KV BHU CAMPUS VARANASI

MONTHLY TEST (2024-25)/ CLASS-XI / MATHEMATICS (041)

Maximum Marks: 40 **TIME: 90 Mints**

General Instructions:

i) **Section-A has 5 questions of 1 mark each. Section -B has 4 questions of 2 marks each. Section- C has 4 questions of 3 marks each and Section -D has 3 questions of 5 marks each.**

SECTION A

1. The number of combinations of 4 different objects A,B,C,D taken 2 at a time is
(a) 4 (b) 6 (c) 7 (d) 8

2. If $6^n - 5n$ is divided by 25 then remainder is
(a) 0 (b) 2 (c) 4 (d) 1

3. In a G.P. of even number of terms , the sum of all terms is five time the sum of the odd terms. The common ratio of the G.P. is
(a) $\frac{-4}{5}$ (b) $\frac{1}{5}$ (c) 4 (d) none of these

4. The distance of the point of intersection of the lines 2x-3y+5=0 are 3x+4y=0 from the line 5x-2y=0, is
(a) $\frac{130}{17\sqrt{29}}$ (b) $\frac{13}{7\sqrt{29}}$ (c) $\frac{130}{7}$ (d) none of these

5. Which term of the sequence 3,6,12,…….is 768
(a) 10 (b) 8 (c) 9 (d) 20

SECTION B

6.The first term of a G.P.is 1 . The sum of the third and fifth terms is 90. Find the common ratio of the G.P.

7. Find the number of triangles that are formed by choosing the vertices from a set of 12 points seven of which lie on the same line.

8. Find the coordinates of the foot of perpendicular drawn from the point (1,-2) on the line y=2x+1.

9. Find the coefficient of x^5 in the expansion of $(1+x)^3(1-x)^6$

SECTION C

10. The sum of first two terms of an infinite G.P. is 5 and each term is three times the sum of the succeeding terms. Find the G.P..

11.Find the$(a+b)^4 - (a-b)^4$. Hence evaluate $(\sqrt{3}+\sqrt{2})^4 - (\sqrt{3}-\sqrt{2})^4$.

12. A line perpendicular to the line segment joining the points (1,0) and (2,3) divides it in the ratio1:n . Find the equation of the line.

13. Find the total number of words formed by 2 vowels and 3 consonants taken from 4 vowels and 5 consonants.

SECTION D

14. In an increasing G.P. , the sum of the first and the last term is 66, the product of the second and last but one is 128 and the sum of the terms is 126. How many terms are there in the progression?

15.Show that the equation of a line passing through (a$cos^3\theta, asin^3\theta$) and perpendicular to the line xsec$\theta + ycosec\theta = a$ is $xcos\theta - ysin\theta = acos2\theta$.

16. In how many ways can the letters of the word ARRANGE be arranged so that the two R are never together?