Junaid - Saleem E.no. 02-13172020

Sol

$P(X) = 0.45$

$P(Y|X) = 0.35$

$\bar{X} = 1 - 0.45$

$\bar{X} = 0.55$

$\bar{X} = 1 - 0.35 = 0.65$

$Y = 1 - 0.75 = 0.25$

$\bar{Y} = 0.75$

(a) $P(Y) = P(X \cap Y) + P(\bar{X} \cap Y)$

$= (0.35 \times 0.45) + (0.55 \times 0.25)$

$= 0.295$

(b) $P(X|Y) = \frac{P(X \cap Y)}{P(Y)}$

$= \frac{P(X) \cdot P(Y)}{P(Y)}$

$= \frac{(0.45) \times (0.35)}{0.295}$

$P(X|Y) = 0.534$

c) $P(X|Y') = \frac{P(X \cap Y')}{P(Y')}$

$$= \frac{(0.45)(0.65)}{(0.45)(0.65) + (0.55)(0.75)}$$

$$= \frac{0.2925}{0.705}$$

$$P(X|Y') = 0.415$$

$1 - 0.415 = 0.585$ Ans.