10 th CLASS

MATHEMATICS

PAPER - I | PART – A & B

MODEL PAPER - 3

Time 2.30 Hours

Max Marks: 50

Instructions: 1) Answer the questions under Part-A on a separate answer book

2) Write the answer to the Questions under Part-B on the question paper itself & attach it to the answer book of Part-A

Time: 2 Hours **PART – A** **Marks: 35**

SECTION – I 5x2=10

Note: 1) Answer any 5questions choosing at least 2 from each of the following two groups A & B

2) Each question carries 2 Marks.

GROUP – A

(Real Numbers, sets, Polynomials, Quadratic Equations)

1. Write the algorithm of 8×32 in the form of log x + log y
2. If A = { 6, 7, 8, 9, 10 } and B = { 9, 10, 11, 12} then find A-B and B-A, are they equal?
3. Find the zeroes of polynomial p(x) = 2x+1
4. Find the roots of the equation $x^2-3x-10 = 0$

GROUP – B

(Linear equations in two variables, Progressions, Co-ordinate geometry)

5. Half of the perimeter of a rectangular garden whose length is 4m more than its width is 36m . Find the dimensions of the garden.
6. How many Two – digit numbers are divisible by 3.
7. Write G.P. if a = 256; $r = -\frac{1}{2}$
8. Find the points on the x- axis which is equidistant from (2, -5) and (-2,9)

SECTION – II 4x1 =4

Note: 1. Answer any 4 of the following questions.

2. Each question carries 1 Mark.

9. Determine the value of $\log_3 243$
10. If A = {1,2, 3,4} and B = { 1, 2, 3, 5, 6} then find A∩B

11. Define linear equations in two variables.

12. Write the standard form of quadratic equation in variable x.

13. 2, 4, 8, 16, …….. form an A.P. ? If so find common difference.

14. Find the mid point of the line segment joining the points (3, 0) and (-1, 4)

SECTION - III 4x4=16

Note: 1) Answer any 4 questions choosing at least 2 from each of the following two groups A & B

2) Each question carries 4 Marks.

GROUP – A

(Real Numbers, sets, Polynomials, Quadratic Equations)

15. Prove that $\sqrt{2} + \sqrt{3}$ is irrational.

16. i) If A and B are two sets such that $A \subset B$ then what is $A \cup B$

ii) A = { 0, 2, 4} find $A \cap \phi$ and $A \cap A$.

17. Find the zeroes of the polynomial x2-3 and verity the relationship between the zeroes and the coefficients.

18. The difference of squares of two numbers is 180. The squares of the smaller number is 8 times the larger number. Find the two numbers.

GROUP – B

(Linear equations in two variables, Progressions, Co-ordinate geometry)

19. Solve the following equations

$\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2$ and $\frac{4}{\sqrt{x}} - \frac{4}{\sqrt{y}} = -1$

20. The sum of a two digit number and the number obtained by reversing the digits is 66. If the digits of the number differ by 2, find the number. How many such numbers are there.

21. Find the 31^{st} form of an A.P. whose 11^{th} form is 38 and 16^{th} is 73.

22. Find the co-ordinates of the point which divides the line segment joining the points (4, -3) and (8, 5) in the ratio 3:1 internally.

SECTION – IV 1x5=5

Note: 1) Answer one question from the following.
2) Each question carries 5 Marks.
(Polynomials, Linear equations in two variables)

23. Draw the graph of $p(x) = x^2-6x+9$ and find zeroes and verify the zeroes of the polynomial.

24. Solve the pair of linear equations graphically 2x-y= 5, 3x+2y=1

PART - B

Time: 30 Minutes **Model Paper - 3** **Marks: 15**

I. Write the capital letter showing the correct answer for the following questions in the brackets provided against them. **$10 \times \frac{1}{2} = 5$**

1. Which one is terminating decimal [ ]

A. $\frac{7}{40}$ B. $\frac{17}{18}$ C. $\frac{9}{11}$ D. $\frac{14}{23}$

2. log 10 + 2log 3 – log2 value [ ]

A. log 90 B. log 47 C. log 45 D. log 30

3. What is the degree of the polynomial of $\sqrt{2}x^2-3x+1$ [ ]

A. $\sqrt{2}$ B. 2 C. 3 D. 1

4. Find the sum of the zeroes of cubic polynomial $x^3+4x^2-5x-2=0$ [ ]

A. -5 B. 2 C. -4 D. -21

5. 6x-3y+1=0, 2x-y+x=0 lines are [ ]

A. Intersecting lines B. Parallel lines C. co-incident lines D. perpendicular lines

6. Find the roots of 5x2-7x-6 =0 [ ]

A. 2, $-\frac{3}{5}$ B. -2, $\frac{3}{5}$ C. 4.5 units D. 200 units

7. The product of two consecutive positive integers is 306. Represent in the form of equation to find the integers. [ ]

A. $x^2+x+306=0$ B. $x^2+x-306=0$ C. . $x^2+2x+306$ D. . $x^2-x-306=0$

8. In the A.P. series $a_{12}=37$, d=3 then find the value of S_{12} [ ]

A. -5 B. 2 C. -4 D. -21

9. (-5, 6) is the point on the circle and centre of the circle is (3,2) then find the radius of circle. [ ]

A. 45 units B. $4\sqrt{5}$ units C. 4.5 units D. 200 units

10. Which of the following points are co-linear points [ ]

A. (5, 2), (3, -5), (-5, -1) B. (6, -6), (3, -7), (3, 3)

C. (1, -1), (2, 3), (2, 0) D. (2, 0), (1,2), (-1, 6)

II. Fill in the blanks with suitable answers **10 x $\frac{1}{2}$ = 5**

11. The last digit in 6^n end with ……when n is natural number.

12. $5-\sqrt{3}$ is a ……

13. The roster form of the set {x: x is a natural number and x divides 6} is ……..

14. A= { 3, 4, 5, 6, 7 }; B = {1, 6, 7, 8, 9 } then n(A∪B) = ……..

15. If p(x) is polynomial in x and if 'k' is a real number, the value of p(k) =0 then 'k' is called…….. of the polynomial.

16. The graph of ax^2+bx+c intersects x-axis at A and A then, no. of zero of the polynomial is……

17. The sum of the zeroes of the polynomial x^3+4x^2-5x-2 is ……..

18. The sum of first 5o positive integers is ……..

19. If θ is angle made by the line width x-axis, then slope 'm' = ……..

20. If a, b and c are the sides of the triangles, then area of the triangle(A) =……..

III. For the following questions under Group-A choose the correct answer from the master list Group-B and write the letter of the correct answer in the brackets provided against each item **10 x $\frac{1}{2}$ = 5**

A. GROUP-A		**GROUP – B**
21. The slope of line formed with (x_1, y_1) and (x_2, y_2)	[ ]	A) $\left[\frac{m_1x_2+m_2x_1}{m_1+m_2} \quad \frac{m_1y_2+m_2y_1}{m_1+m_2}\right]$
22. The centroid of triangle formed	[ ]	B) $\left[\frac{x_1+x_2}{2} \quad \frac{y_1+y_2}{2}\right]$
23. The midpoint of line formed with (x_1, y_1) and (x_2, y_2) is	[ ]	C) $\left[\frac{m_1x_2 - m_2x_1}{m_1+m_2} \quad \frac{m_1y_2 - m_2y_1}{m1+m2}\right]$
24. The distance between the points (x_1, y_1) and (x_2, y_2) is	[ ]	D) $\left[\frac{y_2 - y_2}{x_2-x_1}\right]$
25. The co- ordinates of a point which divides the line segment joining of (x_1, y_1) and 2 (x2, y2) in the ratio of m1:m	[ ]	E) $\left[\frac{x_1+x_2+x_3}{3} \quad \frac{y_1+y_2+y_3}{3}\right]$
		F) $\left[\frac{y_2 + y_1}{x2-x1}\right]$
		G) $\sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$

B. **GROUP-A** **GROUP – B**

26. Product of zeroes of the polynomial x2-2x-8	[ ]	I) 20
27. The sum of the zeroes of $3x^2 - 5x^2 - 11x - 3$	[ ]	J) -2
28. Common root of 2x2 + x – 6 = 0	[ ]	K) 0
29. P(x): $3x^2$ - 5x – 2 value at x = -2	[ ]	L) 2
30. Discriment of 3x2 – 2x + $\frac{1}{3}$	[ ]	M) -8
		N) $\frac{5}{3}$
		O) 4
		P) - $\frac{5}{3}$