

## PERMUTATION

**(Q.1 to 6) these questions are based on the following data.**

In how many ways can the letters of the word 'RAINBOW' be arranged so that the words formed 1. Always start with A ?

(1) 720 (2) 360 (3) 840 (4) 270 (5) 620

2. Never end with W ?

(1) 240 (2) 360 (3) 720 (4) 1440 (5) 4320

3. Do not have the relative positions of vowels and consonants disturbed ?

(1) 360 (2) 240 (3) 180 (4) 120 (5) 144

4. Contain all the vowels together ?

(1) 360 (2) 720 (3) 120 (4) 240 (5) 520

5. Do not contain all the consonants together?

(1) 5040 (2) 4050 (3) 4464 (4) 6040 (5) 6444

6. Have consonants occupying odd places ?

(1) 144 (2) 120 (3) 240 (4) 360 (5) 180

7. How many different signals can be formed by arranging 4 out of 7 different flags in a row?

(1) 120 (2) 720 (3) 256 (4) 360 (5) 840

8. In how many ways can four vehicles be parked in a row of six parking slots ?

(1) 180 (2) 360 (3) 240 (4) 120 (5) 96

**( Q. 9 – 12) these questions are based on the following data.**

In how many ways 3 boys and 3 girls can be arranged in a row such that

9. The row starts with a boy and ends with a girl

(1) 144 (2) 36 (3) 216 (4) 72 (5) 108

10. All the girls are together.

(1) 144 (2) 36 (3) 216 (4) 72 (5) 108

11. Boys and girls sit alternately.

(1) 144 (2) 36 (3) 216 (4) 72 (5) 108

12. No two boys are together.

(1) 144 (2) 36 (3) 216 (4) 72 (5) 108

13. The number of ways in which ten persons can be arranged around a circular table is

(1)  $10!$  (2)  $10! - 1$  (3)  $10! / 2$  (4)  $2 \cdot 9!$  (5)  $9!$

14. The number of ways in which ten

different coloured roses can be arranged in a garland is

(1)  $9!/2$  (2)  $9!$  (3)  $10!/2$  (4)  $9! \times 2$  (5)  $10! \times 2$

15. Hyderabad is connected to Vijayawada

with three highways and Vijayawada is

connected to Chennai with two highways. In

how many ways can one travel from

Hyderabad to Chennai via Vijayawada?

(1) 5 (2) 6 (3) 3 (4) 2 (5) 1

## COMBINATION

1.  ${}^{30}C_{19} + {}^{30}C_{12} - {}^{30}C_{18} - {}^{30}C_{11} =$

(1) 19 (2) 12 (3) 0 (4) 11 (5) 18

2. From a group of twelve students, a teacher wants to select nine students to represent a class in a competition. In how many ways can this be done? (1) 110 (2) 120 (3) 108 (4) 220 (5) 160

**Directions for questions 3 and 4: these questions are based on the following data.**

From a group of 15 persons, how many ways can 5 persons be selected such that

3. two particular persons are always included?

(1) 143 (2) 286 (3) 270 (4) 220 (5) 210

4. one particular person is always included and another particular person is always excluded?

(1) 720 (2) 680 (3) 715 (4) 360 (5) 840

**Directions for questions 5 to 7: these questions are based on the following data.**

From among 8 Gujarathis and 6 Tamilians, a committee of 6 is to be formed. In how many ways can it be done

5. If the committee consists exactly 4 Gujarathis?

(1) 600 (2) 1050 (3) 1540 (4) 1200 (5) 720

6. If the committee consists at least 3  
Tamilians?

(1) 1540 (2) 1588 (3) 1589 (4) 1169 (5) 469

7. If the committee consist at most 2  
Gujarathis?

(1) 449 (2) 420 (3) 448 (4) 468 (5) 469

**Directions for questions 8 to 10:** these  
questions are based on the following data  
From a basket containing 5 red, 4 green and 2  
yellow balls, 3 balls are to be selected, In how  
many ways can it be done such that

8. All the three balls are of different colours.

(1) 60 (2) 50 (3) 40 (4) 120 (5) 72

9. All the three balls are of same colours.

(1) 14 (2) 18 (3) 21 (4) 28 (5) 46

10. exactly 1 ball is green.

(1) 49 (2) 42 (3) 84 (4) 63 (5) 56