Acc AI assignment

	Spam	Not-spam	
Correct			95%
Incorrect			5%

Q4

	Correct	Incorrect	
Diagnosis	$D \cap C$	$D \cap I$	90%
Non diagnosis	$N \cap C$	$N \cap I$	10%
	$P(C)$	$P(I)$	

$P(C|D) = 95\%$ $P(I|D) = 5\%$

$P(I|N) = 50\%$ $P(C|N) = 5$

$P(D) = .9$ $P(N) = .1$

$P(C) = P(D \cap C) + P(N \cap C)$

$= P(C|D) \cdot P(D) + P(C|N) \cdot P(N)$

$= .95 \times .9 + .5 \times .1$

$= .855 + .05$

$= .905$

Ans - Probability that something has been rated correctly is 90.5%.

Q.5 Car highway probability question.

Soln. $P(30) =$ Probability of seeing a car in 30 minutes

$P(30^c) = 1 - P(30)$ { Probability of not seeing a car in 30 minutes }

$= 1 - 0.95$

$= 0.05$

$P(10) =$ Probability of seeing a car in 10 minutes

$P(10^c) =$ Probability of not seeing a car in 10 minutes

$P(30^c) = P(10^c) \times P(10^c) \times P(10^c)$

$.05 = [P(10^c)]^3 \Rightarrow P(10^c) = (.05)^{1/3}$

$P(10^c) = 0.3684$

$P(10) = 1 - P(10^c)$

$= 1 - 0.3684$

$= .6315$

Ans = Probability of seeing a car in 10 minutes = 63.15%.

Q6. Random defective rate - pe jupyter notebook