Probability

Deals with the measurement of uncertainty of the occurrence of some event in terms of percent or ratio

Sample Space

Collection of all possible out comes
eg : In a throw of a die S. S. = (1,2,3,4,5,6)

Outcome

Different possibilities which can occur
eg : In tossing a coin outcome are Head and Tail

Experiment

Any kind of activity
eg : Tossing a coin

Event

A subset of sample space associated with a random experiment is called an event.
e.g. : getting six in a throw of a die

Equally likely outcomes

There is equal uncertainty of each outcome of an experiment

A bag contains 5 red balls, 8 white balls, 4 green balls and 7 blackballs. If one ball is drawn at random, then probability that it is :

(a) Black i.e. $P(B) = \frac{7}{24}$

(b) Green $P(G) = \frac{4}{24} = \frac{1}{6}$

(c) $P(\text{Not red}) = 1 - P(\text{Red}) = 1 - \frac{5}{24} = \frac{24-5}{24} = \frac{19}{24}$

When a coin is tossed

Total number of outcomes = 2 ie. T,H

Probability of getting head $P(H) = \frac{1}{2}$

Probability of getting tail $P(T) = \frac{1}{2}$

$$\text{Probability of an event } A = P(A) = \frac{\text{Number of outcomes in favour of } A}{\text{Total number of possible outcomes}}$$

$$0 \leq P(A) \leq 1$$

When P(A) = 0, then A is called as impossible event
e.g. Probability of getting a number greater than 7

When P(A) = 1, then A is called as sure event
e.g. Probability of getting Tuesday after Monday