SWOT INSTITUTE
PERMUTATION & COMBINATION
XI-TEST

Time : 1 hr. **M.M. : 52**

1. Evaluate : If $\frac{1}{6!}+\frac{1}{7!}=\frac{x}{8!}$, find x. (2)

2. Find r, if $5\ {}^{4}P_{r} = 6\ {}^{5}P_{r-1}$. (2)

3. Find the number of different 8- letter arrangements that can be made from the letters of the word DAUGHTER so that

   (i) All vowels occur together (ii) All vowels do not occur together. (2)

4. Find the number of arrangements of the letters of the word INDEPENDENCE. In how many of these arrangements,

   (i) do the words start with P.

   (ii) do all the vowels always occur together.

   (iii) do the vowels never occur together

   (iv) do the words begin with I and end in P ? (8)

5. In how many ways can the letters of the word PERMUTATIONS be arranged if the

   (i) words start with P and end with S,

   (ii) vowels are all together,

   (iii) there are always 4 letters between P and S ? (12)

6. A committee of 3 persons is to be constituted from a group of 2 men and 3 women. In how many ways can this be done ? How many of these committees would consist of 1 man and 2 women ? (4)

7. What is the number of ways of choosing 4 cards from a pack of 52 playing cards ? In how many of these

   (i) four cards are of the same suit,
   (ii) four cards belong to four different suits
   (iii) are face cards,
   (iv) two are red cards and two are black cards,
   (v) cards are of the same colour. (10)

8. In how many ways can one select a cricket team of eleven from 17 players in which only 5 players can bowl if each cricket team of 11 must include exactly 4 bowlers ? (4)

9. A bag contains 5 black and 6 red balls. Determine the number of ways in which 2 black and 3 red balls can be selected. (4)

10. How many numbers greater than 1000000 can be formed by using the digits 1, 2, 0, 2, 4, 2, 4 ? (4)