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**SAMPLE PAPER 06 : 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 a and b are two positive integers such that  $a = 14b$ . Find the HCF of a and b.  
(a) a                                      (b) b                                      (c) 1                                      (d) 0
2. Write the sum of exponents of prime factors in the prime factorisation of 250.  
(a) 1                                      (b) 2                                      (c) 3                                      (d) 4
3. Find the product of the zeroes of  $-2x^2 + kx + 6$ .  
(a) 3                                      (b) -3                                      (c)  $\pm 3$                                       (d) 9
4. Find the value of m if polynomial  $p(x) = 4x^2 - 6x - m$  is exactly divisible by  $x - 3$ .  
(a) 16                                      (b) 20                                      (c) 18                                      (d) none of these
5. Find the value of k so that the following system of equations has no solution:  
 $3x - y - 5 = 0, 6x - 2y + k = 0$   
(a)  $k \neq 10$                                       (b)  $k \neq -10$                                       (c)  $k = -10$                                       (d) none of these
6. Sum of two numbers is 35 and their difference is 13. Find the numbers.  
(a) 24, 11                                      (b) 20, 15                                      (c) 22, 13                                      (d) none of these
7. For what value of k, are the roots of the quadratic equation  $3x^2 + 2kx + 27 = 0$  real and equal.  
(a) only 9                                      (b) only -9                                      (c)  $\pm 9$                                       (d) none of these
8. If  $ax^2 + bx + c = 0$  has equal roots, what is the value of c?  
(a) 1                                      (b) 0                                      (c) -1                                      (d) none of these
9. For what value of p, are  $2p + 1, 13, 5p - 3$  three consecutive terms of an AP?  
(a) 3                                      (b) -4                                      (c) 4                                      (d) none of these
10. The nth term of an AP is  $6n + 2$ . Find its common difference.  
(a) 6                                      (b) -6                                      (c) 2                                      (d) none of these

**SECTION – B(2 marks each)**

11. Use Euclid's division algorithm to find the HCF of 504 and 980.

12. Find a quadratic polynomial whose one zero is 5 and product of zeroes is 30.
13. Find the sum of the first 25 terms of an AP whose nth term is given by  $a_n = 7 - 3n$ .

**SECTION – C(3 marks each)**

14. Prove that  $\sqrt{2}$  is irrational.
15. Solve the following system of equations:  $\frac{x}{a} + \frac{y}{b} = a + b$ ;  $\frac{x}{a^2} + \frac{y}{b^2} = 2$
16. Solve for x :  $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$ ;  $a \neq 0, b \neq 0, x \neq 0$
17. How many terms of the AP 3, 5, 7, ... must be taken so that the sum is 120?

**SECTION – D(4 marks each)**

18. Find all the zeroes of the polynomial  $x^4 + x^3 - 34x^2 - 4x + 120$ , if two of its zeroes are 2 and -2.
19. Solve the following system of linear equations graphically:  
 $3x + y - 12 = 0$ ;  $x - 3y + 6 = 0$ .  
Shade the region bounded by the lines and x-axis. Also, find the area of shaded region.
20. A motor boat whose speed is 18 km/h in still water takes 1 hr. more to go 24 km upstream than to return downstream to the same spot. Find the speed of stream.
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