

# Assignment-1 (10.15.1.9) AI1110:Probability and Random Variables Indian Institute of Technology, Hyderabad

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**Question:** A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be :

- (i) red ?
- (ii) white ?
- (iii) not green?

- (ii) Probability that the marble taken out is white

$$= \frac{\text{Number of white marbles}}{\text{Total number of marbles}} \quad (3)$$

Probability that the marble taken out is white

**Solution :**

Number of red marbles = 5

Number of white marbles = 8

Number of green marbles = 4

Total marbles = 5+8+4 = 17

- (i) Probability that the marble taken out is red

$$= \frac{\text{Number of red marbles}}{\text{Total number of marbles}} \quad (1)$$

Probability that the marble taken out is red

$$= \frac{5}{17} \quad (2)$$

$$= \frac{8}{17} \quad (4)$$

- (iii) Probability that the marble taken out is not green

$$= \frac{\text{Number of non green marbles}}{\text{Total number of marbles}} \quad (5)$$

Probability that the marble taken out is not green

$$= \frac{13}{17} \quad (6)$$