

NAAHAR PUBLIC (CBSE) SR.SEC.SCHOOL
NOVEMBER MONTH TEST

CLASS : XI
DATE : 17/11/2022
TR'S INITIAL:Mr.RAMACHANDRAN

MARKS:50
DUR - 90 MINS
SUBJECT:MATHS

1. Evaluate $\frac{n!}{r!(n-r)!}$ when, $n = 6$; $r = 2$ 1
2. Evaluate then, $r = 3$. $\frac{n!}{r!(n-r)!}$ 1
3. What is the number of terms in the expansion of $(a^2 - 2ab + b^2)^{10}$? 1
4. Find the number of terms in the expansion of the following : $(1 + 2x + x^2)^{20}$ 1
5. How many three digit numbers are there with all distinct digits ? 2
6. Find n , if : $\frac{1}{9!} + \frac{1}{10!} = \frac{n}{11!}$. 2
7. Which is larger $(1.01)^{1000000}$ or 10,000? 2
8. Prove that $\sum_{r=0}^n 3^r {}^nC_r = 4^n$ 2
9. In how many ways 4 boys and 6 girls be seated in a line so that no two boys may sit together ? 4
10. How many words can be formed by using the letters of the word ORIENTAL, so that the Vowels always occupy the odd places? 4
11. Evaluate $(\sqrt{3} + \sqrt{2})^6 + (\sqrt{3} - \sqrt{2})^6$ 4
12. By using binomial theorem show that : $6^n - 5n - 1$ is divisible by 25, $n \in \mathbb{N}$. 4
13. Using binomial theorem, prove that $6^n - 5n$ always leaves remainder 1 when divided by 25. 4
14. Find the term independent of x in the expansion of $\left(\frac{3}{2}x^2 - \frac{1}{3x}\right)^6$ 6
15. Find the middle term (terms) in the expansion of $\left(\frac{p}{x} + \frac{x}{p}\right)^9$ 6
16. A candidate is required to answer 7 questions out of 12 questions which are divided into two groups of 6 questions each. He is not permitted to attempt more than 5 questions from either group. In how many ways can he choose 7 questions ? 6

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