

Assignment-6

EE22BTECH11012-A.Chhatrapati

Question 12.13.3.72) If the events A and B are independent, then $\Pr(A \cap B)$ is equal to

- (A) $\Pr(A) + \Pr(B)$
- (B) $\Pr(A) - \Pr(B)$
- (C) $\Pr(A)\Pr(B)$
- (D) $\Pr(A) \mid \Pr(B)$

Solution: Since

$$\Pr(A \mid B) = \frac{\Pr(AB)}{\Pr(B)} \quad (1)$$

As A and B are independent events,

$$\Pr(A \mid B) = \Pr(A) \quad (2)$$

$$\Pr(A) = \frac{\Pr(AB)}{\Pr(B)} \quad (3)$$

$$\implies \Pr(AB) = \Pr(A) \Pr(B) \quad (4)$$

So answer is option(C)