

ASSIGNMENT LOGIC:

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Propositional logic:

1. Translate english sentence to proposition logic.

(a) Ankit is active and happy.

→ p : Ankit is active

q : Ankit is happy

$$\Rightarrow p \wedge q$$

(b) Sweta either owns a dog or a cat.

→ p : sweta owns a dog

q : sweta owns a cat.

$$\Rightarrow (p \wedge \neg q) \vee (\neg p \wedge q)$$

(c) If melina goes to suprabha or goes hiking, she will not go shopping.

→ p : melina goes to suprabha

q : melina goes to hiking

r : melina goes to shopping

$$\Rightarrow (p \vee q) \rightarrow \neg r$$

(d) You can take the flight if and only if you ^{buy} have a ticket.

→ p : You take the flight

q : you buy a ticket

$$(p \leftrightarrow q)$$

(e) You can access the internet from college only if you are a student or a staff

→ p: you access the internet from college

q: you are a student

r: you are a staff

$$p \leftrightarrow (q \vee r)$$

(f) If Jiwata bought a guitar today, he either sold his old one or borrowed one.

→ p: Jiwata bought a guitar today

q: Jiwata sold his old guitar

r: Jiwata borrowed one.

$$\Rightarrow p \rightarrow (q \vee r)$$

(g) It will rain or shine today, but not both

→ p: It will rain today

q: It will shine today

$$\Rightarrow (p \vee q) \wedge \neg(p \wedge q)$$