2 + x$ is even number.

Q4

Q4. There are two types of phones:

Always gives real messages	Always gives fake messages
	
Ordinary phone	Hijacked phone

The Message given by A:

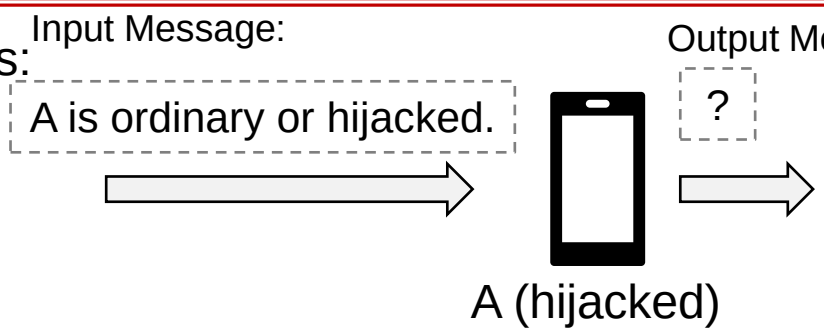
A

Question:
Is A ordinary or hijacked? Use truth table to justify.

Q5

Q5. There are two types of phones:

Always gives real messages	Always gives fake messages
	
Ordinary phone	Hijacked phone



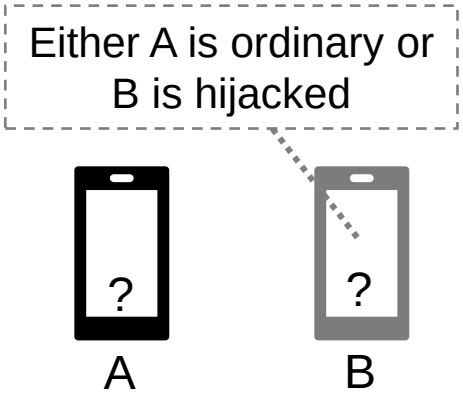
Question:
A is a hijacked phone, and my input message is "A is ordinary or hijacked".
What message will A output?

Q6

Q6. There are two types of phones:

Always gives real messages	Always gives fake messages
	
Ordinary phone	Hijacked phone

The Message given by B:



Question:
Are A and B ordinary or hijacked? Use truth table to justify.

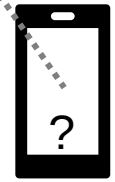
Q7

Q7. There are two types of phones:

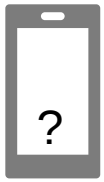
Always gives real messages	Always gives fake messages
	
Ordinary phone	Hijacked phone

The Message given by A:

> Either A is hijacked or B is ordinary



A



B

Question:

Are A and B ordinary or hijacked? Use truth table to justify.

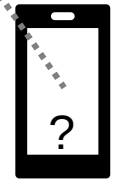
Q8

Q8. There are two types of phones:

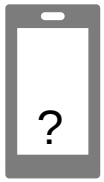
Always gives real messages	Always gives fake messages
	
Ordinary phone	Hijacked phone

The Message given by A:

> We are both ordinary phones.



A



B

Question:

Are A and B ordinary or hijacked? Use truth table to justify.

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