

Question: The probability that at least one of the events A and B occurs is 0.6. If A and B occur simultaneously with probability 0.2, then  $\Pr(A') + \Pr(B')$  is

(A) 0.4

(B) 0.8

(C) 1.2

(D) 1.6

**Solution:** : Given,

$$\Pr(A + B) = 0.6 \quad (1)$$

$$\Pr(AB) = 0.2 \quad (2)$$

$$\Pr(A + B) = \Pr(A) + \Pr(B) - \Pr(AB) \quad (3)$$

$$0.6 = \Pr(A) + \Pr(B) - 0.2 \quad (4)$$

$$\implies \Pr(A) + \Pr(B) = 0.8 \quad (5)$$

$$1 - \Pr(A') + 1 - \Pr(B') = 0.8 \quad (6)$$

$$\therefore \Pr(A') + \Pr(B') = 1.2 \quad (7)$$