DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :8**

Topic :-PERMUTATIONS AND COMBINATIONS

1. The number of all possible words that can be formed using the letters of the word "MATHEMATICS" is

a) $\frac{11!}{2!2!2!}$ b) $11!$ c) ${}^{11}C_1$ d) None of these

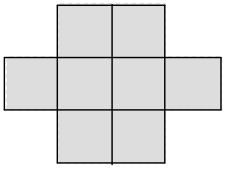
2. let P_m stand for ${}^{m}P_m$.Then, $1 + P_1 + 2P_2 + 3P_3 + \ldots + n \cdot P_n$ is equal to

a) $(n-1)!$ b) $n!$ c) $(n+1)! - 1$ d) None of these

3. A polygon has 54 diagonals. Number of sides of this polygon is

a) 12 b) 15 c) 16 d) 9

4. Six X's have to be placed in the square of the figure such that each row contains at least one 'X'. In how many different ways can this be done?



a) 28 b) 27 c) 26 d) None of these

5. The total number of ways of dividing mn things into n equal groups, is

a) $\frac{(mn)!}{m!n!}$ b) $\frac{(mn)!}{(n)^m m!}$ c) $\frac{(mn)!}{(m!)^n n!}$ d) None of these

6. 20 persons are invited for a party. In how many different ways can they and the host be seated at circular table, if the two particular persons are to be seated on either side of the host?

a) 20!b) 218!c) 18!d) None of these

7. If ${}^{n-1}C_3 + {}^{n-1}C_4 > {}^{n}C_3$, then n is just greater than integer

a) 5 b) 6 c) 4 d) 7

8. If m and n are positive integers more than or equal to 2, $m > n$, then $(mn)!$ is divisible by

a) $(m!)^n$,$(n!)^m$and$(m+n)!$ but not by $(m-n)!$

b) $(m+n)!$, $(m-n)!$,$(m!)$"but not by $(n!)^m$

c) $(m!)^n$, $(n!)^m$,$(m+n)!$and$(m-n)!$

d) $(m!)^n$and$(n!)^m$ but not by $(m+n)!$ and $(m-n)!$

9. A set contains $(2n + 1)$ elements. The number of subsets of this set containing more than n elements is equal to

a) 2^{n-1} b) 2^n c) 2^{n+1} d) 2^{2n}

10. At an election there are five candidates and three members to be elected, and an elector may vote for any number of candidates not greater than the number to be elected. Then the number of ways in which an elector may vote is

a) 25 b) 30 c) 32 d) None of these

11. The total number of arrangements of the letters in the expression $a^3b^2c^4$ when written at full length, is

a) 1260 b) 2520 c) 610 d) None of these

12. The number of subsets of {1, 2, 3, …, 9} containing at least one odd number is

a) 324 b) 396 c) 496 d) 512

13. The number of ways in which 21 objects can be grouped into three groups of 8,7, and 6 objects is

a) $\frac{20\,!}{8\,!+7\,!+6\,!}$ b) $\frac{21\,!}{8\,!7\,!}$ c) $\frac{21\,!}{8\,!7\,!6\,!}$ d) $\frac{21\,!}{8\,!+7\,!+6\,!}$

14. The number of ways choosing a committee of 4 woman and 5 men from 10 women and 9 men, if Mr. A refuses to serve on the committee when Ms. B is a member of the committee, is

a) 20580 b) 21000 c) 21580 d) All the above

15. Consider the following statements :

1.The product of r consecutive natural numbers is always divisible by r.

2.The total number of proper positive divisors of 115500 is 94

3. A pack of 52 cards can be divided equally among four players order in $\frac{52!}{(13!)^4}$ ways.

Which of the statement given above is/are correct?

a) Only (1) b) Only (2) c) Only (3) d) All of (1), (2) and (3)

16. How many numbers greater than 40000 can be formed from the digits 2, 4, 5, 5, 7?

a) 12 b) 24 c) 36 d) 48

17. There are n different books and p copies of each. The number of ways in which a selection can be made from them is

a) n^p b) p^n c) $(p + 1)^n - 1$ d) $(n + 1)^p - 1$

18. In how many ways can 5 boys and 5 girls sit in a circle so that no two boys sit together?

a) $5! \times 5!$ b) $4! \times 5!$ c) $\frac{5! \times 5!}{2}$ d) None of these

19. The letters of the word MODESTY are written in all possible orders and these words are written out as in a dictionary, then the rank of the word MODESTY is

a) 5040b) 720c) 1681d) 2520

20. If all permutations of the letters of the word AGAIN are arranged as in dictionary, then fifteen word is

a) NAAGI b) NAGAI c) NAAIG d) NAIAG