Permutation & Combination

Find the value of

1. $^{20}P_2$ 2. $^{8}P_5$ 3. $^{11}P_3$

Total Number of Arrangement

1. CAKE 2. FORMAT 3. ENGLISH 4.SYSTEM 5.RUMOUR

Vowels Comes together

1. FORMAL 2. MAILING 3. CRITICAL 4. MALAYALAM

Vowels Never Comes together

Vowels Never Comes together = Total Number of Arrangement - Vowels comes together

1. OPPOSITE 2. NUMBER

Some letters Comes together

1. NORMAL = > AM-always comes together 3. APPLE => AE - always comes together
2. HONOUR= > UR - always comes together

NO Two Vowel Comes together

$$_nP_r = \frac{n!}{(n-r)!}$$

n= number of objects , r = number of objects arranged

1. MACHINE 2. COMPUTER 3.SISTER

Vowels in ODD / EVEN places

1. In how many possible ways can the letters of the word MEADOWS be arranged such that vowels occupy only in EVEN places?
2. In how many possible ways can the letters of the word LISTEN be arranged such that vowels occupy only in ODD places?
3. In how many possible ways can the letters of the word SUCCESS be arranged such that vowels occupy only in ODD places?

Based On Numbers -Repetition Allowed/ Not Allowed

1. How many 3 digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9.
    a. none of the digits is repeated?
    b. All repeated?
    c. Which are divisible by 5, none of the digits is repeated?
    d. Which are divisible by 5, all repeated?

Circular Permutation:

1. If 10 persons are to be seated in a circular table, how many different arrangements are possible?
2. If 4 boys & 4 girls are to be seated alternately in a circular table, how many different arrangements are possible?
3. Find the number of ways in which 6 persons A, B, C, D, E,F can be seated at a round table such that C and D must not sit together?

GENERAL QUESTIONS:

1. If 5 couples are going to a theater. Their seat numbers are consecutive. In how many ways can they be seated if the couples are to be seated together?
2. There are 8 true-false questions in an examination. Then, these questions can be answered in how many ways ?
3. A question paper consists of 6 problems, each problem having three internal choices. In how many ways can a candidate attempt one or more problems?
4. Find the number of ways in which 6 boys and 4 girls can be arranged in a row so that no two girls are together?
5. In how many ways can6 boys and 7 girls be seated alternately in line?
6. A letter lock consists of three rings each marked with 12 different letters. In how many ways is it possible to make an unsuccessful attempt to open the lock ?

COMBINATION

Find the value of

1. ${}^{11}C_9$ 2. ${}^{20}C_{17}$ 3. ${}^{42}C_{41}$

Basic Problems

$$ {}_nC_r = \frac{n!}{r!(n-r)!} $$

1. In how many ways can we select a vowel and a consonant for alphabets?
2. In how many ways a 4 member team selects from 5 boys and 3 girls, which is 3 boys and 1 girl?
3. 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?
4. In how many ways can three consonants and two vowels be selected from the letters of the word 'CORPORATES'?
5. A college has 15 basketball players. A 10 member team and a captain will be selected out of these players.How many different selections can be made?
6. If 20 people at a party shake hands once with everyone else in the room. How many handshakes took place?
7. How many parallelograms will be formed if 7 parallel horizontal lines intersect 6 parallel vertical lines?
8. Out of 5 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?
9. In how many ways, 20 identical chocolates are distributed among 5 children such that each child gets at least 1 chocolate?
10. A question paper has two parts P and Q, each containing 10 questions. If a student needs to choose 8 from part P and 4 from part Q, in how many ways can he do that?