

Comprehensive Test Series-01
Permutation and Combination

TIME: 1 hr.

MM: 45

General Instructions:

- All Questions are compulsory.
 - Each question carries 3 marks .
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- Q.1 Prove $\frac{(2n)!}{n!} = 2^n [1.3.5 \dots (2n-1)]$
- Q.2 $\frac{n!}{2(n-2)!}$ and $\frac{n!}{4!(n-4)!}$ are in the ratio: 2:1, find n.
- Q.3 How many 3-digit numbers can be formed without using the digits 0,2,3,4,5 and 6?
- Q.4 A mint prepares metallic calendars specifying months, dates and days in the form of monthly sheets (one plate for each month). How many types of February calendars should it prepare to serve for all the possibilities in the future years?
- Q.5 In a city, telephone numbers consist of 6 digits and none of them begins with 0. How many telephone numbers could be possible in that city?
- Q.6 How many four letters words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', NUMBERS if the repetition of letters is not allowed
- Q.7 It is required to seat 5 men and 4 women in a row so that the women occupy the even places. How many such arrangements are possible?
- Q.8 In how many ways can 6 boys and 5 girls be arranged for a group photograph if the girls are to sit on chair in a row and the boys are to stand in a row behind them?
- Q.9 How many words beginning with C and ending with Y can be formed by using the letters of the word 'COURTESY'?
- Q.10 In how many arrangements of the word 'GOLDEN' will the vowels never occur together
- Q.11 When a group photograph is taken, all the seven teachers should be in the first row and all the twenty students should be in the second row. If the two corners of the second row are reserved for the two tallest students, interchangeable only between them, and if the middle seat of the front row is reserved for the principal, how many arrangements are possible?
- Q.12 If all the letters of the word AGAIN be arranged as in a dictionary, what is the fiftieth word?
- Q.13 How many words can we formed with the letters of the word 'UNIVERSITY' the vowels remaining together?
- Q.14 How many words can we formed with the letters of the word 'MISSISSIPPI' if I cannot come together?
- Q.15 In how many ways can a cricket team be selected from 17 players in which 5 players can bowl? Each cricket team must include 2 bowlers?