

# Key Notes

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## Chapter-15

### Probability

- **Probability:** If there are  $n$  elementary events associated with a random experiment and  $m$  of them are favourable to an event  $A$  then the probability of happening of event  $A$  is defined as the ratio  $\frac{m}{n}$  and is denoted by  $P(A)$ .

- The Theoretical probability of an event  $E$  written as  $P(E)$  is

$$P(E) = \frac{\text{Number of outcomes favourable of } E}{\text{Total number of outcomes}}$$

- The sum of the probability of all the elementary events of an experiment is 1.
- The probability of a sure event is 1 and probability of an impossible event is 0.
- If  $E$  is an event, in general, it is true that  $P(E) + P(\overline{E}) = 1$ .
- From the definition of the probability, the numerator is always less than or equal to the denominator therefore  $0 \leq P(E) \leq 1$ .
- **Elementary Event:** An outcome of a random experiment is called an elementary event.
- **Compound Event:** An event associated to a random experiment is a compound event, if it is obtained by combining two or more elementary events associated to the random experiment.
- **Sure Event:** Those events whose probability is one.
- **Impossible Event:** Those events whose probability is zero.
- **Occurrence of an Event:** An event  $A$  associated to a random experiment is said to occur, if any one of the elementary events associated to the event  $A$  is an outcome.