<u>Summary</u>

- Here we consider some univariate continuous distributions in this module like uniform distribution, normal distribution, gamma distribution, beta distribution, exponential distribution, Laplace, Weibul, Logistic and Cauchy distribution. Here we discuss these distributions in brief and in coming modules we discuss these distributions in detail
- Normal distribution plays a very important role in statistical theory. Most of the distributions occurring in practice, e.g., Binomial, Poisson, Hypergeometric distributions etc. can be approximated by normal distribution. Moreover, many of the sampling distributions, e.g., Student's t, Snedecor's F and Chi-square distributions, etc., tend to normality for large samples
- Uniform distribution is also known as a rectangular distribution, since the curve of uniform distribution describes a rectangle over the X axis and between the ordinates at x=a and x=b
- An important property of the exponential distribution is that it is memoryless. This means that if a random variable *T* is exponentially distributed, its conditional probability obeys

 $\Pr(T > s + t \mid T > s) = \Pr(T > t) \text{ for all } s, t \ge 0.$

- Gamma distribution is considered as the distribution of α independently identically distributed exponential variates with parameter β
- The Pareto distribution is a skewed, heavy-tailed distribution that is sometimes used to model the distribution of incomes and other financial variables
- The Laplace has found a variety of very specific uses, but they nearly all relate to the fact that it has long tails compared to the Normal distribution. It has recently become quite popular in modelling financial variables (Brownian Laplace motion) like stock returns because of the greater tails
- The Cauchy distribution is often used in statistics as the canonical example of a "pathological" distribution. Both its mean and its variance are undefined
- Logistic distribution finds large application in the field of biology, epidemiology, Psychology, technology, Marketing, energy, hydrology and physics