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SAMPLE PAPER 01 : 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 mark each)

1. Find the LCM of 6 and 20.
(a) 120 (b) 12 (c) 2 (d) none of these

2. If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$; x, y are prime numbers, then HCF (a, b) is
(a) xy (b) xy^2 (c) x^3y^3 (d) x^2y^2

3. If one of the zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is
(a) 10 (b) –10 (c) 5 (d) –5

4. A quadratic polynomial whose zeroes are –3 and 4 is
(a) $x^2 - x + 12$ (b) $x^2 + x + 12$ (c) $2x^2 + 2x - 24$. (d) none of the above.

5. If $p - 1$, $p + 3$, $3p - 1$ are in AP, then p is equal to
(a) 4 (b) – 4 (c) 2 (d) – 2

6. Find the values of k for which the quadratic equation $kx(x - 3) + 9 = 0$ has real equal roots.
(a) k = 0 or k = 4 (b) k = 1 or k = 4 (c) k = –3 or k = 3 (d) k = –4 or k = 4

7. If α, β are the roots of the quadratic equation $x^2 + x + 1 = 0$, then $\frac{1}{\alpha} + \frac{1}{\beta}$
(a) 0 (b) 1 (c) –1 (d) none of these

8. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ have
(a) infinite number of solutions (b) unique solution
(c) no solution (d) one solution

9. The value of c for which the pair of equations $cx - y = 2$ and $6x - 2y = 3$ will have infinitely many solutions is
(a) 3 (b) – 3 (c) – 12 (d) no value

10. Find 15^{th} term of -10, -5, 0, 5, ------
(a) 55 (b) 60 (c) 65 (d) none of these

SECTION – B(2 marks each)

11. Find the HCF of 96 and 404 by the prime factorisation method. Hence, find their LCM.

12. Find the zeroes of the quadratic polynomial $x^2 - 2x - 8$.

13. Which term of the AP : 3, 15, 27, 39, . . . will be 132 more than its 54th term?

SECTION – C(3 marks each)

14. The sum of the digits of a two-digit number is 9. Also, nine times this number is twice the number obtained by reversing the order of the digits. Find the number.

15. Prove that $\sqrt{5}$ is an irrational number.

16. How many terms of the AP : 24, 21, 18, . . . must be taken so that their sum is 78?

17. Find the roots of the equation $5x^2 - 6x - 2 = 0$, by using quadratic formula.

SECTION – D(4 marks each)

18. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

19. A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

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