PERMUTATION & COMBINATION

1) Find the L.C.M. of 4! , 5! & 6!   (2) If $\dfrac{1}{9!} + \dfrac{1}{10!} = \dfrac{x}{11!}$ then find the value of x.

3) If $\dfrac{n!}{2!(n-2)!}$ & $\dfrac{n!}{4!(n-4)!}$ are in the ration 2:1 find the value of n.   (4) P.T. $\dfrac{(2n)!}{n!} = (1.3.5.......(2n-1))2^n$

5) There are 3 candidates for classical , 5 for math & 4 for science (a) In how many ways these scholarships be awarded (b) In how many ways one of these scholarships be awarded.

6) A room has 6 doors in how many ways a man can enter in the room from one door & come out of the different door.

7) A flag of newly formed forum is of the form ☐ ☐ ☐ 3 blocks, each to be colored differently. If there are 6 different colours on the whole to choose from , how many such designs are possible.   Ans: 120

8) Five person entered in the lift cabin on the ground floor of an 8 floor house. Suppose each one can leave the cabin independently at any floor beginning with the first. Find the total no. of ways in which each of the 5 person can leave the cabin (a) At any one of the 7floor (b) At different floors.   Ans: (a)7^5 (b) 2520.

9) How many words (with or without meaning) of 3 distinct letters can be formed for the English alphabet (repetition not allowed).

10) Find the total no of answer sets of 5objective questions having 4 choices.   Ans:4^5

11) For a set of 5 true or false questions , no student has written the all the right answers & no student have given the same sequence of answers. What is the maximum no of students in the class.   Ans: $(2^5 – 1)$.

12) how many 3 digit no. can be formed (a) with using the digit 0,2,3,4,5,6 (b) Without using these digits.

13) How many nos. are there b/w 100 & 1000 in which all the digits are distinct.

14) How many nos. are b/w 100 & 1000 such that at least one digit is 7   Ans: 252.

15) How many nos. are b/w 100 & 1000 such that exactly one digit is 7   Ans: 225

16) A man has 6 friends to invite . In how many ways can he sent invitation cards to them if he has 3 servents to carry the cards.   Ans: 3^6.

17) How many 3 digit no more than 600 can be form by using the digits 2,3,4,6,7.   Ans : 50.

18) How many nos. b/w 3000 & 4000 can be formed from the digit 3,4,5,6,7,8 If no digit is repeated in any no. Ans:60.

19) How many no. are divisible by 5 b/w 4000 & 5000 formed by the digits 4,5,6,7,8.   Ans : 25.

20) How many nos. b/w 1000 & 4000 can be formed by the digits 0,1,2,3,4 If

 (a) Repetition is not allowed   (b) Repetition allowed   Ans : a)375 (b)72

21) How many different signals can be formed of 5 flags out of 8 flags of different colours.   Ans: 720

22) Three men have 4coats , 5 waist coats & 6 caps. In how many ways can they wear them.   Ans:172800

23) How many different signals can be made using any no. of flags from 5 flags of different colours. Ans : 325.

24) Find the sum of all the 4 digit nos that can be formed by using the digits 2,3,4,5   Ans : 93324

25) How many different words can be formed with the letters of the words EQUATION so that

(a) The words begin with E   (b) The words begin with E & end with N   (c) The word begin & ends on constant.

26) In how many ways 5 boys & 3 girls can be seated in a row so that no 2 girls are together.

27) How many 4 digit nos divisible by 4 can be made by using the digits 1,2,3,4,5 If repetition of the digits is not allaowed.

28) If all the letters of the words AGAIN be rearranged as a dictionary , what is the 50th word   Ans:NAAGI.