KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD SAMPLE PAPER 10 : PERIODIC TEST – 1 (2019 – 20) CLASS – X MATHEMATICS

T.T. 1:30

M.M. 40

General Instructions:

1. All questions are compulsory.

2. Question paper is divided into four sections: Section A contains 10 Objective type questions each carry 1 mark, Section B contains 3 questions each carry 2 marks, Section C contains 4 questions each carry 3 marks and Section D contains 3 questions each carry 4 marks.

SECTION – A(1 marks each)

- 1. If the HCF of 65 and 117 is expressible in the form 65m 117, then the value of *m* is (a) 4 (b) 2 (c) 1 (d) 3
- 2. The decimal expansion of the rational number $\frac{33}{2^2.5}$ will terminate after (a) one decimal place (b) two decimal places (c) three decimal places (d) more than 3 decimal places
- 3. If the sum of the zeroes of the polynomial $3x^2 kx + 6$ is 3, then the value of k is: (a) 3 (b) -3 (c) 6 (d) 9
- 4. The product and sum of zeroes of the quadratic polynomial $ax^2 + bx + c$ respectively are: (a) $\frac{b}{a}, \frac{c}{a}$ (b) $\frac{c}{a}, \frac{b}{a}$ (c) $\frac{c}{b}, 1$ (d) $\frac{c}{a}, \frac{-b}{a}$

5. If the pair of equations 2x + 3y = 5 and $5x + \frac{15}{2}y = k$ represent two coincident lines, then the value of k is:

- (a) -5 (b) $\frac{-25}{2}$ (c) $\frac{25}{2}$ (d) $\frac{-5}{2}$
- 6. If 3x + 2y = 13 and 3x 2y = 5, then the value of x + y is: (a) 5 (b) 3 (c) 7 (d) none of these

7. The common root of the quadratic equation $x^2 - 3x + 2 = 0$ and $2x^2 - 5x + 2 = 0$ is: (a) x = 2 (b) x = -2 (c) $x = \frac{1}{2}$ (d) x = 1

8. Find the values of k for which the quadratic equation $k^2x^2 - 2(k-1)x + 4 = 0$ has real and equal roots.

(a)
$$k = 0$$
 or $k = \frac{1}{3}$ (b) $k = 1$ or $k = \frac{1}{3}$ (c) $k = -1$ or $k = \frac{1}{3}$ (d) $k = -3$ or $k = \frac{1}{3}$

- 9. Which of the following is not an A.P.?
 (a) 1, 4, 7, 10,
 (b) 3, 7, 12, 18,
 (c) 11, 14, 17, 20,
 (d) -5, -2, 1, 4,...
- **10.** If for an A.P. $a_5 = a_{10} = 5a$, then a_{15} is (a) 71 (b) 72 (c) 76 (d) 81

SECTION – B(2 marks each)

- 11. Explain why $7 \ge 11 + 13 + 13$ and $7 \ge 6 \ge 5 \ge 4 \ge 3 \ge 2 \ge 1 + 5$ are composite numbers.
- **12.** Which term of the AP 9, 12, 15, 18,.... will be 39 more than its 36^{th} term?
- 13. Find a cubic polynomial with the sum, sum of the product of its zeroes taken two at a time, and the product of its zeroes as 3, -1, -3 respectively.

SECTION – C(3 marks each)

- 14. Prove that $\sqrt{2} + \sqrt{3}$ is an irrational number.
- **15.** Solve for x and y: 217x + 131y = 913; 131x + 217y = 827.
- 16. Solve: $\frac{1}{x-2} + \frac{1}{x-4} = \frac{4}{3}, (x \neq 2, 4)$
- 17. Find the sum of first 24 terms of the list of numbers whose *n*th term is given by $a_n = 3 + 2n$

SECTION – D(4 marks each)

- **18.** If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 2x + 3$, then find a quadratic polynomial whose zeroes are $\frac{\alpha 1}{\alpha + 1}$ and $\frac{\beta 1}{\beta + 1}$.
- **19.** Roohi travels 300 km to her home partly by train and partly by bus. She takes 4 hours if she travels 60 km by train and the remaining by bus. If she travels 100 km by train and the remaining by bus, she takes 10 minutes longer. Find the speed of the train and the bus separately.
- **20.** 300 apples are distributed equally among a certain number of students. Had there been 10 more students, each would have received one apple less. Find the number of students.

.....

Prepared by: M. S. KumarSwamy, TGT(Maths)