# school logo.jpg

# Grade : 11 PERIODIC TEST -2 Date: 14.11.22

# Marks: 40 MATHEMATICS Time: 1.30hr

**EACH QUESTION IN SECTION A CARRIES ONE MARK**

**EACH QUESTION IN SECION B CARRIES THREE MARKS**

**EACH QUESTION IN SECTION C CARRIES FIVE MARKS**

**STUDENTS HAVE TO ANSWER ALL THE QUESTIONS.**

**Section A**

1. The value of $\frac{n!}{r!(n-r)!}$ when n=5 and r=2 is

a) 8 b) 9 c) 10 d) 11

2. **In a certain city, all telephone numbers have six digits, the first two digits**

 **always being 41 or 42 or 46 or 62 or 64. How many telephone numbers have**

 **all six digits distinct?**

**a) 5000 b) 8400 c) 9000 d) 9400**

3. If nC12= nC8 , then n is equal to

a) 20 b) 12 c)6 d) 30

4. **The number of possible outcomes when a coin is tossed 6 times is**

**a) 36 b) 64 c) 12 d) 32**

5. **The coefficient of the middle term in the expansion of (2+3x)4is**

**a) 5 b) 6 c) 216 d) 8**

 6. If n is even in the expansion of (a+b)n, the middle term is:

 a) nth term b) (n/2)th term c) [(n/2)-1]th term d) [(n/2)+1]th term

7. The general term of the expansion (a+b)n is

a)Tr+1 = nCr ar b n-r b) Tr+1 = nCr an-r br c) Tr+1 = nCr an-r b n-r d) Tr+1 = nCr b n-r

8. (1.1)10000 is \_\_\_\_\_ 1000

 a) greater than b) less than c) equal to d) none of these

**Section B**

 9. Expand the expression (2x-3)6 using the binomial theorem.

10. A box contains two white, three black and four red balls. In how many ways

 can three balls be drawn from the box, if at least one black ball is to be

 included in the draw?

**(OR)**

The English alphabet has 5 vowels and 21 consonants. How many words with two different vowels and 2 different consonants can be framed from the alphabet?

11. (i) **How many committee of five persons with a chairperson can be selected**

 **from 12 persons?**

**(ii) Find n if (n-1)P3 : nP4 = 1:9.**

 12. Find the fourth term in the expansion of (x-2y)12.

**Section C**

13. **Find the number of different words that can be formed from the letters of**

 **the word TRIANGLE, so that no vowels are together.**

14. Find (a+b)4 – (a-b)4 and hence evaluate ($\sqrt{3}$ +$ \sqrt{2}$)4 – ($\sqrt{3}$ - $\sqrt{2}$)4

15. **If the coefficients of 2nd, 3rd and the 4th terms in the expansion of (1 + x)n are**

 **in A.P., then find the value of n.**

**(or)**

 **Show that 24n+4 -15n-16 where n** $\in $ **N , is divisible by 225.**

16. In how many ways can a football team of 11 players be selected from 16

 players? How many of them will (i) include 2 particular players? (ii) exclude 2

 particular players?