PRACTICE PAPER -2025
PERIODIC TEST – 1
Class: X

Subject: Mathematics   M.M:40
Date   : 05 - 07- 2025   Time: 1Hour 30 Minutes

General Instructions:
1. The question paper consists of 22 questions divided into 3 sections A, B and C.
2. All questions are compulsory.
3. Section A comprises of 10 questions of 1 mark each.
4. Section B comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
5. Section C comprises of 6 questions of 3 marks each. Internal choice has been provided in two questions.

SECTION – A

1. The HCF and LCM of two numbers are 9 and 360 respectively. If one number is 45, the other   (1)
   number is_____.
   (A)   70   (B)   72   (C)   75   (D)   81

2. For what value of c will the following system of equations have infinite number of solutions?   (1)
   $2x + (c - 2)y = c$, $6x + (2c - 1)y = 2c + 5$.
   (A)   7   (B) ± 5 (C)   5   (D)   3

3. If $6370 = 2^m \times 5^n \times 7^k \times 13^p$ then find the value of $(m + n)(k + p)$.   (1)
   (A) 2   (B) 4   (C) 5   (D) 6

4. Given a graph of the quadratic polynomial. Find   (1)
   the polynomial.

   (A) $x^2 - x - 2$
   (B) $x^2 + x - 2$
   (C) $x^2 - x + 2$
   (D) $x^2 - 2x - 1$
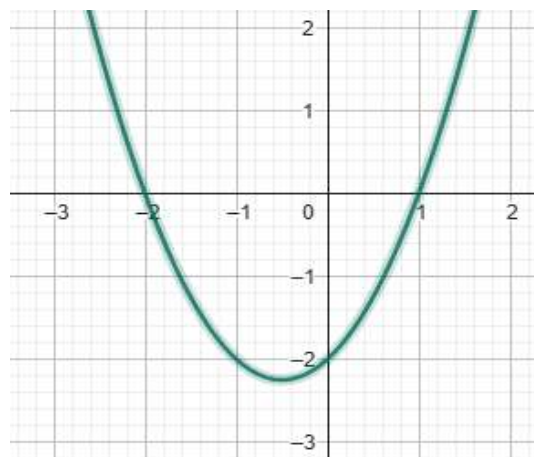
5. There are 576 boys and 448 girls in a school that are to be divided into equal sections of either boys   (1)
   or girls alone. The total number of sections thus formed are:
   (A)   13   (B)   14   (C)   16   (D)   18

6. The value of k for which the equation $x^2 + 2(k + 1)x + k^2 = 0$ has equal roots is ____   (1)
   (A) $\frac{1}{2}$ (B) $\frac{-1}{2}$ (C) $\frac{1}{4}$ (D)   2

7. If the sum and product of the roots of the equation $kx^2 + 6x + 4k = 0$ are equal, then $k = $ ____   (1)
   (A) $-\frac{3}{2}$ (B) $\frac{3}{2}$ (C) $\frac{2}{3}$ (D) $-\frac{2}{3}$

8. Write the discriminant of $(x - 1)(2x - 1) = 0$ (1)
   (A)   1   (B) -1 (C)   2   (D)   0

9. Find the value of k, so that the following system of equations is inconsistent.   (1)
   $3x - y - 5 = 0; 6x - 2y + k = 0$
   (A) $k \neq -10$ (B) $k \neq 5$ (C) $k \neq 10$ (D) $k \neq \frac{2}{5}$

In Question 10, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

10. Assertion (A): *The set of values of p for which the given equation* $2x^2 + px + 3 = 0$ *has real* (1) *roots* when $p^2 \geq 24$

Reason (R): *For a quadratic equation* $ax^2 + bx + c = 0$, *the roots are real if* $D = b^2 - 4ac \leq 0$

SECTION B

11. Solve for *x* and *y* using substitution method: $7x + 2y + 5 = 0, \ 2y + 3 = 0$ (2)

12. If α and β are roots of the equation $2x^2 - 6x + a = 0$ and $2\alpha + 5\beta = 12$, find the value of *a*. (2)

OR

Find the condition that on $a, b \ and \ c$ so that one zero of the polynomial $ax^2 + bx + c$ is the square of the other.

13. Find HCF and LCM of 448, 1008 and 168 using fundamental theorem of arithmetic. (2)

14. If $p(x) = 2x^2 - 6x - 3$. The two zeroes are of the form $\frac{3 \pm \sqrt{k}}{2}$, where k is a real number. Use the (2)

relationship between the zeros and coefficients of a polynomial to find thw value of k.

OR

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.

15. Three numbers are in the ratio 2 : 5 : 7. Their LCM is 490. Find the square root of the largest number. (2)

16. The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides (use factorisation method). (2)

SECTION C

17. Solve for *x* and *y* using substitution method: $x + 2y - 3 = 0; 3x - 2y + 7 = 0$. (3)

OR

Find the value of a for which the given pair of linear equations has infinite many solutions.
$\alpha x + 9y + 10 = 0 \ , \quad 12x + 12\alpha y + 3\alpha - 31 = 0$

18. Determine, by drawing graphs, whether the following system of linear equations has a unique solution or not: $2x - 3y = 6, x + y = 1$. (3)

19. Using quadratic formula, solve the quadratic equation for x: $p^2x^2 + (p^2 - q^2)x - q^2 = 0$. (3)

20. A two-digit number is seven times the sum of its digits and is also equal to 12 less than three times the product of its digits. Find the number. (3)

OR

The length of the hypotenuse of a right triangle is one unit more than twice the length of the shortest side and the other side is one unit less than twice the length of the shortest side. Find the lengths of the other two sides.

21. If α and β are the zeroes of the polynomial $2x^2 - 6x + 3$, find the value of (3)

$\alpha^3 + \beta^3 - 3\alpha\beta(\alpha^2 + \beta^2) - 3\alpha\beta(\alpha + \beta)$.

22. Given that $\sqrt{3} \ is \ irrational,$ show that $5 - 2\sqrt{3}$ is an irrational number. (3)