PERMUTATIONS AND COMBINATIONS

1. A round table conference is to be held among 25 delegates from 25 countries. In how many ways can they be seated if two particular delegates are always to sit together?
   A. 23!
   B. 2! ×23!
   C. 3! ×23!
   D. None of these

Answer: B. 2! X 23!

2. In how many ways can 5 boys and 4 girls be seated in a row, so that they alternate?
   A. 5!
   B. 5!×2!
   C. 4!×5!
   D. None of these

Answer: C. 4! x 5!

3. In how many ways can the letters of the word 'LEADER' be arranged?
   A.72
   B.144
   C.360
   D.720

Answer : C. 360

4. A box contains 2 white balls, 3 black balls and 4 red balls. In how many ways can 3 balls be drawn from the box, if at least one black ball is to be included in the draw?
   A.32
   B.48
   C.64
   D.96

Answer : C. 64

5. How many numbers greater than a million can be formed with the digits 2,3,0,4,3,3,3 ?
   A.300
   B.360
   C.440
   D.620

Answer: B. 360

6. A gentleman has got 6 sorts of note papers, 7 different ink-stands and 4 different pens. In how many ways can he begin to write a letter?
   A.168
   B.176
   C.186
   D.196

Answer: A.168

7. How many different words can be formed from the alphabets of the word SCISSORS?
   A. 1440
   B. 1680
   C. 1800
   D. 2100

Answer: B.1680

8. A team of 8 students goes on an excursion, in two cars, of which one can seat 5 and the other only 4. In how many ways can they travel?
   A) 9
   B)26
   C)126
   D) 3920

Answer : C)126

9. How many ways can 10 letters be posted in 5 post boxes, if each of the post boxes can take more than 10 letters?
   A) 510
   B) 105
   C) 10P5
   D) 10C5

Answer: A)510

10. In how many ways can 15 people be seated around two round tables with seating capacities of 7 and 8 people?
    A) 15!/(8!)
    B) 7!*8!
    C) (15C8)*6!*7!
    D)2*(15C7)*6!*7!

Answer: C) (15C8)*6!*7!

11. In how many ways can the letters of the word EDUCATION be rearranged so that the relative position of the vowels and consonants remain the same as in the word EDUCATION?
    A) 9!/4
    B) 9!/(4!*5!)
    C) 4!*5!
    D) None of these

Answer: C) 4!*5!

12. There are 2 brothers among a group of 20 persons. In how many ways can the group be arranged around a circle so that there is exactly one person between the two brothers?
    A) 2 * 19!
    B)18! * 18
    C) 19! * 18
    D)2 * 18

Answer: D)2*18

13. A selection is to be made for one post of principal and two posts of vice-principal amongst the six candidates called for the interview only two are eligible for the post of principal while they all are eligible for the post of vice-principal. The number of possible combinations of selectees is:
    A. 4
    B. 12
    C. 18
    D. 20

Answer : B.12

14. In how many different ways can five friends sit for a photograph of five chairs in a row?
    A. 120 ways
    B. 24 ways
    C. 240 ways
    D. 720 ways

Answer: A. 120 ways

15. In a room there are 12 bulbs of the same wattage, each having a separate switch. The number of ways to light the room with different amounts of illumination is
    A.122-1
    B. 212
    C.212-1
    D. none of these

Answer:C.212-1