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SAMPLE PAPER 07 : 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. For any integer a and 3, there exists unique integers q and r such that $a = 3q + r$. Find the possible values of r.
   (a) 0   (b) 1   (c) 2   (d) All the three

2. The HCF of two numbers is 145 and their LCM is 2175. If one number is 725, then find the other number.
   (a) 145   (b) 435   (c) 1   (d) none of these

3. The graph of $x = p(y)$ is given below, for some polynomial $p(y)$. Find the number of zeroes of $p(y)$.
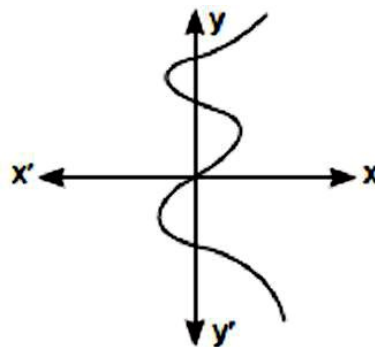
   (a) 1   (b) 2   (c) 3   (d) 4

4. If $x^3 + x^2 – ax + b$ is divisible by $x^2 – x$, write the values of a.
   (a) 1   (b) 2   (c) 3   (d) none of these

5. Find the number of solutions of the following pair of linear equations:
   $x + 2y – 8 = 0$ and $2x + 4y = 16$
   (a) infinite number of solutions   (b) unique solution
   (c) no solution   (d) one solution

6. For which values of p, does the pair of equations given below has unique solution?
   $4x + py + 8 = 0$ and $2x + 2y + 2 = 0$
   (a) $p = 4$ (b) $p \neq 4$ (c) $p \neq -4$ (d) none of these

7. If 2 is a root of the equation $x^2 + bx + 12 = 0$, find the value of b.
   (a) 8   (b) –8   (c) ± 8 (d) none of these

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8. Write the nature of roots of quadratic equation $4x^2 + 4\sqrt{3}x + 3 = 0$.
   (a) real and unequal roots   (b) real and equal roots
   (c) real roots does not exists   (d) none of these

9. Find the sum of first 22 terms of the AP 8, 3, – 2, ...
   (a) 979   (b)–979   (c) 456   (d) none of these

10. If the sum of first p terms of an AP is $ap^2 + bp$, find its common difference.
    (a) a   (b) 2a   (c) 1   (d) none of these

SECTION – B(2 marks each)

11. Find the largest number that divides 2053 and 967 and leaves a remainder of 5 and 7 respectively.

12. Find the zeroes of $x^2 + 10x + 7$.

13. Find 10th term from end of the AP 4, 9, 14, ... , 254.

SECTION – C(3 marks each)

14. Find the HCF of 65 and 117 and find a pair of integral values of m and n such that HCF = 65m + 117n.

15. The sum of the digits of a two digit number is 9. The number obtained by reversing the order of digits of the given number exceeds the given number by 27. Find the given number.

16. Solve for x : $\dfrac{x+1}{x-1} - \dfrac{x-1}{x+1} = \dfrac{5}{6}$, x ≠ 1, x ≠ – 1.

17. How many terms of the AP – 6, $\dfrac{-11}{2}$, – 5, ... are needed to give the sum –25? Explain the double answer.

SECTION – D(4 marks each)

18. If the polynomial $x^4 – 6x^3 + 16x^2 – 25x + 10$ is divided by $(x^2 – 2x + k)$ the remainder comes out to be x + a, find k and a.

19. Solve the following system of equations graphically for x and y:
    3x + 2y = 12; 5x – 2y = 4.
    Find the co-ordinates of the points where the lines meet the y-axis.

20. In a flight of 2800 km, an aircraft was slowed down due to bad weather. Its average speed is reduced by 100 km/h and time increased by 30 minutes. Find the original duration of the flight.