PERMUTATION & COMBINATION, PROBABILITY

1. In how many ways can the letters of the word RECTANGLE be arranged, such that all the vowels are always together?
   a) 9!   b) 7!   c) 7!*3   d) 7!*3!

2. in how many different ways can you arrange the letters of the word 'PASSENGER', such that the two 'S' never occur together?
   a) 10!/ 3! x 2!   b) 8! /2!   c) 9!/(2! x 2!)   d) 7! x 8!

3. How many 3 digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9 which are divisible by 5 and none of the digits is repeated?
   a) 20   b) 16   c) 8   d) 24

4. A phone company offers 5 phone plan options: call waiting, call forwarding, voice mail, conferencing, and caller ID. A customer can choose 3 options. The number of ways one can avail the plan options is:
   a) 10   b) 20   c) 3   d) 5

5. Mayank is going on a holiday trip. He wants to pack 3 t-shirts from 5 t-shirts he has. In how many ways can he make his choice?
   a) 15   b) 8   c) 20   d) 10

6. What are the total number of ways in which a four-digit number that is divisible by 2, can be formed using the numerals 0, 1, 2, 3, and 4 without repetition?
   a) 240   b) 120   c) 100   d) 60

7. A five-digit number divisible by 3 is to be formed using numerals 0, 1, 2, 3, 4 and 5 with the total number of ways this can be done is?
   a) 120   b) 24   c) 60   d) None

8. How many 3 letter words, with or without meaning, can be formed out of the letters of the word 'SIGNATURE' if repetition of letters is not allowed?
   a) 5   b) 6   c) 7   d) 8

9. How many 6-digit telephone numbers can be formed if each number starts with 35 and no digit appears more than once?
   a) 720   b) 360   c) 1420   d) 1680

10. If we permute 7 letters of the word 'JUSTICE' in 71 ways. In how many words vowels do not come together?
    a) 5,040   b) 4,320   c) 720   d) 120

11. The number of 5-digit numbers that can be formed from 4, 2, 0, 7 and 3 are
    a) 72   b) 24   c) 120   d) None of these

12. Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?
    a) 24400   b) 21300   c) 210   d) 25200

13. There are 5 types of toys, with 2 toys of each type. In how many ways can a shopkeeper arrange them on a shelf?
    a) 120   b) 242   c) 378   d) None of these

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14. If we permute 8 letters of the word 'computer' in 8! Ways. How many permuted words have 'p' and 'e' next to each other?
    a) 720   b) 5040   c) 10080   d) 40320

15. What is the value of $15C_{13}$?
    a) 15   b) 210   c) 30   d) 105

16. A polygon has 44 diagonals. What is the number of its sides?
    a) 5   b) 9   c) 11   d) 13

17. when 10 persons shake hands with one another in how many ways is it possible
    a) 20   b) 90   c) 45   d) None of these

18. In how many ways can a group of 5 men and 2 women be made out of a total of 7 men and 3 women?
    a) 1   b) 126   c) 63   d) 64

19. A group of 6 is to be made out of 8 girls and 6 boys. What is the probability that exactly 3 boys are selected?
    a) 245   b) 3245   c) 720   d) None of these

20. In a group of 6 boys and 4 girls, four children are to be selected. In how many different ways can they be selected such that at least one boy should be there?
    a) 159   b) 209   c) 201   d) 212

21. There are 2 bags A and B. Bag A contains 6 red flowers and 3 pink flowers whereas Bag B contains 2 ed flowers and 7 pink flowers. One flower is chosen from a bag randomly. What is the probability that the flower chosen is pink?
    a) 5/4   b) 5/9   c) 4/9   d) 1/3

22. A box contains 5 red, 4 white and 3 green balls. In how many ways can 3 balls be drawn from the box, without replacement, so that at least 2 of them are green?
    a) 18   b) 9   c) 28   d) 27

23. Ramesh, Abhijeet and Ajay are eligible to be the captain of the cricket team. Shaid, john. Shisir and Nitin are eligible to be the co-captain. How many possible outcomes are there for choosing a captain and a co-captain?
    a) 3   b) 7   c) 16   d) 12

24. If we permute 6 letters of the word 'SYSTEM', the number of permuted words with a vowel at the third place are:
    a) 720   b) 120   c) 60   d) 224

25. The number of possible selections of one or more questions from 8 given questions, each question having an alternative is?
    a) 2^8-1 b) 3^8-1 c) 4^8-1 d) None of these

26. If we permute 5 letters of the word 'mango, the number of permuted words with it at the second place are:
    a) 5   b) 6   c) 12   d) 24

27. Three unbiased coins are tossed. What is the probability of getting at most 2 heads?
    a) 1/4　　　　　　b) 3/8　　　　　　c) 7/8　　　　　　d) ½

28. A box contains 10 balls numbered 1 through 10. Anuj, Anisha and Amit pick a ball each, one after the other, each time replacing the ball. What is the probability that Anu picks a ball numbered less than that picked by Anisha, who in turn picks a lesser numbered ball than Amit?
    a) 3/25　　　　　b) 1/6　　　　　　c) 4/25　　　　　d) 81/400

29. The probability that a card is drawn from a pack of 52 cards will form a pack of 52 cards will be diamond or king being in?
    a) 4/52　　　　　b) 4/13　　　　　c) 1/52　　　　　d) 2/13

30. Find the probability that a person's birthday falls on Monday or Friday.
    a)1/7　　　　　　b) 2/7　　　　　　c) 3/7　　　　　d) Cannot be determine

31. If a courier company has a record of delivering 89 couriers out of 100 on time. What is the probability that 5 couriers that a person is expecting today will reach his location tomorrow?
    a) 0.89^5　　　　b) $0.11 * 5$　　　c) $0.89 * 5$　　　d) 11^5

32. If the probability that A will live 15 yr is 7/8 and that B will live 15 yr is 9/10, then what is the probability that both will live after 15 yr ?
    a) 1/20　　　　　b) 63/80　　　　　c) 1/5　　　　　d) None of these

33. A number y is chosen from a set of positive integers less than 10. What is the probability that ((10 + x)/x) > X?
    a) 1/3　　　　　　b) 4/9　　　　　　c) 3/10　　　　　d) 4/10

34. A bag contains 8 red and 5 white balls. 2 balls are drawn at random. What is the probability that both are white?
    a) 5/16　　　　　b) 2/13　　　　　c) 3/26　　　　　d) 5/39

35. Ram, Shyam and Dev had to catch a train. Probability of catching the train by Ram is by Shyam is 34 and by dev is 2. What is the probability that only one of them would catch the train?
    a) 9/40　　　　　b) 7/20　　　　　c) 1/20　　　　　d) 3/40

36. A brother and sister appear for an interview against two vacant posts in an office. The probability of the brother's selection is 1/5th and that of the sister's selections is 1/3rd. What is the probability that one of them is selected?
    a) 1/5　　　　　　b) 2/5　　　　　　c) 1/3　　　　　　d) 2/3

37. A detergent powder company is having a contest. Each pack of 1 kg contains one of the letters A and O. In every 20 packs, there are four Bs, five As, ten Ms and one O. What is the probability that's pack will have a B?
    a) 1/4　　　　　　b) 1/2　　　　　　c) 1/5　　　　　　d) 1/25

38. 2 cards are drawn from a deck of 52 cards without replacement. What is the probability that one is a king and the other an ace?
    a) 8/663　　　　b) 4/663　　　　c) 8/667　　　　d) 4/669

39. In team uses 2 dice for deciding the person who would give a talk on "Technical aspects of effective communication". Shalini will give a talk only if the product of 2 numbers that turn up is greater than 20. what is the probability that Shalini would talk on the subject?

   a) 1/3   b) 1/6   c) 1/12   d) None of these

40. In a miniature wonderland, three countries Austria, America and Germany are on display. If Austria and America occupied 3/7 and 4/9 of the display area respectively, what is the display area occupied by Germany?

   a) 5/63   b) 1/21   c) 8/63   d) 3/21