PROBABILITY

Probability means chances of happening of certain things.

Event is the collection of favourable outcomes of a sample space, i.e., total outcomes.

If E is any event, defined on a sample space then the probability of event E is denoted by $P(E)$ and is given by

$$P(E) = \frac{\text{No. of outcomes fav. to } E}{\text{No. of all possible outcomes of exp.}}$$

NOTE :-

(1) The sum of the probabilities of all the elementary events of an experiment is one '1'.

(2) If E is any event then E' or E^c or $\bar{E}$ is the complementary event of E.

$$P(\bar{E}) = 1 - P(E)$$

(3) The probability of impossible event is zero and probability of sure event or certain event is 1.

(4) $0 \leq P(A) \leq 1$

1] Complete the following statements:

(i) Probability of an event E + Probability of event 'not E' = 1

(ii) The probability of an event that cannot happen is impossible event.

(iii) The probability of an event that is certain to happen is sure event.

(iv) The sum of the probabilities of all the elementary events of an experiment is 1

(v) The probability of an event is greater than or equal to 0 ~~or 1~~ and less than or equal to 1.

2) Which of the following experiments have equally likely outcomes? Explain.

(i) A driver attempts to start a car. The car starts or does not start.

→ No, outcomes are not equally likely outcomes.

(ii) A player attempts to shoot a basketball She/he shoots or misses the shot.

→ No, outcomes are not equally likely outcomes.

(iii) A trial is made to answer a true-false question. The answer is right or wrong.

→ Yes.

(iv) A baby is born. It is a boy or a girl.

→ Yes.