## **Summary**

- A variable is a one that changes its value depending on time, place, person etc. whereas, constant is one which never changes its values at any situation.
- A *random variable*, usually written *X*, is a variable whose possible values are numerical outcomes of a random experiment.
- There are two types of random variable. These variables are capable of taking values from (-∞, +∞) including fractions.
  - Discrete: If the values of the variable are captured through counting we may say it is a discrete variable.
  - Continuous: If the values of the variable are captured through measurement then we may say it is a continuous variable.
- The random variable are denoted using capital letters like X,Y,Z..., whereas values taken by the random variable are denoted by small letters like x,y,z....
- If f(x) is the probability function associated with the random variable X, then
   P(X≤x) = ∫<sub>a</sub><sup>x</sup> f(x)dx.
- For a continuous random variable, P(X=c) = 0, c being constant.
- Unlike discrete variable, for a continuous random variable P(X≤x) = P(X < x).</li>
  Because the function is continuous at x.