Bhartiyam International School
Periodic Assessment – 1 (2022-23)
Subject: Mathematics
Class: X

Date: 18/07/2022   **Max. Mark: 40**
Name: _____   **Roll No:** _____   **Duration: 90 min.**

Instructions:
This question paper consists of four sections.
Section A consists of 10 marks
*Section B consists of 8 marks*
Section C consists of 12 marks.
Section D consists of 10 marks.
There is no internal choice. All questions are compulsory.

SECTION – A

1. If a real number "a" is divided by another real number "b" such that $a = bq + r$, where q and r are whole numbers, then -   1
    a) $0 < r < b$ (b) $r < b$ (c) $0 \leq r < b$ (d) None of these

2. If the HCF of to integers is 1, then the integers must be
    a)   Prime   b) co-prime   c) composite   d) None of these   1

3. 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) None of these   1

4. The number of polynomials having zeros as -2 and 4 is
    a)   1   b) 2   c) 3   d) more than 3   1

5. If α and β are the zeros of $f(x) = x^2 - 5x + b$ and $\alpha - \beta = 1$, then b is
    a)   1   b) 6   c) 5   d) None of these   1

6. If α and β are the zeros of the polynomial $f(x) = 4x^2 + 3x + 7$, then the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ is
    a)   7/3   b) -7/3   c) 3/7   d) None of these   1

7. A quadratic polynomial, the sum and product of whose zeroes are $\frac{1}{4}$ and -1 respectively is -
    a) $4x^2 - x$ (b) $4x^2 - x - 4$ (c) $x^5 - 4$ (d) None of these   1

8. On solving the equations $7x - 15y = 2$ and $x + 2y = 3$, we get the values -   1
    a) $x = \frac{49}{29}$ and y=4 (b) $x = \frac{49}{29}$ and $y = \frac{19}{29}$ (c) x=4 and y = 1   (d) None of these

9. If the HCF of 306 and 657 is 9, then the LCM of 306 and 657 is –   1
    a)   3238   (b) 2238   (c) 22338   (d) None of these

10. The given figure represents the graph of a polynomial $p(x)$. Then the number of zeroes of $p(x)$ is/are-   1
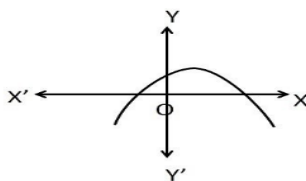
   a)   Infinite   (b) 1   (c) 2   (d) None of these

SECTION – B

11. Find the zeroes of the quadratic polynomial $p(x) = x^2 + 7x + 10$, and verify the *relationship between the zeroes and the coefficients.*   2
12. Solve the equations $x + 3y = 6$ and $2x - 3y = 12$ graphically and find the value of *x and y.* 2
13. *If one zero of the polynomial* of $f(x) = 3x^2 - 8x + 2k + 1$ is seven times the other, find the zeros of the polynomials and value of k.   2
14. Solve the following system of equations by elimination method: 2

$$3x + 2y = \frac{11}{3} \; ; \; -7x + 5y = \frac{31}{3}$$

SECTION – C

15. For what values of k will the following pair of linear equations have infinitely many solutions?
       kx + 3y – (k-3) = 0 and *12x + ky – k =0*   *3*

16. Use Euclid's division lemma and show that any positive odd integer is of the form *6q + 1 or 6q + 3 or 6q + 5,* where q is some integer.   3
17. If α and β are the zeros of polynomial $p(x) = ax^2 + bx + c$, *then find the value of* $\alpha^3 + \beta^3$. 3

18. If the sum of ages of father and his son is 65 years and twice the difference of their ages is 50 years, then find the age of father.   3

SECTION – D

19.   A boat goes 30 km upstream and 44 km downstream in 10 hours. In 13 hours, it can go 40 km upstream and 55 km downstream. Determine the speed of the stream and that of the boat in still water.   5
20. Find all the zeroes of *2x⁴ -3x³ – 3x² +6x – 2*, if two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$.   5