Exercise: Propositional Logic

- **วิชชาภัทร จินดานาถ** previously submitted answers to this quiz/test on 16-Oct-2023 @ 10:00:42 and obtained **29** correct answers out of **29** .
- This test/quiz can be taken many times.
- Correct answers will NOT be revealed after submission.

Answer all the questions correctly wihtin the deadline of this module. You can submit the answers as many times as you wish.

1 Are these sentences propositions?
a) Please answer this question.
b) 1 + 1 = 3
c) x + y = 0
d) Do you know what it means?

From previous attempt

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2 Use this information to answer Question 2-5
Let p, q, r and s be the propositions. The truth values of p, q and r are T, F and T respectively.
Determine the truth value of each of $p \wedge (q \vee \neg r)$

From previous attempt

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3 Determine the truth value of each of $\neg p \rightarrow (q \rightarrow \neg r)$

From previous attempt

4 Determine the truth value of each of $(\neg p \rightarrow q) \rightarrow \neg r$

From previous attempt

5 Determine the truth value of each of $(\neg q \rightarrow \neg p) \wedge s$

From previous attempt

6 Use this information to answer Question 6-9
Let p, q and r be the propositions.
p: You get bubble tea as a reward.
q: You pass an exam.
r: You do every exercise by yourself
Write these propositions using p, q and r and logical connectives (including negations)
"You do every exercise by yourself and pass an exam but you do not get a bubble tea as a reward."

From previous attempt

- a) $r \wedge q \wedge \neg p$
- b) $(r \wedge q) \vee \neg p$
- c) $(r \wedge q) \rightarrow \neg p$
- d) $(r \rightarrow q) \rightarrow \neg p$

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7 You will not get bubble tea as a reward if you do not pass an exam.

From previous attempt

- a) $\neg p \rightarrow \neg q$
- b) $\neg q \rightarrow \neg p$
- c) $\neg(p \rightarrow q)$
- d) $\neg(q \rightarrow p)$

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8 You will get a bubble tea as a reward if and only if you do every exercise by yourself or you pass an exam.

From previous attempt

- a) $p \leftrightarrow (r \vee q)$
- b) $p \leftrightarrow (r \wedge q)$
- c) $p \rightarrow (r \vee q)$
- d) $(r \vee q) \rightarrow p$

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9 A sufficient condition for getting bubble tea as a reward is to do every exercise by yourself and pass an exam.

From previous attempt

- a) $p \rightarrow (r \wedge q)$

- b) (r ∧ q) → p
- c) (p → r) ∧ q
- d) (r → p) ∧ q

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10 Use this information to answer Question 10 – 14
Given proposition below
"You will get the scores only if you answer correctly and submit the answers."
Let p: You will get the scores, q: you answer correctly and r: submit the answers
Choose the correct answer for each question PROPOSITION :

From previous attempt

- a) p→(q∧r)
- b) (q∧r)→p

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11 CONVERSE:

From previous attempt

- a) p→(q∧r)
- b) (q∧r)→p

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12 CONTRAPOSITIVE:

From previous attempt

- a) ¬p→¬(q∧r)
- b) ¬(q∧r)→¬p

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13 INVERSE:

From previous attempt

- a) ¬p→¬(q∧r)
- b) ¬(q∧r)→¬p

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14 NEGATION :

From previous attempt

- a) ¬(p→(q∧r))
- b) ¬((q∧r)→p)

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15 How many rows appear in a truth table for each of this compound propositions?
$p \wedge q \wedge \neg r$

From previous attempt

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16 How many different truth tables of compound propositions are there that involve the propositional variables p and q?

From previous attempt

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17 Use this information to answer Question 17 - 22
Given the truth table below, identify errors and find the value of W, X, Y, Z

From previous attempt

	Column						
	1	2	3	4	5	6	7
Row	p	q	$\neg p$	$p \rightarrow q$	$\neg p \wedge (p \rightarrow q)$	$\neg q$	$(\neg p \wedge (p \rightarrow q)) \rightarrow \neg q$
1	T	T	F	T	T	F	W
2	T	F	F	F	F	T	X
3	F	T	T	T	T	F	Y
4	F	F	T	T	T	T	Z

The errors occur in row:

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18 The errors occur in column:

From previous attempt

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19 The values of W:

From previous attempt

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20 The values of X:

From previous attempt

21 The values of Y:

From previous attempt

22 The values of Z:

From previous attempt

23 Are these statements consistent:

- a) Whenever the homework is not due, students can do their homework.
- b) If students do their homework, students can submit their homework.
- c) Students cannot submit their homework when the homework is due.

From previous attempt

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24 $(p \wedge q) \rightarrow q \equiv ?$

- a) $q \rightarrow p$
- b) $p \vee \neg p$
- c) $p \rightarrow q$
- d) $\neg(p \wedge q)$

From previous attempt

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25 $q \rightarrow (p \wedge q) \equiv ?$

- a) $q \rightarrow p$
- b) $p \vee \neg p$
- c) $p \rightarrow q$
- d) $\neg(p \wedge q)$

From previous attempt

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26 $q \rightarrow \neg(p \wedge q) \equiv ?$

- a) $q \rightarrow p$

From previous attempt

- b) $p \vee \neg p$
- c) $p \rightarrow q$
- d) $\neg(p \wedge q)$

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27 Determine whether $(p \wedge q) \rightarrow q$ is Tautology, Contradiction or Contingency

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28 Determine whether $(p \wedge \neg(p \vee q))$ is Tautology, Contradiction or Contingency

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29 Determine whether $q \rightarrow (p \wedge q)$ is Tautology, Contradiction or Contingency

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Submit

Previous (?q=onlinecourse/theatre/27023/Zx0DS9qN41)

Next (?q=onlinecourse/theatre/27024/iTu3eZT8KgW3)