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**Quiz-4 (05-04-2020)**

1 message

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160

**The proposition  $P \wedge (P \rightarrow Q)$  is \***

satisfiable and valid



satisfiable and not valid

- ☐ not satisfiable and valid
- ☐ not satisfiable and not valid

**Which of the following is/are example(s) of tautology? \***

- ☐ This course is easy and this course is not easy.
- ☒ This course is easy or this course is not easy.
- ☒ Head I win and tail you loose.
- ☐ Ram is married and Shyam is a bachelor.
- ☐ Ram is married or Shyam is a bachelor.

**A conditional is of the form  $P \rightarrow Q$ . Its converse is given by  $Q \rightarrow P$ , inverse by  $\sim P \rightarrow \sim Q$ , and contrapositive by  $\sim Q \rightarrow \sim P$ . Which of the following is/are true? \***

- ☐ "Converse  $\vee$  Inverse" is a tautology.
- ☒ "Conditional  $\vee$  Converse" is a tautology.
- ☒ Conditional and contrapositive always have the same truth value.
- ☒ Inverse and converse always have the same truth value.

**Which of the following is/are examples of proposition? \***

- ☐ What a beautiful lake?
- ☐ This statement is false.
- ☒ I killed a dog.
- ☒ I did not kill a dog.

Which of the following is/are correct translations of this sentence into propositional logic: Sita will win the match unless she is injured, in which case Ram will win. (S: Sita will win the match; I: Sita is injured; R: Ram will win the match). \*

☐  $(I \rightarrow R) \rightarrow (\neg I \rightarrow S)$

☐  $(\neg I \rightarrow S) \rightarrow (I \rightarrow R)$

☒  $(\neg I \rightarrow S) \wedge (I \rightarrow R)$

☐  $S \rightarrow (\neg I \wedge \neg R)$

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