DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :9**

Topic :-PERMUTATIONS AND COMBINATIONS

1. A shopkeeper sells three varieties of perfumes and he has a large number of bottles of the same size of each variety in his stock. There are 5 places in a row in his showcase. The number of different ways of displaying the three varieties of perfumes in the show case is
   a) 6
   b) 50
   c) 150
   d) None of these

2. The total number of ways in which six ' + ' and four ' − ' signs can be arranged in a line such that no two ' − ' signs occur together is
   a) 35 b) 15 c) 30 d) None of these

3. In an examination of 9 papers a candidate has to pass in more papers, then the number of papers in which he fails in order to be successful. The number of ways in which he can be unsuccessful, is
   a) 255 b) 256 c) 193 d) 319

4. The number of 5 digits telephone number having at least one of their digits repeated, is
   a) 90000 b) 100000 c) 30240 d) 69760

5. If the permutations of a,b,c,d,e taken all together be written down in alphabetical order as in dictionary and numbered, then the rank of the permutation $debac$ is
   a) 90 b) 91 c) 92 d) 93

6. On the occasion of Diwali festival each student of a class sends greeting cards to the others. If there are 20 students in the lass, then the total number of greeting cards exchanged by the students is
   a) ${}^{20}C_2$ b) $2 \cdot {}^{20}C_2$ c) $2 \times {}^{20}P_2$ d) None of these

7. There are five different green dyes, four different blue dyes and three different red dyes. The total number of combinations of dyes that can be chosen taking at least one green and one blue dye is
   a) 3255 b) 2^{12} c) 3720 d) None of these

8. The maximum number of points into which 4 circles and 4 straight lines intersect is
   a) 26 b) 50 c) 56 d) 72

9. If n is even and ${}^nC_0 < {}^nC_1 < {}^nC_2 < \ldots < {}^nC_r > {}^nC_{r+1} > {}^nC_{r+2} > \ldots > {}^nC_{n'}$ then, $r =$

a) $\frac{n}{2}$ b) $\frac{n-1}{2}$ c) $\frac{n-2}{2}$ d) $\frac{n+2}{2}$

10. Four couples (husband and wife) decide to form a committee of four members. The number of different committees that can be formed in which no couple finds a place is

a) 10 b) 12 c) 14 d) 16

11. Eight chairs are numbered 1 to 8. Two women and three men wish to occupy one chair each. First the women choose the chairs from amongst the chairs marked 1 to 4 and, then men select the chairs from amongst the remaining. The number of possible arrangements is

a) ${}^6C_3 \times {}^4C_2$ b) ${}^4C_2 \times {}^4C_3$ c) ${}^4P_2 \times {}^4P_3$ d) None of these

12. If a polygon has 44 diagonals, then the number of its sides are

a) 11 b) 7 c) 8 d) None of these

13. The number of permutations of all the letters of the word $'EXERCISES'$ is

a) 60480 b) 30240 c) 10080 d) None of these

14. Let f:{1, 2, 3, 4, 5}→{1, 2, 3, 4, 4, 5} that are onto and $f(x) \neq i$ is equal to

a) 9 b) 44 c) 16 d) None of these

15. Ten different letters of an alphabet are given. Words with five letters are formed from these given letters. Then the number of words which have at least one letter repeated, is

a) 69760 b) 30240 c) 99748 d) None of these

16. In how many ways n books can be arranged in a row so that two specified books are not together?

a) $n! - (n-2)!$ b) $(n-1)!(n-2)$ c) $n! - 2(n-1)$ d) $(n-2)n!$

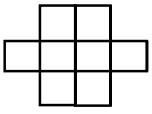
17. The total numbers of greater than 100 and divisible by 5, that can be formed from the digits 3,4,5,6 if no digit is repeated is

a) 24 b) 48 c) 30 d) 12

18. If the letters of the word $LATE$ be permuted and the words so formed be arranged as in a dictionary. Then, the rank of $LATE$ is

a) 12 b) 13 c) 14 d) 15

19. Six x have to be placed in the square of the figure given, such that each row contains at least one x, this can be done in



a) 24 ways b) 28 ways c) 26 ways d) 36 ways

20. Three straight lines L_1, L_2, L_3 are parallel and lie in the same plane. A total of m points are taken on L_1, n points on L_2, k points on L_3. The maximum number of triangles formed with vertices at these points are

a) ${}^{m+n+k}C_3$

b) ${}^{m+n+k}C_3 - {}^{m}C_3 - {}^{n}C_3$

c) ${}^{m+n+k}C_3 + {}^{m}C_3 + {}^{n}C_3$

d) None of the above