Assignment (3)

Name: Subhi Bhuiyan
ID: 17201116

Covid global prevalence, $P(\text{Covid}) = 0.02$

$P(T \mid \text{Covid}) = 0.80$

$P(\sim T \mid \sim \text{Covid}) = 0.80$

$P(T \mid \sim \text{Covid}) = (1 - 0.80) = 0.20$

$P(\sim T \mid \text{Covid}) = 0.20$

$P(\sim \text{Covid}) = 1 - 0.02 = 0.98$

Now,

$P(\text{Covid} \mid T) = P(T \mid \text{Covid})\, P(\text{Covid})$

$= 0.80 \times 0.02$ Let, $P(A) = 0.016$

$= 0.016$

$P(\sim \text{Covid} \mid T) = P(T \mid \sim \text{Covid})\, P(\sim \text{Covid})$

$= 0.20 \times 0.98$

$= 0.196$ Let, $P(B) = 0.196$

Performed 3 individual tests,

$3P(A) = 3 \times 0.016 = 0.048$ $3P(B) = 3 \times 0.196 = 0.588$

$2P(A) + P(B) = 2 \times 0.016 + 0.196 = 0.228$ $2P(B) + P(A) = 0.408$