

Assignment 7 – Permutations and Combination

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. $2! \times 23!$
- C. $3! \times 23!$
- D. None of these

Answer: B. $2! \times 23!$

2. In how many ways can 5 boys and 4 girls be seated in a row, so that they alternate?

- A. $5!$
- B. $5! \times 2!$
- C. $4! \times 5!$
- D. None of these

Answer: C. $4! \times 5!$

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) $7! \cdot 8!$
- C) $(15C8) \cdot 6! \cdot 7!$
- D) $2 \cdot (15C7) \cdot 6! \cdot 7!$

Answer: C) $(15C8) \cdot 6! \cdot 7!$

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) $9!/(4! \cdot 5!)$
- C) $4! \cdot 5!$
- D) None of these

Answer: C) $4! \cdot 5!$

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) $2 \cdot 19!$
- B) $18! \cdot 18$
- C) $19! \cdot 18$
- D) $2 \cdot 18$

Answer: D) $2 \cdot 18$

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. $2^{12}-1$
- B. 212
- C. $2^{12}-1$
- D. none of these

Answer: C. $2^{12}-1$