IIT Jodhpur

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Quiz-3 (04-04-2020)

1 message

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Quiz-3 (04-04-2020)

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Let us consider a propositional language where: A: A comes to the school; B: B comes to the school; C: C comes to the school; D: D comes to the school. Which of the following is/are correct translations of the following sentence: "A, B and C come to the school if and only if D doesn't come, but, if neither A nor B come, then D comes only if C comes". *

- [ ] (A /\ B /\ C -> ~D) /\ (~A /\ ~B -> (D -> C))
- [ ] (A /\ B /\ C <-> ~D) /\ (~A /\ ~B <-> (D <-> C))
- [ ] (A /\ B /\ C -> ~D) /\ (~A /\ ~B <-> (D <-> C))
- [x] (A /\ B /\ C <-> ~D) /\ (~A /\ ~B -> (D <-> C))

Let us consider a propositional language where: A: A is Indian; B: B is British. Which of the following is/are correct translations of the following sentence: "Either A is Indian and B is British, or neither A is Indian nor B is British". *

- [x] (A /\ B) \/ (~A /\ ~B)
- [ ] (A \/ B) /\ (~A \/ ~B)
- [x] A <-> B
- [ ] (~A \/ B) \/ (A \/ ~B)

Let us consider a propositional language where: D: Dogs chase mice; B: Dogs chase birds. Which of the following is/are correct translations of the following sentence: "Dogs chase mice or birds, but not at the same time". *

- [ ] (M \/ B) \/ ~(M /\ B)
- [ ] (M \/ B) -> ~(M /\ B)
- [x] (M \/ B) /\ ~(M /\ B)
- [ ] (M \/ B) <-> ~(M /\ B)

Which is/are the correct interpretation(s) of the formula: P \/ Q /\ R <-> Q -> ~R *

- [ ] ((P \/ (Q /\ R)) <-> Q) -> (~R)
- [ ] ((P \/ Q) /\ R) <-> Q) -> (~R)

- [x] (P \/ (Q /\ R)) <-> (Q -> (~R))
- [ ] (P \/ ((Q/\ R) <-> Q)) -> (~R)

Consider P -> Q. Its converse is given by Q -> P, and inverse is given by ~P -> ~Q. If P -> Q holds, then which of the following is/are possible? *

- [x] Its converse as well as inverse hold.
- [ ] Its converse holds but inverse does not hold.
- [ ] Its converse does not hold but inverse holds.
- [x] Neither its converse nor inverse holds.

Which of the following is/are examples of propositions? *

- [x] 1 + 1 > 3
- [ ] 1 + 1 > x
- [x] Sri Lanka is in Europe
- [ ] Is Sri Lanka in Europe?