

Name of the School: _____

SUMMATIVE ASSESSMENT – I (2026–27)

Class X — MATHEMATICS

English Medium

Model Question Paper — Set B

Time: 3 Hours

Max. Marks: 80

Name of the Student: _____ Roll No.: _____

Syllabus covered: Ch. 1 Real Numbers, Ch. 2 Sets, Ch. 3 Polynomials, Ch. 4 Pair of Linear Equations in Two Variables, Ch. 5 Quadratic Equations, Ch. 6 Progressions, Ch. 7 Coordinate Geometry

Instructions:

1. Part A (60 marks) is to be answered in the answer booklet within the first 2 hours 30 minutes.
2. Section I: Q.1–6 are very short answer questions. Answer all. Each carries 2 marks.
3. Section II: Q.7–12 are short answer questions. Answer all. Each carries 4 marks.
4. Section III: Q.13–16 are essay type questions with internal choice. Answer one from each question. Each carries 6 marks.
5. Part B (20 marks) is to be answered on the question paper itself in the last 30 minutes.
6. Use of calculators is not allowed. Graph sheets will be supplied where required.

PART – A

Time: 2 Hours 30 Minutes

Marks: 60

SECTION – I

Note: Answer ALL the questions. Each question carries 2 marks. ($6 \times 2 = 12$)

1. Find the HCF and LCM of 96 and 404 by prime factorisation.
2. Write the set $A = \{x : x \text{ is a natural number and } x^2 < 30\}$ in roster form.
3. If 2 is a zero of the polynomial $x^2 + kx - 6$, find the value of k .
4. Find the value of k for which the pair $2x + ky = 5$ and $4x + 6y = 10$ has infinitely many solutions.
5. Find the nature of the roots of $3x^2 - 2x + 1/3 = 0$.
6. Find the midpoint of the line segment joining $(-1, 7)$ and $(3, -3)$.

SECTION – II

Note: Answer ALL the questions. Each question carries 4 marks. ($6 \times 4 = 24$)

7. Prove that $3 + 2\sqrt{5}$ is irrational.
8. If $A = \{3, 6, 9, 12, 15, 18, 21\}$, $B = \{4, 8, 12, 16, 20\}$ and $C = \{2, 4, 6, 8, 10, 12, 14, 16\}$, find (i) $A - B$ (ii) $A - C$ (iii) $B - C$ (iv) $C - B$.
9. Verify that 3, -1 and $-1/3$ are the zeroes of $p(x) = 3x^3 - 5x^2 - 11x - 3$ and verify the relationship between the zeroes and the coefficients.
10. A fraction becomes $9/11$ if 2 is added to both the numerator and the denominator. If 3 is added to both, it becomes $5/6$. Find the fraction.
11. Find two consecutive positive integers, the sum of whose squares is 365.
12. Find the value of k if the points $A(2, 3)$, $B(4, k)$ and $C(6, -3)$ are collinear.

SECTION – III

Note: Answer ONE question (a or b) from each of Q.13 to 16. Each question carries 6 marks. ($4 \times 6 = 24$)

13. (a) Draw the graph of $y = x^2 - 2x - 8$ and find its zeroes from the graph.

OR

(b) Solve graphically: $2x + y = 6$ and $2x - y + 2 = 0$.

14. (a) 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.

OR

(b) Find the values of k for which $2x^2 + kx + 3 = 0$ has two equal roots. Also find the roots.

15. (a) Find the sum of the first 40 positive integers divisible by 6. Also write the 40th such integer.

OR

(b) Which term of the G.P. $2, 2\sqrt{2}, 4, \dots$ is 128?

16. (a) Find the coordinates of the points which divide the line segment joining $A(-2, 2)$ and $B(2, 8)$ into four equal parts.

OR

(b) Find the area of the quadrilateral whose vertices, taken in order, are $(-4, -2), (-3, -5), (3, -2)$ and $(2, 3)$.

PART – B

Time: 30 Minutes

Marks: 20

I. Multiple Choice Questions*Choose the correct answer and write its letter in the bracket. (10 × 1 = 10)*

1. Which of the following is irrational? []
(A) $\sqrt{16}$ (B) $\sqrt[3]{(4/9)}$ (C) $\sqrt{5}$ (D) 0.333...
2. $\log_{10} 0.01 =$ []
(A) 2 (B) -2 (C) 0.2 (D) -0.2
3. If $A = \{a, b, c\}$, the number of subsets of A is []
(A) 3 (B) 6 (C) 8 (D) 9
4. The degree of the polynomial $4x^4 + 5x + 7$ is []
(A) 5 (B) 4 (C) 7 (D) 1
5. If $a_1/a_2 \neq b_1/b_2$, the lines represented by the pair of equations are []
(A) parallel (B) coincident (C) intersecting (D) none of these
6. The roots of $x^2 - 9 = 0$ are []
(A) ± 3 (B) 3 only (C) 9 (D) ± 9
7. Which of the following is an A.P.? []
(A) 1, 4, 9, 16, ... (B) 2, 4, 8, 16, ... (C) 5, 8, 11, 14, ... (D) 1, 1/2, 1/3, ...
8. The 5th term of the G.P. 3, 6, 12, ... is []
(A) 24 (B) 48 (C) 36 (D) 96
9. The point (0, -4) lies on the []
(A) x-axis (B) y-axis (C) origin (D) first quadrant
10. The slope of a line parallel to the x-axis is []
(A) 1 (B) 0 (C) not defined (D) -1

II. Fill in the Blanks*(5 × 1 = 5)*

11. The decimal expansion of $7/8$ is _____.
12. If $A \subset B$, $n(B) = 6$ and $n(A) = 4$, then $n(B - A) =$ _____.
13. The product of the zeroes of $x^2 + 7x + 10$ is _____.
14. The sum of the first 10 natural numbers is _____.
15. The centroid of the triangle with vertices (0, 0), (3, 0) and (0, 6) is _____.

III. Match the Following*Write the correct letter from Group B in the bracket. (5 × 1 = 5)*

No.	Group A		Group B
16.	Fundamental Theorem of Arithmetic ()	A.	$a + (n - 1)d$
17.	Symbol of the universal set ()	B.	μ
18.	Quadratic formula ()	C.	$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
19.	nth term of an A.P. ()	D.	Unique prime factorisation
20.	Distance formula ()	E.	$[-b \pm \sqrt{(b^2 - 4ac)}] / 2a$
		F.	ar^{n-1}

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