

Related Problem with Solution :

3. If $P(A) = 0.8$, $P(B) = 0.5$ and $P(B|A) = 0.4$, find

(i) $P(A \cap B)$

(ii) $P(A|B)$

(iii) $P(A \cup B)$

③ Given, $P(A) = 0.8$, $P(B) = 0.5$ and $P(B|A) = 0.4$

(i) $P(A \cap B) = ?$, $P(B|A) = \frac{P(A \cap B)}{P(A)}$

$$0.4 = \frac{P(A \cap B)}{0.8}$$

$\therefore P(A \cap B) = 0.32$

(ii) $P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{0.32}{0.5} = \frac{16}{25} = 0.64$

(iii) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$$= 0.8 + 0.5 - 0.32$$
$$= 0.98$$