Past Year JEE Questions

Questions

Quetion: 01

For any two statements p and q, the negation of the expression
$p \vee (\sim p \wedge q)$ is
A. $p \leftrightarrow q$
B. $\sim p \wedge \sim q$
C. $p \wedge q$
D. $\sim p \vee \sim q$

Solutions

Solution: 01

Explanation

$\sim[p \vee (\sim p \wedge q)]$

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

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

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

$= (\sim p \wedge \sim q)$ [as $\sim p \wedge p$ is always false)