DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth   SUBJECT : MATHS
DATE :   DPP NO. :4

Topic :-PERMUTATIONS AND COMBINATIONS

1. The number of all five digit numbers which are divisible by 4 that can be formed from the digits 0,1,2,3,4 (without repetition) is

    a) 36   b) 30   c) 34   d) None of these

2. The total number of ways in which 4 boys and 4 girls can form a line, with boys and girls alternating, is

    a) $(4!)^2$ b) $8!$ c) $2(4!)^2$ d) $4! \cdot {}^5P_4$

3. The products of any r consecutive natural numbers is always divisible by

    a) $r!$ b) r^2 c) r^n d) None of these

4. A committee of 12 is to be formed from 9 women and 8 men in which at least 5 women have to be included in a committee. Then the number of committees in which the women are in majority and men are in majority are respectively

    a) 4784, 1008   b) 2702, 3360   c) 6062, 2702   d) 2702, 1008

5. How many numbers divisible by 5 and lying between 3000 and 4000 that can be formed from the digits 1, 2, 3, 4, 5, 6 (repetition of digits is not allowed)?

    a) ${}^6P_2$ b) ${}^5P_2$ c) ${}^4P_2$ d) ${}^6P_3$

6. The total number of ways of arranging the letters $AAAA\ BBB\ CC\ D\ E\ F$ in a row such that letters C are separated from one another is

    a) 2772000   b) 1386000   c) 4158000   d) None of these

7. Total number of four digit odd numbers that can be formed by using 0,1,2,3,5,7 is
    a) 216   b) 375   c) 400   d) 720

8. If ${}^{12}P_r = 1320$, then r is equal to
    a) 5   b) 4   c) 3   d) 2

9. The lock of a safe consists of five discs each of which features the digits 0, 1, 2, … ,9.The safe can be opened by dialing a special combination of the digits. The number of days sufficient enough to open the safe. If the work day lasts 13 h and 5 s are needed to dial one combination of digits is
    a) 9   b) 10   c) 11   d) 12

10. The number of ways in which 6 rings can be worn on four fingers of one hand, is

a) 4^6 b) $^6C_4$ c) 6^4 d) 24

11. The number of integers which lie between 1 and 10^6 and which have the sum of the digits equal to 12, is

a) 8550   b) 5382   c) 6062   d) 8055

12. There are n-points ($n > 2$) in each of two parallel lines. Every point on one line is joined to every point on the other line by a line segment drawn within the lines. The number of points (between the lines) in which these segments intersect is

a) $^{2n}C_2 - 2 \cdot {}^nC_1 + 2$ b) $^{2n}C_2 - 2 \times {}^nC_2$ c) $^nC_2 \times {}^nC_2$ d) None of these

13. The number of ways in which mn students can be distributed equal among n sections, is

a) $(mn)^n$ b) $\dfrac{(mn)!}{(m!)^n}$ c) $\dfrac{(mn)!}{m!}$ d) $\dfrac{(mn)!}{m!n!}$

14. There were two women participating in a chess tournament. Every participant played two games with the other participants. The number of games that the men played between themselves proved to exceed by 66 the number of games that the men played with the women. The number of participants is

a) 6   b) 11   c) 13   d) None of these

15. 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) $2! \times 18!$ c) 18!   d) None of these

16. Everybody in a room shakes hands with everybody else. The total number of hand shakes is 66. The total number of persons in the room is

a) 9   b) 12   c) 10   d) 14

17. The number of different words that can be formed from the letters of the word 'PENCIL' so that no two vowels are together, is

a) 120   b) 260   c) 240   d) 480

18. Consider the fourteen lines in the plane given by $y = x + r$, $y = x + r$, where $r \in \{0,1,2,3,4,5,6\}$. The number of squares formed by these lines whose diagonals are of length 2 is

a) 9   b) 16   c) 25   d) 36

19. Let A be a set containing 10 distinct elements. Then, the total number of distinct functions from A to A is

a) 10! b) 10^{10} c) 2^{10} d) $2^{10} - 1$

20. In a football championship, there were played 153 matches. Every team played one match with each other. The number of teams participating in the championship is

a) 17   b) 18   c) 9   d) 13