10 th CLASS

MATHEMATICS

PAPER - I | PART – A & B

MODEL PAPER - 2

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 5 questions 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. Find the HCF, LCM of 72 and 108.
2. A= { 0,2,4 } find A∩ ∅ and A∩A and comment.
3. Why are $\frac{1}{4}$ and -1 zeroes of the polynomials $p(x) = 4x^2 + 3x - 1$?
4. Find the Nature of the roots of quadratics equation $2x^2 - 3x + 5 = 0$

GROUP – B

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

5. Find the value of 'k' for which the pair of equations $2x - ky + 3 = 0$, $4x + 6y - 5 = 0$ represent parallel lines.
6. In an AP $a_2 = 13$, $a_4 = 3$ find a_1, a_3
7. Show that the points (1, 7), (4, 2), (-1, -1) and (-4, 4) are the vertices of a square.
8. If the distance between two points (x, 7) and (1, 15) is 10. Find the value of x.

SEXTION –II 4x1 = 4

Note: 1) Answer any four of the following questions.

2) Each question carries 1 Mark.

9. Find any rational number between the pair of numbers $\frac{1}{2}$ and $\sqrt{1}$

10. A = { 1, 2, 3 }; B = {4, 5, 6} then find n(A∩B)

12. 6, 18, 54 …….. is in G.P. then what is the common ratio?

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13. If the centroid of triangle formed by (3, -5), (-7, 4), (x, y), is (2, -1), then find (x, y).

14. For what value of 'p' the following pair of equations has a unique solution.

    2x + py = -5 and 3x + 3y = -6

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. Determine the value of the following

    i) $\log_{81} 3$ ii)$\log_2 {}^{1/16}$ iii) $\log_x \sqrt{x}$ iv) $\log_2 512$

16. If A = { x: x is a natural numbers }, B = { x: x is an even natural numbers },

    C = { x: x is an odd natural numbers }, D = { x: x is a prime numbers }

    Find A∩B, A∩D, B∩D, C∩D.

17. Find all the zeroes of $2x^4-3x^3-3x^2+6x-2$ if you know that two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$

18. In a class of 60 students each boy contributed rupees equal to the number of girls and each girl contributed rupees equal to the number of boys. If the total money then collected was Rs. 1600. How many boys are there in the class?

GROUP – B

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

19. 2 women and 5 men can together finish an embroidery work in 4 days while 3 women and 6 men can finish it in 3 days. Find the time taken by 1 woman alone and 1 man alone to finish the work. Formulate the problem as a pair of equations and then find solution.

20. Which term of the AP : 21, 18, 15, . . . is – 81?Is there any term 0? Give reason for your answer.

21. Show that the points A(7,3), B(6,1), C(8,2), and D(9,4) taken in that order are vertices of a parallelogram.

22. If A(-5, 7), B(-4, -5), A(-1, -6), and D(4, 5) are the vertices of a quadrilateral. Then find the the are of the quadrilateral ABCD.

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 $p(x) = x^2-4x+3$ find the zeroes of the p(x)

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24. 10 students of Class-X took part in a mathematics quiz. If the number of girls is 4 more than the number of boys then, find the number of boys and the number of girls who took part in the quiz. Solve graphically th

PART - B

Time: 30 Minutes **Model Paper - 2** **Marks: 15**

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

1. The number of 2 digits no's which are divisible by 3 [ ]

A. 27 B. 30 C. 31 D. 29

2. If A = {a, b, c, d} then no. of subsets of A [ ]

A. 5 B. 6 C. 16 D. 65

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. If $p(x) = 2x^3-5x^2-14x+8$ then the product of zeroes of polynomial [ ]

A. -4 B. 8 C. -7 D. $-\frac{5}{2}$

5. Which of the following is linear equation in single variable [ ]

A. 2x+1= y-3 B. 2t-1= 2t+5 C. $2x-1= x^2$ D. $x^2-x+1=0$

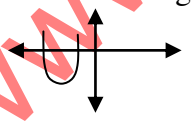
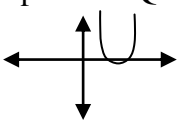
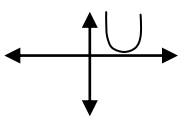
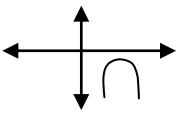
6. For what value of k, 2x-ky+3=0, 4x+6y-5=0 are represents parallel lines. [ ]

A. 6 B. -6 C. -3 D. 3

7. Which of the following is not a quadratic equation. [ ]

A. $x^3-6x^2+2x-1=0$ B. $x^2=2$ C. $x^2-6x-4=0$ D. $3y^2= 192$

8. Which of the following graph represents Q in the care of $b^2-4ac >0$ [ ]

A.  B.  C.  D. 

9. If (7, 2) (5, 1) and (3, k) are collinear then the value of 'k' is [ ]

A. 3 B. 4 C. 5 D. 6

10. If x, x+2, x+6 are three successive terms of G.P then the value of x is [ ]

A. 2 B. 4 C. 6 D. 8

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

11. The distance between (x,7) and (11, 15) is 10 units then the value of x is ……..

12. The area of triangle formed with vertices (2, 3), (-1, 0) and (2, -4) is ……..

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13. The discriminates of 2x2-4x+3=0 ……..

14. If a_3=5 and a_7=9 then A.P is ……..

15. The slope of the joining of (a, 0), and (0, b) is ……..

16. The roots of 3x2-5x+2=0 are ……..

17. Quadratic polynomial with zeroes 2 and - $\frac{1}{3}$ is ……..

18. If A= { 1, 2, 3} then n(A) = ……..

19. Exponent form of $\log_{10} 10000 = 4$ is ……..

20. If A = { 1, 2, 3, 4 } B = { 2, 3, 5, 6 } then A∩B = ……..

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. $\log_{343} 49$	[ ]	A) log 5 + log 3
22. $\log \frac{x^5}{4^3}$	[ ]	B) 2
23. $\log_8 512$	[ ]	C) log 5 – log 3
24. $\log_{0.01} 0.0001$	[ ]	D) 5 log x – 3log y
25. log 15	[ ]	E) $\frac{2}{3}$
		F) 3
		G) 3 log 5
		H) 10

B.

GROUP-A		**GROUP – B**
26. The distance between (2, 3) and (4, 1)	[ ]	I) 8
27. The slope of line formed by (6, 5) and (-4, 3)	[ ]	J) (0, 3)
28. The midpoint of line segment formed by (3, 0) and (-1, 4)	[ ]	K) 2
29. The centroid of triangle with vertices (-4, 6), (2, -2) and (2, 5)	[ ]	L) $\frac{1}{5}$
30. The area of triangle formed with vertices A(5, 2), B(4, 7), C(7, -4)	[ ]	M) -2
		N) $\sqrt{8}$
		O) (1, 2)
		P) 1

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