10 th CLASS

MATHEMATICS

PAPER - I PART- A & B

MODEL PAPER - 1

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. Write 2log3 + 3log5 – 5log2 as a single logarithm.

2. Write the following sets in the set-builder form.

(i) {3, 6, 9, 12} (ii) {5, 25, 125, 625}

3. Find a quadratic polynomial, the sum and product of whose zeroes are – 3 and 2, respectively.

4. Find two numbers whose sum is 27 and product is 182.

GROUP – B

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

5. Check whether the following equations are consistent or inconsistent.

$$2x - 3y = 8$$
$$4x - 6y = 9$$

6. If the sum of the first 14 terms of an AP is 1050 and its first term is 10, find the 20th term.

7. Which term of the GP : 2, $2\sqrt{2}$, 4 ..... is 128 ?

8. The points (3, –2) (–2, 8) and (0, 4) are three points in a plane. Show that these points are collinear.

SECTION – II

4x1=4

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

2) Each question carries one Mark.

9. Write the exponential form of $\log_{10}{}^{100} = 2$
10. Define cardinal number of the set.
11. Check whether -3 and 3 are zeroes of polynomial x^2-9 or not?
12. Age of Sita is five times to age Geetha. Represent the line equation to data.
13. Write the formula of n(A∪B) if A, B are disjoint sets.
14. What do you mean by slope of straight line.

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. Without actually performing division, state whether the following rational numbers will have a terminating decimal form or a non-terminating, repeating decimal form.

i) $\frac{11}{12}$ ii) $\frac{23}{2^3 5^2}$ iii) $\frac{64}{455}$ iv) $\frac{77}{210}$

16. A={ 1,2,3,4}, B={1,2,3,4,5,6,7,8} then find A∪B, A∩B what do you notice about the result.

17. Verify that 3, –1, $-\frac{1}{3}$ are the zeroes of the cubic polynomial $p(x) = 3x^3 - 5x^2 - 11x - 3$, and then verify the relationship between the zeroes and the coefficients.

18. Find the dimensions of a rectangle whose perimeter is 28 meters and whose area is 40 square meters.

GROUP – B

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

19. A man travels 370 km partly by train and partly by car. If he covers 250 km by train and the rest by car, it takes him 4 hours. But if he travels 130 km by train and the rest by car,it takes 18 minutes more. Find the speed of the train and that of the car.

20. The 17^{th} term of an AP exceeds its 10^{th} term by 7. Find the common difference.

21. Find the 12^{th} term of a GP. whose 8^{th} term is 192 and the common ratio is 2.

22. If the points A(6, 1), B(8, 2), C(9, 4) and D(p, 3) are the vertices of a parallelogram, taken inorder, find the value of P.

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 graphs of the given polynomial and find the zeroes. Justify the answers.
$p(x) = x^2 - 6x + 9$

24. Check whether the following equations are consistent or inconsistent. Solve them graphically.
$2x + y - 6 = 0$
$4x - 2y - 4 = 0$

PART - B

Time: 30 Minutes **Model Paper - 1** **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. The number of 3 digit numbers which are divisible by 7 [ ]

A. 133 B. 120 C. 128 D.135

2. A is the set of factors of 12. Which one of the following is not a member of A [ ]

A. 1 B. 4 C. 5 D. 12

3. If the points (1, 2), (-1, b) and (-3, 4) are collinear. Then value of b is [ ]

A. 1 B. 2 C. -4 D. -1

4. The slope of line passing through the points p(2, 5) and Q(x, 3) is 2 then the value of x [ ]

A. 5 B. 1 C. -1 D. 2

5. The degree of $p(x) = 4x^4 - 3x^2 + x + 1$ is [ ]

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

6. The common ratio of 4, -8, 16, -32 is [ ]

A. 1 B. -1 C. 2 D. -2

7. The product of two consecutive numbers is 72 the numbers [ ]

A. 4, 18 B. 8,9 C. 6, 12 D. -8, 9

8. The sum of the roots of $x^2 - 3x - 15 = 0$ is [ ]

A. 1 B. -1 C. 3 D. -3

9. If A and B are disjoint sets then A∩B [ ]

A. Set A B. Set B C. A-B D. ∅

10. If a, b, c are in G.P. then the relation between among [ ]

A. a = bc B. a^2= bc C. c = ab D. b^2 = ac

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

11. The discriminant of x^2 -4x +5 = 0 is ……

12. The distance from origin to (3, 5) is ……

13. If A = { 1, 2, 3, 4} then n(A) = ……

14. If the polynomial intersects the x-axis in the 4 different points then the number zeros of Polynomial is ……

15. If the two lines $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are consistent then $\frac{a_1}{a_2}$ = ……

16. The linear equation intersect the y- axis at (0, -2) is ……

17. The n^{th} term of G.P. is $a.r^{n-1}$ where 'a' is ……

18. ……is the area of the triangle whose vertices are (3, -1), (5, 0) and (1, -2)

19. The lines 3x + 4y = 5 and kx +8y = 7 are parallel. Then the value of 'k' is ……

20. In an A.P. the sum of first n terms is $4n-n^2$ then first term is ……

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. F is set of multiples of 4 between 17 and 61	[ ]	A) { 1, 2, 3, 4,….}
22. a(b+c) = ab + ac	[ ]	B) { 0,1, 2, 3, 4,….}
23. { x: x is a prime }	[ ]	C) Distributive property
24. a+0 = 0+a = a	[ ]	D) { 2,3,5,7, …….}
25. Set of whole numbers	[ ]	E) Additive identity
		F) Multiplicative identity
		G) { 20, 24, 28, ……..60}

B. GROUP-A **GROUP – B**

26. { x: x is a letter in word MATHEMATICS }	[ ]	A){ -3, 3 }
27. a x $\frac{1}{a}$ = $\frac{1}{a}$ x a = 1	[ ]	B) { M, A, T, H }
28. a +b = b +a	[ ]	C) {M, A,T, H, E, I, C, S}
29. { x: x is an integer and x2-9 =0	[ ]	D) Associative property
30. a(bc) = ab(c)	[ ]	E) Multiplicative Identity
	[ ]	F) Additive Identity