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 $P(A') + P(B')$ is
(A) 0.4
(B) 0.8
(C) 1.2
(D) 1.6
**Solution:** : Given,

TABLE 0
TABLE-1

| Parameters | values | Description |
|---|---|---|
| $X_i$ | 0 | A |
| | 1 | B |
| $p(X = 0 + X = 1)$ | 0.6 | Probability that atleast one of the events occur |
| $p(X = 0 \cdot X = 1)$ | 0.2 | Probability that A and B occur simultaneously |

$$\therefore p(X = 0 + X = 1) = p(0) + p(1) - p(X = 0 \cdot X = 1) \tag{1}$$
$$p(0) + p(1) = 0.8 \tag{2}$$
$$1 - p(0') + 1 - p(1') = 0.8 \tag{3}$$
$$\therefore P(0) + P(1') = 1.2 \tag{4}$$