

BOARD OF SECONDARY EDUCATION (TS)
SUMMATIVE ASSESSMENT – II
TENTH CLASS MATHEMATICS MODEL PAPER
PAPER – I (ENGLISH VERSION)

Time: 2 hrs. 45 mins.

PART – A & B

Maximum Marks: 40

INSTRUCTIONS:

- i) In the time duration of 2 hrs. 45 mins., 15 minutes of time is allotted to read and understand the question paper.
- ii) Answers the questions under PART – A in separate answer book.
- iii) Write the answers to the questions under PART – B on the question paper itself and attach it to the answer book of PART – A.

Time: 2 hrs.

PART – A

Marks: 35

INSTRUCTIONS:

- i) PART – A comprises of three Sections I, II, III.
- ii) All the questions are compulsory.
- iii) There is no overall choice. However, there is an internal choice to the questions under Section – III.

SECTION – I

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries ONE mark. 7 × 1 = 7
1. Determine the value of $5^3 \log_5 2 - 1$
2. Write any two sets A and B such that $A \cup B = A$.
3. If a, b and c are in Geometric Progression then comment on the roots of the quadratic equation $ax^2 + 2bx + c = 0$ ($a \neq 0$)
4. For what values of 't' the pair of linear equations $5x + 2y + 3 = 0$, $15x + 6y + t = 0$ represent coincident lines.
5. Find the point of concurrence of the medians of a triangle whose vertices are A (2, 3), B (-1, 0) & C (4, -2).
6. Write the formula to find n^{th} term of an Arithmetic Progression and explain the terms.
7. Write a quadratic polynomial that has two terms and no real zeros.

SECTION - II

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries TWO marks. $6 \times 2 = 12$
- 8. Find the L.C.M. and H.C.F. of 12, 18, 102 by prime factorization method.
- 9. Can 19 cm and 8 cm be the dimensions of a rectangle whose perimeter is 54 cm and whose length is 3 more than twice its breadth. Explain.
- 10. Show that the points P (-8, 0), Q (0, 0) and R (8, 0) are collinear.
- 11. Find two consecutive odd positive integers, sum of whose squares is 394.
- 12. Write a quadratic polynomial with $\frac{2}{3}$ and 2 as its zeros.
- 13. Which term of the Arithmetic Progression 3, 8, 13, 18... is 128.

SECTION - III

INSTRUCTIONS:

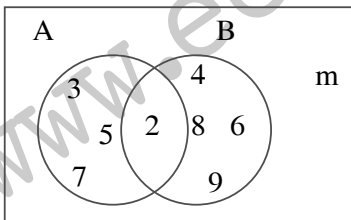
- i) Answer ALL the questions.
- ii) Each question carries FOUR marks.
- iii) Each question has Internal Choice. $4 \times 4 = 16$
- 14. A) Prove that $\sqrt{5} + 3\sqrt{7}$ is an Irrational number
(OR)
B) A = {x / x is the zero of the polynomial $x^2 - 5x + 6$ }
B = {x / x is a factor of 42}
Find (i) $A \cup B$ (ii) $A \cap B$ (iii) $A - B$ (iv) $B - A$
- 15. A) Draw the graph of the polynomial $p(x) = 2x^2 - 7x + 6$ and find its zeros from the graph.
(OR)
B) Draw the graph of pair of linear equations in two variables $2x + y = 5$ and $3x - 2y = 4$ and find their solutions from the graph.
- 16. A) Find the coordinates of the points of trisection of the line segment joining the points (-5, 0) and (2, -3)
(OR)
B) Solve the Quadratic equation $9x^2 - 9x + 2 = 0$ by the method of completing the square.
- 17. A) "The diagonals of the Quadrilateral ABCD where A (-1, 1), B (2, 1), C (2, -2) and D (-1, -2) divides it into four congruent triangles". Do you agree? Justify.
(OR)
B) There are 49 cards numbered in serial order from 1 to 49 placed on a table in the same order Shriya has to pick a card such that the sum of the numbers on all the cards preceding it must be equal to the sum of the numbers on all the cards following it. Find the number on the card she has to pick.

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries $\frac{1}{2}$ Mark.
- iii) Answers are to be written in question paper only.
- iv) Marks will not be awarded in any case of over writing and rewriting or erased answers.
- v) Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them.

$$10 \times \frac{1}{2} = 5$$

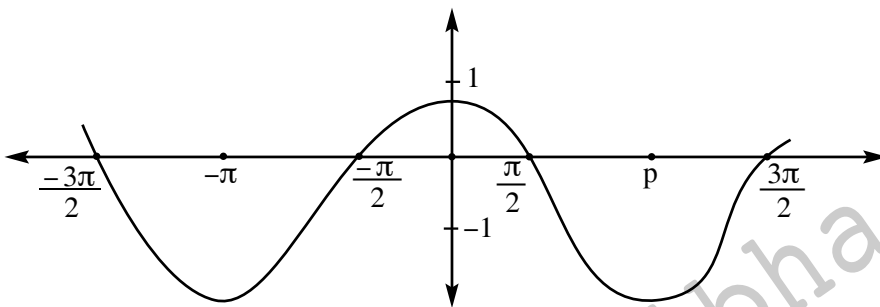
1. Common ratio of the G.P. $\sqrt{3}, 3, 3\sqrt{3}, 9, \dots$ is ()
 A) 3 B) $\sqrt{3}$ C) $3\sqrt{3}$ D) 9
2. $\log_2 128 =$ ()
 A) 2 B) 7 C) 128 D) 11
3. From the venn diagram,



, $A - B =$ ()

- A) {3, 5, 7} B) {2, 3, 5, 7} C) {2} D) {4, 6, 8, 9}
4. The roster form of the set $A = \left\{ x / x = \frac{1}{y^2}, y \in \mathbb{N}, y < 5 \right\}$ ()
 A) $A = \{1, 2, 3, 4\}$ B) $A = \{1, 4, 9, 16\}$
 C) $A = \left\{ 1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16} \right\}$ D) $A = \left\{ 1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25} \right\}$
5. If α and β are the zeros of the polynomial $bx^2 + ax + c$ then the polynomial with $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ as its zeros ()
 A) $ax^2 + bx + c$ B) $cx^2 + ax + b$ C) $ax^2 + cx + b$ D) $cx^2 + bx + a$
6. Two angles are complementary. If one angle is 30° more than the second angle, the angles are ()
 A) $105^\circ, 75^\circ$ B) $60^\circ, 30^\circ$ C) $50^\circ, 40^\circ$ D) $100^\circ, 80^\circ$
7. An equation that is not Quadratic from the following is ()
 A) $x^2 + \frac{1}{x^2} = 1$ B) $x^2 + 2x + 1 = 0$ C) $x^2 - 5 = 4$ D) $x^2 = 5$
8. Finite Arithmetic Progression from the following ()
 A) 5, 8, 11, 14 B) 4, 6, 8, 10 C) 3, 6, 9, 12,....., 30 D) 1, 2, 4, 8,, 128

9. The number of zeros of the polynomial $p(x)$, $x \in \left[\frac{-3\pi}{2}, \frac{3\pi}{2} \right]$ from the graph ()



- A) 2 B) 3 C) 4 D) 5
10. The slope of the line passing through the points $(5, -2)$ and $(0, -3)$ ()
- A) $\frac{1}{5}$ B) 5 C) $-\frac{1}{5}$ D) - 5

PART - B ANSWERS

1-B; 2-B; 3-A; 4-C; 5-B; 6-B; 7-A; 8-C; 9-C; 10-A.