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SAMPLE PAPER 08 : 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. Write the HCF of smallest composite number and smallest prime number.
   (a) 0   (b) 1   (c) 2   (d) All the three

2. Find the [HCF × LCM] for the numbers 100 and 190.
   (a) 100   (b) 190   (c) 1900   (d) none of these

3. If one zero of the polynomial $x^2 – 4x + 1$ is $2 + \sqrt{3}$, write the other zero.
   (a) $2 + \sqrt{3}$ (b) $2 – \sqrt{3}$ (c) 4   (d) none of these

4. Graph of x = f(y) is given, find the number of zeroes of f(y).
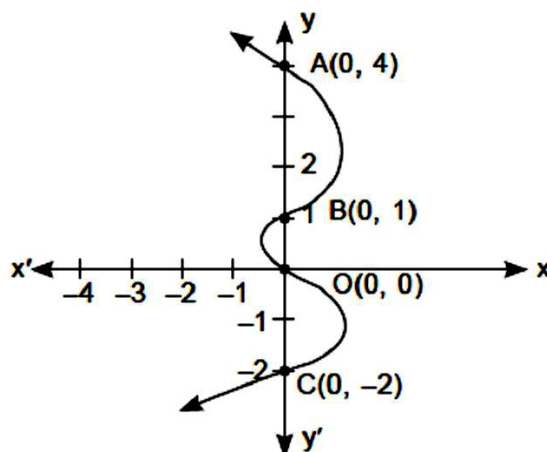
   (a) 1   (b) 2   (c) 3   (d) 4

5. Find the value of k so that the following system of equation has infinite solutions:
   $3x – y – 5 = 0$, $6x – 2y + k = 0$
   (a) infinite number of solutions   (b) unique solution
   (c) no solution   (d) one solution

6. The larger of two supplementary angles exceeds the smaller by 20 degrees. Find the angles.
   (a) 100° and 80°   (b) 120° and 60°   (c) 140° and 40°   (d) 160° and 20°

7. Write the nature of roots of the quadratic equation $9x^2 – 6x – 2 = 0$.
   (a) real and unequal roots   (b) real and equal roots
   (c) real roots does not exists   (d) none of these

8. Find the discriminant of the quadratic equation: $3\sqrt{3}\,x^2 + 10x + \sqrt{3} = 0$.
   (a) 60   (b) 64   (c) 72   (d) none of these

9. If $a_n = \dfrac{n(n-3)}{n+4}$, then find 18th term of this sequence.
   (a) $\dfrac{238}{21}$ (b) $\dfrac{135}{11}$ (c) $\dfrac{145}{11}$ (d) none of these

10. Find the 12th term of the AP with first term 9 and common difference 10.
    (a) 119   (b) 90   (c) 109   (d) none of these

SECTION – B(2 marks each)

11. By using Euclids algorithm find the largest number which divides 650 and 1170.

12. If the sum of the zeroes of the quadratic polynomial $ky^2 + 2y - 3k$ is equal to twice their product, find the value of k.

13. In an AP, the sum of first n terms is $\dfrac{5n^2}{2} + \dfrac{3n}{2}$. Find its 20th term.

SECTION – C(3 marks each)

14. Find the HCF and LCM of 288, 360 and 384 by prime factorisation method.

15. Solve the following pairs of equations for x and y: $\dfrac{15}{x-y} + \dfrac{22}{x+y} = 5$, $\dfrac{40}{x-y} + \dfrac{55}{x+y} = 13$, x $\neq$ y, x $\neq -$ y

16. Using quadratic formula solve the following quadratic equation:
    $13x^2 + 9(x + 1) - (2x + 3)(x + 2) = 6$

17. Which term of the sequence $17, 16\dfrac{1}{5}, 15\dfrac{2}{5}, 14\dfrac{3}{5}, ...$ is the first negative term?

SECTION – D(4 marks each)

18. Obtain all the zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\dfrac{5}{3}}$ and $-\sqrt{\dfrac{5}{3}}$.

19. Draw the graphs of the following equations: x + y = 5, x – y = 5
    (i) Find the solution of the equations from the graph.
    (ii) Shade the triangular region formed by the lines and the y-axis.

20. Two water taps together can fill a tank is 6 hours. The tap of larger diameter takes 9 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.

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