- The concept of permutation is used for the arrangement of objects in a specific order i.e. whenever the order is important, permutation is used.
- The total number of permutations on a set of n objects is given by n! and is denoted as $^nP_n$ = n!
- The total number of permutations on a set of n objects taken r at a time is given by $^nP_r$ = n!/ (n-r)!
- The number of ways of arranging n objects of which r are the same is given by n!/ r!
- If we wish to arrange a total of n objects, out of which 'p' are of one type, q of second type are alike, and r of a third kind are same, then such a computation is done as n!/p!q!r!
- Al most all permutation questions involve putting things in order from a line where the order matters. For example ABC is a different permutation to ACB.
- The number of permutations of n distinct objects when a particular object is not to be considered in the arrangement is given by $^{n-1}P_r$
- The number of permutations of n distinct objects when a specific object is to be always included in the arrangement is given by $r.^{n-1}P_{r-1}$.
- If we need to compute the number of permutations of n different objects, out of which r have to be selected and each object has the probability of occurring once, twice or thrice… up to r times in any arrangement is given by $(n)^r$.
- Circular permutation is used when some arrangement is to be made in the form of a ring or circle.
- When 'n' different or unlike objects are to be arranged in a ring in such a way that the clockwise and anticlockwise arrangements are different, then the number of such arrangements is given by (n – 1)!
- If n persons are to be seated around a round table in such a way that no person has similar neighbor then it is given as ½ (n – 1)!
- The number of necklaces formed with n beads of different colors = ½ (n – 1)!
- $^nP_0$ =1
- $^nP_1$ = n
- $^nP_n$ = n!/(n-n)! = n! /0! = n! /1= n!