Question - 2

Bag 1	6	black balls	4 white balls
Bag 2	4	black balls	3 white balls

P (Picking Bag 1) = P(B1) = 1/2

P (Picking Black balls) = P(Black) = 9/17

P (Picking a ball which is black given it is from B1) = P(B | B1)

$$= \frac{1}{2} \times \frac{9}{17}$$

$$= \frac{9}{34}$$

P From Bayes Theorem

$$P(B1 \mid Black) = \frac{P(B1) \times P(B1 \mid Black)}{P(Black)}$$

$$= \frac{\frac{1}{2} \times \frac{9}{34}}{\frac{9}{17}} = \frac{\frac{9}{68}}{\frac{9}{17}} = \frac{9}{68} \times \frac{17}{9}$$

$$= \frac{1}{4} = 0.25$$

Question - 3

Man speaks truth 2 out of 3 times

Sample space of die rolling

1, T	1, T	1, F
2, T	2, T	2, F
3, T	3, T	3, F
4, T	4, T	4, F
5, T	5, T	5, F
6, T	6, T	6, F

Total cases = 18

Cases where he reports 4 & is saying the truth = 2

$\therefore \frac{2}{18} = \frac{1}{9}$

Ans = 1/9