**PERMUTATIONS AND COMBINATION**

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1. In how many ways can a group of 3 men and 2 women be selected from 6 men and 4 women?

a) 60 b) 90 c) 120 d) 180

2. In how many ways can group of 5 are selected from 6 men and 4 ladies so that it contains at least 1 lady?

a) 252 b) 246 c) 240 d) 236

3. In how many ways 4 men and 3 women are selected from 7 men and 5 women, if one woman w1 refuses to be in the group if another woman w2 be included in the group?

a) 245 b) 255 c) 265 d) 270

4. In how many ways 4 letters can be arranged from the letters of the word ‘EDUCATION’?

a) 9! b) 9c4 c) 9p4 d) 5!

5. Find the no. of ways of arranging all the letters of the word ‘THUNDER’ so that the vowels appear in odd places?

a) 1440 b) 720 c) 2880 d) 360

6. In how many ways 4 girls and 6 boys can be seated in a row so that -

i) no two girls are together?

a) 6! x 7c4 b) 6! x 4! c) 6! x 7p4 d) 4! x 7p4

ii) all girls are together?

a) 6! x 4! b) 7!4! c) 5! x 4! d) None

7. Find the no of ways in which six ‘+’ signs and four ‘ – ‘ signs are arranged in a line so that no two ‘ – ‘ signs occur together?

a) 45 b) 35 c) 95 d) 60

8. Find the no of arrangements with the letters of the word BANANA so that the two N’s are not together?

a) 20 b) 30 c) 40 d) 50

9. In how many ways 4 prizes can be divided among 3 boys if each boy is eligible to get any no of prizes?

a) 4! B) 3! c) 4p3 d) 34

10. In how many ways 6 letters can be posted into 5 letters boxes, such that each box can have any no of letters?

a) 65 b) 6p5 c) 56 d) 6c5

11. In how many ways can 4 prizes, each having 1st, 2nd and 3rd positions be given away to 3 boys if each boy is eligible to get 1 prize for each event?

a) 46 b) 126 c) 64 d) 36

12. In how many ways can a man invite one or more of his 6 friends to a dinner?

a) 64 b) 36 c) 63 d) 35

13. How many 5 digit nos. can be formed using the digits 0 – 9 without repetition?

a) 10x9x8x7x6 b) 9x9x8x7x6 c) 9x8x7x6x5 d) None

14. 4 digit nos. are formed using the digits 0–9 without repetition. How many of them are divisible by 5?

a) 900 b) 902 c) 942 d) 952

15. A 4 digit number is to be formed using the digits 5,6,7,0,9. How many of them are divisible 2? (Repetitions are not allowed)

a) 18 b) 24 c) 42 d) 56

16. How many different 9 digit nos. can be formed using the digits 2,2,3,3,5,5,8,8,8 so that the odd digits occupy even position?

a) 30 b) 60 c) 90 d) 112

17. How many integers greater than 999 but not greater than 4000 can be formed with the digits 0,1,2,3,4, if repetition of the digits is allowed?

a) 375 b) 376 c) 400 d) 428

18. Find the no. of nos. greater than 23000 can be formed from the digits 1,2,3,4,5 without repetition?

a) 30 b) 60 c) 90 d) 120

19. Everybody in a room shakes hands with everybody else. If the total no of shakes hands are 105, find the no of persons in the room?

a) 66 b) 105 c) 190 d) 120

20. In a group of 12 people, if each person in the group sends a greeting card to every other person in the group, then how many cards are exchanged?

a) 12! B) 12c2 c) 12p2 d) 12

21. Find the no. of diagonals in a decagon?

a) 35 b) 45 c) 40 d) 55

22. There are 12 points in a plane of which 4 points are collinear. Find the no. of straight lines and triangles formed with these points?

a) 60, 215 b) 61, 216 c) 50, 100 d) 200, 300

23. L and M are 2 parallel lines. On L there are 10 points and on M there are 20 points. Find the no. of triangles formed with these points?

a) 1900 b) 900 c) 2700 d) 2800

24. Find the no. of rectangles that can be formed on a 8x8 chess board?

a) 216 b) 1126 c) 1296 d) 1336

25. A password of 5 symbols is formed from the symbols {a,b,c,d,1,2,3,4}. How many of these passwords are palindromes?

a) 125 b) 216 c) 343 d) 512

26. How many numbers between 100 and 10000 are palindromes?

a) 90 b) 120 c) 150 d) 180

27. How many times does the digit 5 appear in the nos. from 1 to 1000?

a) 299 b) 300 c) 301 d) 601

28. In how many ways can 6 boys and 6 girls sit around a circular table so that no two boys sit next to each other?

a) 12! b) 6!6! c) 5!6! d) 11!

29. A boat is manned by 8 men of who one can not row on the bow side and 2 cannot row on the stroke side. In how many ways can the crew be arranged?

a) 6!x5c3 b) 8!x4c2 d) 5c2 d) 5c2x4!x4!

30. A question paper consists of 12 questions. Each question has 4 choices. In how many ways can a candidate attempt the entire paper?

a) 48 b) 12p4 c) 412 d) 124

31. A question paper consists of 5 problems, each problem having 3 internal choices. In how many ways can a candidate attempt one or more problems?

a) 35 b) 35 – 1 c) 45 d) 45 - 1

32. In how many ways can 10 identical oranges be placed in to 3 distinct baskets if at least 2 oranges are placed in each basket?

a) 9 b) 10 c) 12 d) 15

33. Mr. A wants to place 10- identical gold rings in to 3 different jars in such a way that no two jars have same no of rings and each jar is non empty. In how many ways he can place them?

a) 6 b) 12 c) 18 d) 24

34. A bag contains 6 apples, 4 oranges and 5 bananas. In how many ways can one choose one or more fruits?

a) 210 b) 209 c) 120 d) 119

35. Find the no of ways in which six ‘+’ signs and four ‘ – ‘ signs are arranged in a line so that no two ‘ – ‘ signs occur together?

a) 45 b) 35 c) 95 d) 60