DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :5**

Topic :-PERMUTATIONS AND COMBINATIONS

1. In how many ways can 15 members of a council sit along a circular table, when the Secretary is to sit on one side of the chairman and the Deputy Secretary on the other side?
a) $2 \times 12!$ b) 24 c) $2 \times 15!$ d) None of these

2. If in a chess tournament each contestant plays once against each of the other and in all 45 games are played, then the number of participants is
a) 9 b) 10 c) 15 d) None of these

3. These are 12 volleyball players in a college, out of which a team of 9 players is to be formed. If the captain always remains the same, then in how many ways can the team be formed?
a) 36 b) 108 c) 99 d) 165

4. In how many ways can 5 red and 4 white balls be drawn from a bag containing 10 red and 8 white balls
a) ${}^{8}C_5 \times {}^{10}C_4$ b) ${}^{10}C_5 \times {}^{8}C_4$ c) ${}^{18}C_9$ d) None of these

5. Five digited numbers with distinct digits are formed by using the digits, 5, 4, 3, 2, 1, 0. The number of those numbers which are multiples of 3, is
a) 720 b) 240 c) 216 d) 120

6. Consider the following statements :
1.These are 12 points in a plane of which only 5 are collinear, then the number of straight lines obtained by joining these points in pairs is ${}^{12}C_2 - {}^{5}C_2$
2.${}^{n+1}C_r - {}^{n-1}C_{r-1} = {}^{n}C_r + {}^{n}C_{r-2}$
3.Three letters can be posted in five letter boxes in 3^5ways.
Which of the statements given above is/are correct?
a) Only (1) b) Only (2) c) Only(3) d) None of these

7. A father with 8 children takes 3 at a time to the Zoological Gardens, as often as he can without taking the same 3 children together more than once. The number of times each child will go to the garden is
a) 56 b) 21 c) 112 d) None of these

8. The sum of all that can be formed with the digits 2,3,4,5 taken all at a time is
a) 93324 b) 66666 c) 84844 d) None of these

9. The number of ways in which 52 cards can be divided into 4 sets, three of them having 17 cards each and the fourth one having just one card

a) $\frac{52!}{(17!)^3}$ b) $\frac{52!}{(17!)^3 3!}$ c) $\frac{51!}{(17!)^3}$ d) $\frac{51!}{(17!)^3 3!}$

10. A committee of 5 is to be formed from 9 ladies and 8 men. If the committee commands a lady majority, then the number of ways this can be done is

a) 2352 b) 1008 c) 3360 d) 3486

11. The number of straight lines can be formed out of 10 points of which 7 are collinear

a) 26 b) 21 c) 25 d) None of these

12. If x,y and r are positive integers, then ${}^{x}C_r + {}^{x}C_{r-1}{}^{y}C_1 + {}^{x}C_{r-2}{}^{y}C_2 + \ldots + {}^{y}C_r =$

a) $\frac{x!y!}{r!}$ b) $\frac{(x+y)!}{r!}$ c) ${}^{x+y}C_r$ d) ${}^{xy}C_r$

13. The greatest possible number of points of intersection of 8 straight lines and 4 circle is

a) 32 b) 64 c) 76 d) 104

14. If ${}^{16}C_r = {}^{16}C_{r+1}$, then the value of ${}^{r}P_{r-3}$ is

a) 31 b) 120 c) 210 d) None of these

15. $\sum_{r=0}^{m} {}^{n+r}C_n$ is equal to

a) ${}^{n+m+1}C_{n+1}$ b) ${}^{n+m+2}C_n$ c) ${}^{n+m+3}C_{n-1}$ d) None of these

16. The value of ${}^{n}P_r$is equal to

a) ${}^{n-1}P_r + r.{}^{n-1}P_{r-1}$ b) $n.{}^{n-1}P_r + {}^{n-1}P_{r-1}$

c) $n({}^{n-1}P_r + {}^{n-1}P_{r-1})$ d) ${}^{n-1}P_{r-1} + {}^{n-1}P_r$

17. The number of ways in which 6 men and 5 women can dine at a round table, if no two women are to sit together, is

a) $6! \times 5!$ b) 30 c) $5! \times 4!$ d) $7! \times 5!$

18. The number of diagonals in a octagon will be

a) 28 b) 20 c) 10 d) 16

19. A binary sequence is an array of 0's and 1's. The number of $n-$ digit binary sequence which contain even number of 0's is

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

20. If ${}^{n-1}C_3 + {}^{n-1}C_4 > {}^{n}P_3$, then

a) $n \geq 4$ b) $n > 5$ c) $n > 7$ d) None of these