# MS CREATIVE SCHOOL Telangana

**Class: X**  **PAPER – I**  **Sub: MATHEMATICS**

**Part A and B**

**Time: 2 hours 45 min.]**  **[Maximum Marks: 40**

**Instructions:**

1. In the time duration of 2 hours 45 minutes, 15 minutes of time is allotted to read and understand the Question paper.
2. Answer the Questions under Part-A on a separate answer book.

3. Write the answer to the Questions under Part-B on the Question paper itself and attach it to the answer book of Part-A

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## Part-A

**Time: 2.00 Hours**  **Marks: 35**

**Note:**

*1. Answer all the questions from the given three sections I, II and III of Part-A.*
*2. In section-III, every question has internal choice. Answer any one alternative.*

### Section-I  (Marks: 7 × 1 = 7)

1) Is $7 \times 5 \times 3 \times 2 + 3$ a composite number? Justify your answer.

2) Find the value of 'k' for which system of equations $x + 3y = 2$, $2x + ky = 8$ has no solution.

3) If $A - B = \{3, 4, 5\}$, $B - A = \{1, 8, 9\}$ and $A \cap B = \{6, 7\}$, then find $A \cup B$.

4) If a, b, c are in geometric progression then show that $b^2 = ac$.

5) Check whether 1 and 3/2 are the roots of the equation $2x^2 - 5x + 3 = 0$

6) Measure the distance of the points marked in the figure.
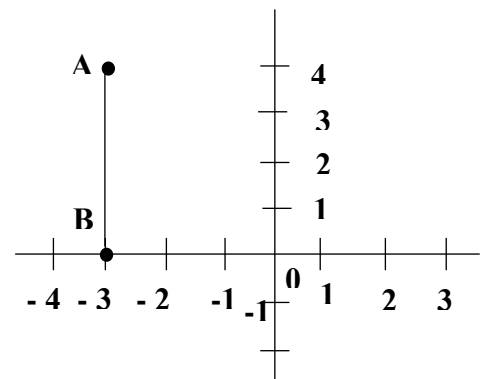


7) Find the zeros of the polynomial $p(x) = x^2 - 4$.

### Section – II  (Marks: 6 × 2 = 12)

8) Prove that $2 - \sqrt{3}$ is irrational.

9) Solve the given pair of equations using substitution method.
  $x + y = 5$ and $x - y = 1$

10) Find the discriminant of $2x^2 - 4x + 3 = 0$ and discuss the nature of roots.

11) If seven times of $7^{th}$ term of an A.P. is equal to the 11 times of the $11^{th}$ term of it, then Find the $18^{th}$ term of that A.P.

12) If A(4, 2), B(p, 5), C(9, 7) are collinear than find the value of 'p'.

13) If A = { } and B = { }, then show that A − B ≠ B − A with the help of Venn diagram.

### Section – III          (Marks: 4 × 4 = 16)

14) (a) Use Euclid's division lemma to show that cube of any positive integer of the form 7m (Or) 7m + 1 (Or) 7m + 6

(Or)

(b) If $\log \dfrac{x + y}{3} = \dfrac{1}{2}(\log x + \log y)$ then prove that $x^2 + y^2 = 7xy$.

15) (a) Draw the graph of the polynomial $p(x) = x^2 - x - 12$ and find the zeros.

(Or)

(b) Check the given system of equation has unique solution by solving graphically.
$2x + 3y = 1; 3x - y = 7$

16)(a) The points C and D are on the line segment joining A(-4, 7) and B(5, 13) such that AC = CD = DB. Then find the co-ordinates of points C and D.

(Or)

(b) On dividing $x^3 - 3x^2 + 5x - 7$ by $x^2 - 2x + 4$ if the remainder is in the form of Ax + B, find the value of A and B.

17) (a) Find the sum of all 3 – digit numbers which are divisible by '4'.

(Or)

(b) From the Venn diagram, write the elements of the sets A and B. And verify $n(A \cup B) + n(A \cap B) = n(A) + n(B)$
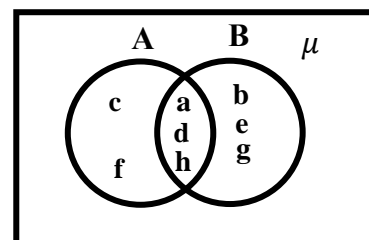
## Instructions:

(i) Write the answer to the questions in this Part-B on the Question paper itself and attach it to the answer book of Part-A.

(ii) Answer all the questions.

(iii) Each question carries ½ mark.

(iv) Answers are to be written in question paper only.

*(v) Marks will not be awarded in any case of overwriting, rewriting or erased answers.*

### Part-B

**Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against each question.**                    **(Marks: 10 × ½ = 5)**

1) The exponential form of $\log_{10}^{0.001} = -3$ is _____.

   (A) $(0.001)^{10} = -3$      (B) $(-3)^{10} = 0.001$      (C) $10^3 = -0.001$      (D) $10^{-3} = 0.001$

2) If A $x^2 - 4x - 21 = 0$ B then A ∩ B = _____.

   (A) A                    (B) B                    (C) A ∪ B                    (D) A ∩ B

3) If $a_n = \dfrac{n(n+3)}{n+2}$ then common difference is _____.

   (A) $\dfrac{4}{3}$            (B) $\dfrac{5}{2}$            (C) $\dfrac{7}{6}$            (D) $-\dfrac{7}{6}$

4) The slope of y-axis is _____.

   (A) 0                    (B) -1                    (C) 1                    (D) not defined

5) Zero of the polynomial p(t) = 2t − 1 is _____.

   (A) -2                    (B) -1                    (C) 2                    (D) ½

6) A quadratic equation whose roots are 7, -3 is _____.

   (A) $-x^2 - 4x - 21 = 0$ (B) $x^2 + 4x - 21 = 0$ (C) $x^2 + 4x + 21 = 0$ (D) $x^2 - 4x - 21 = 0$

7) Which of the following is not a linear equation?

   (A) 5 + 4x = y + 3      (B) x + 2y = y − x      (C) 3 − x = $y^2$ + 4      (D) x + y = 0

8) LCM of 24, 36 is _____.

   (A) 24                    (B) 36                    (C) 72                    (D) 84

9) Number of odd numbers between 0 and 50 is _____.

   (A) 24                    (B) 25                    (C) 23                    (D) 26

10) The number of subsets of a set is 32 then the number of elements of A = _____.

   (A) 4                    (B) 3                    (C) 7                    (D) 5

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