

## Tips And Tricks

- Use the elimination method whenever you feel stuck in a Mathematical reasoning problem.
- Make use of logical thinking to solve JEE Main Mathematics questions.
- Use the truth table to easily identify the answer.
- Make your own formula book that you can refer to as often as possible.

### **Solution (1):**

$$\begin{aligned} [(p \wedge \sim q) \vee q] \vee (\sim p \wedge q) &= (p \vee q) \wedge (\sim q \vee q) \vee (\sim p \wedge q) \\ &= (p \vee q) \wedge [t \vee (\sim p \wedge q)] \\ &= (p \vee q) \wedge t \\ &= p \vee q \end{aligned}$$

### **Solution( 2):**

Suman is brilliant and dishonest is  $P \wedge \sim R$ .

Suman is brilliant and dishonest if and only if Suman is rich is  $Q \leftrightarrow (P \wedge \sim R)$

Negative of the statement is expressed as  $\sim(Q \leftrightarrow (P \wedge \sim R))$ .

**Solution(3):**

If p: Examination is difficult

q: I shall pass

r: I study hard

Given result is  $P \Rightarrow (r \Rightarrow q)$

Now,  $\sim (r \Rightarrow q) = r \wedge \sim q$   
 $\sim (p \Rightarrow (r \Rightarrow q)) = p \wedge (r \wedge \sim q)$

The examination is difficult and I study hard but I shall not pass.

**Solution(4):**

$p \rightarrow (q \rightarrow p) = \sim p (q \rightarrow p) = \sim p \vee (\sim q \vee p)$

(Since  $p \vee \sim p$  is always true)  $= \sim p \vee p \vee q = p \rightarrow (p \vee q)$