**Valid arguments in propositional logic:**

1. Consider the following propositions:

“If I love cat, then I love dog.”

“I love cat.”

Therefore, “I love dog.”

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“If I love cat, then I love dog.”

“I love dog.”

Therefore, “I love cat.”

1. Consider the following propositions:

“If you have a current password, then you can log onto the network.”

“You have a current password.”

Therefore,

“You can log onto the network.”

1. **Premises:** ‘’Vijay works hard’’, ‘’If Vijay works hard, then he is a dull boy’’, and ‘’If Vijay is a dull boy, then he will not get the job.’’

**Conclusion:** ‘’Vijay will not get the job.’’

1. **Check the validity of the argument**

Problem: Show that the following argument is valid.

If today is Tuesday, then I have a test in Mathematics or Economics.

If my Economics professor is sick, then I will not have a test in Economics.

Today is Tuesday and my Economics professor is sick.

Therefore, I have test in Mathematics.

1. Consider the following logical inferences.

A: If it rains, then cricket match will not be played.

The cricket match was played.

Inference: There was no rain.

B: If it rains then the cricket match will not be played

It did not rain.

Inference: The cricket match was played.

1. Consider the following two statements

S1: If a candidate is known to be corrupt, then he will not be elected.

S2: If a candidate is kind, then he will be elected.

Which one of the following statements follows from S1 and S2 as per sound inference rules of logic?

If a person is known to be corrupt, he is kind.

If a person is not known to be corrupt, he is not kind.

If a person is kind, he is not known to be corrupt.

If a person is not kind, he is not known to be corrupt.