Qus 2

	white	Black
Bag 1	4	6
Bag 2	4	3

Total Balls in Bag 1 = 10

Total Balls in Bag 2 = 7

P (Drawing ball from Bag 1) = 1/2 = P(b1)

P (" " " Bag 2) = 1/2 = P(b2)

P (Drawing black ball from Bag 1) = P (b|b1) = 6/10

P (" " " " Bag 2) = P(b|b2) = 3/7

P (Black ball was drawn from b1) = P (b1|b) = ?

$$P(b1|b) = \frac{P(b|b1) * P(b1)}{P(b|b1) * P(b1) + P(b|b2) * P(b2)}$$

$$= \frac{\frac{6}{10} \times \frac{1}{2}}{\frac{6}{10} \times \frac{1}{2} + \frac{3}{7} \times \frac{1}{2}} = \frac{0.3}{\frac{3}{10} + \frac{3}{14}} = 0.5833$$

Ans   0.5833

Ques 3

$P(t) = P(\text{man speak Truth}) = 2/3$

$P(nt) = P(\text{man does not speak truth}) = 1 - 2/3 = 1/3$

$P(A) = P(4 \text{ appears, if man speaks truth}) = 1/6$

$P(N) = P(4 \text{ appears, if man doesn't speak truth}) = 1 - 1/6 = 5/6$

$P(\text{man speak truth, if 4 appears}) = ?$

$$= \frac{P(t) * P(A)}{(P(t) * P(A)) + (P(nt) * P(N))}$$

$$= \frac{2/3 * 1/6}{\frac{2}{3} \times \frac{1}{6} + \frac{1}{3} \times \frac{5}{6}}$$

$$= 0.2857$$

Ans   0.2857