

## Task 23:-

### Conditional test probability

Cancer	test	$P(C)$
Y	P	0.09
Y	N	0.01
N	P	0.18
N	N	0.72
$\Sigma$		

$$P(C) = 0.1$$

$$P(>C) = 0.9$$

$$P(pac) = 0.0$$

$$P(P/C) = 0.9$$

$$P(N/C) = 0.1$$

$$P(P/>C) = 0.2$$

$$P(N/>C) = 0.8$$

$$P(P) = 0.1$$

Total Probability :-

$$P(P) = P(P/C) \cdot P(C) + P(P/>C) \cdot P(>C)$$

$$P(1) \cdot P(H) = 0.25$$

$$\Rightarrow P(H) = 0.25 + 0.45 = 0.70$$

$$P(2) \cdot P(H) = 0.45$$

$$P(1) \cdot P(H) \cdot P(H) = 0.125$$

$$\Rightarrow P(H) = 0.17$$

$$P(2) \cdot P(H) \cdot P(H) = 0.045$$

$$P(1) = 0.5 \quad P(T, T) = ? \Rightarrow P(2) - P(1) - P(1)$$

$$P(H/1) = 1 \Rightarrow P(H/1) = 1 - 1 = 0$$

$$P(H/2) = 0.6 \Rightarrow P(H/2) = 0.4$$

$$= 0.08$$

$$\checkmark P(2) = 1 - 0.5 = 0.5$$

Summary:-

$$P(1) = P(P/C) \cdot P(C) + P(P/C) \cdot P(C) \Rightarrow \text{conditional probability}$$