

A few well-known examples of function of Random Sample:-

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R.S.:-  $(X_1, \dots, X_n)$

- i> Sample mean  $= \frac{1}{n} \sum_{i=1}^n X_i$ .
- ii> Sample variance  $= \frac{1}{n} \sum_{i=1}^n \left( X_i - \frac{1}{n} \sum_{i=1}^n X_i \right)^2$ .
- iii> Maximum order statistic:-  $X_{(n)} = \text{Max} \{X_1, \dots, X_n\}$ .
- iv> Minimum order statistic:-  $X_{(1)} = \text{Min} \{X_1, \dots, X_n\}$ .
- v> i-th order statistic :-  $X_{(i)} = i\text{-th minimum among } \{X_1, \dots, X_n\}$ .
- vi> Median  $= X_{(\frac{n+1}{2})}$  if  $n$  is odd  
 $= \frac{X_{(\frac{n}{2})} + X_{(\frac{n}{2}+1)}}{2}$  if  $n$  is even.