

33. If  $(p \wedge \sim r) \rightarrow (\sim p \vee q)$  is false, then truth values of  $p$ ,  $q$  and  $r$  are, respectively,

(1) T, T, T

(2) T, F, T

(3) T, F, F

(4) F, T, T

33. (3)  $(p \wedge \sim r) \rightarrow (\sim p \vee q)$  is false.

Thus,  $(p \wedge \sim r)$  is true and  $(\sim p \vee q)$  is false.

So, ( $p$  is true and  $\sim r$  is true), and ( $\sim p$  is false and  $q$  is false)

Therefore,  $p$  is true,  $r$  is false and  $q$  is false.