# CTQ - 2023

**CTQ : Concept Through Questions** **Year : 2023**

**Topic : Permutation & Combination III**

1. Let S={1, 2, … , n}. The number of possible pairs of the form (A, B) with A⊆B for subsets A, B of S is
   (a) $2^n$ (b) $3^n$
   (c) n! (d) $\sum_{k=0}^{n}\binom{n}{k}\binom{n}{n-k}$ Video Solution
   [NIMCET 2016]
2. There are n equally spaced points 1,2,……n marked on the circumference of a circle. If the point 15 is directly opposite to the point 49, then the total number of points is
   (a) 50 (b) 68
   (c) 66 (d) 70 Video Solution
   [NIMCET 2016]
3. The number of 5 people groups that can be selected from 9 people when two particular persons are not to be in the same group is
   (a) 126 (b) 35
   (c) 91 (d) 252 Video Solution
   [NIMCET 2016]
4. m distinct animals of a circus have to be placed in m cages, one is each cage. There are n small cages and p large animal (n < p < m). The large animals are so large that they do not fit in small cage. However, small animals can be put in any cage. The number of putting the animals into cage is
   (a) $\{^{(m-n)}P_P\}\{^{(m-p)}P_{(m-p)}\}$ (b) $^{(m-n)}C_P$
   (c) $\{^{(m-n)}P_P\}\{^{(m-p)}C_{(m-p)}\}$ (d) $^{(m-n)}P_P$ Video Solution
   [NIMCET 2017]
5. The number of natural numbers which are smaller than $2 \times 10^8$ and which contains only the digits 1 and 2 is
   (a) 786 (b) 666
   (c) 766 (d) 1066 Video Solution
   [NIMCET 2018]
6. A student council has 10 members. From this one President, one Vice – President, one Secretary, one Joint – Secretary and two Executive Committee members have to be elected. In how many ways this can be done?
   (a) 151200 (b) 75600
   (c) 37800 (d) 18900 Video Solution
   [NIMCET 2018]
7. 9 balls are to be placed in 9 boxes and 5 of the balls cannot fit into 3 small boxes. The number of ways of arranging one ball in each of the boxes is
   (a) 18720 (b)18270

(c) 17280 (d) 12780 Video Solution

[NIMCET 2019]

8. In a beauty contest, half the number of experts voted for Mr. A and two third voted for Mr. B . 10 voted for both and 6 did not for either. How many experts were there in all?
   (a) 18 (b) 36
   (c) 24 (d) None of these Video Solution

   [NIMCET 2019]
9. If all the words, with or without meaning, are written using the letters of the word QUEEN and are arranged as in English Dictionary, then the position of the word QUEEN is
   (a) 47th (b) 44th
   (c) 45th (d) 46th Video Solution

   [NIMCET 2019]
10. There is a young boy's birthday party in which 3 friends have attended. The mother has arranged 10 games where a prize is awarded for a winning game. The prizes are identical. If each of the 4 children receives at least one prize, then how many distributions of prizes are possible?
    (a) 80 (b) 84
    (c) 70 (d) 72 Video Solution

    [NIMCET 2020]
11. Naresh has 10 friends, and he wants to invite 6 of them to a party. How many times will 3 particular friends never attend the party?
    (a) 8 (b) 7
    (c) 720 (d) 35 Video Solution

    [NIMCET 2020]
12. How many words can be formed starting with letter D taking all letters from word DELHI so that the letters are not repeated:
    (a) 4 (b) 12
    (c) 24 (d) 120 Video Solution

    [NIMCET 2020]
13. If $\binom{15}{8} + \binom{15}{7} = \binom{n}{r}$, then the values of n and r are:
    (a) 16 and 7 (b) 16 and 8
    (c) 16 and 9 (d) 30 and 15 Video Solution

    [NIMCET 2020]
14. There are 50 questions in a paper. Find the number of ways in which a student can attempt one or more questions?
    (a) $2^{50} - 1$ (b) $2^{50} + 1$
    (c) $2^{50} - 2$ (d) $2^{50} + 2$ Video Solution

    [NIMCET 2021]
15. If n is an integer between 0 to 21, then the minimum value of n!(21-n)! Is
    (a) 9! 2! (b) 10!
    (c) 10!11! (d) 21! Video Solution

    [NIMCET 2021]

16. A polygon has 44 diagonals, the number of sides are
    (a) 9 (b) 10
    (c) 11 (d) 12 Video Solution
    [NIMCET 2021]

17. If $\frac{n!}{2!(n-2)!}$ and $\frac{n!}{4!(n-4)!}$ are in the ratio 2:1, then the value of n is
    (a) 0 (b) 2
    (c) 4 (d) 5 Video Solution
    [NIMCET 2021]

# Answer Key

| Ques. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Ans. | B | B | C | A | C | B | C | C | D | B |
| | | | | | | | | | | |
| Ques. | 11 | 12 | 13 | 14 | 15 | 16 | 17 | | | |
| Ans. | B | C | B | A | C | C | D | | | |