TENTH CLASS MODEL PAPER (TG)

SUMMATIVE ASSESSMENT - 1 (2025-26)

Mathematics (English Version)

Time: 3 Hrs. 30 Min. **Part – A and B** **Max.Marks: 80**

Instructions: 1) Answer all the questions under Part–A on separate answer book.

2) 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. 30 Min. **Part – A** **Max.Marks: 60**

SECTION – I

Note: i) Answer All the questions.

ii) Each question carries 2 marks. **$6 \times 2 = 12$**

1. Solve If $log_5 3125 = x$, $log_4 256 = y$ then find $x + y$?

2. Swarna said that, there are 16 subsets having set A = {a, b, c, d}. Do you agree with her statement? Justify.

3. If α, β, γ are the zero's of cubic polynomial $3x^3 + 5x^2 - 6x + 7$. Then find the product of their zero's.

4. If $\Delta ABC \sim \Delta DEF$, BC = 4 cm, EF = 3 cm and Area of $\Delta ABC = 36\ cm^2$ then find ΔDEF?

5. Write the mean and median of first 7 prime numbers.

6. Show that $\frac{\sin^2 A}{1 + \cos A} = 1 - \cos A$.

SECTION – II

Note: i) Answer All the questions.

ii) Each question carries 4 marks. **$6 \times 4 = 24$**

7. Write the formula mode for grouped data and explain each terms in it.

8. Prove that $\sqrt{7} - \sqrt{5}$ is irrational.

9. If $A = \{x/x \in N, x < 10\}$, $B = \{x/x \in$ factors of $10\}$. Then show that $n(A \cup B) + n(A \cap B) = n(A) + n(B)$.

10. Solve the given pair of linear equations using elimination method.

$5x + 7y = 50$, $7x + 5y = 46$

11. Divide $4x^3 + 7x^2 + 8x - 10$ by $x^2 + x - 5$.

12. Show that $\frac{1 + \cot^2 A}{\tan^2 A + 1} = \cot^2 A$.

SECTION – III

Note: i) Answer All the questions.

ii) Each question carries 6 marks. **4 × 6 = 24**

13. Construct a ΔABC, AB = 5 cm, BC = 4 cm, AC = 4 cm. Construct another triangle similar to ΔABC with its sides equal to $\frac{2}{5}$ of corresponding sides of ΔABC.

14. Draw the graph of $x^2 - 3x - 10$ and find its zeros.

15. Two men on either side of a cell tower of 25 meter hight. Observe its top at the angles of elevation 45°, 60° respectively. Find the distance between the two men.

16. Find the median of the following frequency distribution table.

CI	1–7	7–13	13–19	19–25	25–32	32–38
F	3	5	7	10	2	3

17. A mathematics book has a total of 396 pages. It is broken up into two parts. The second part of the book has 64 pages more than the first part. How many pages are in each part of the book?

18. If $(3.5)^x = (0.35)^y = 10{,}000$, then find the value of $\frac{1}{x} - \frac{1}{y}$.

Time: 30 Min. **Part – B** **Max.Marks: 20**

Note: i) Answer All the questions.

ii) Each question carries 1 mark.

iii) Answers are to be written in the question paper only.

iv) Write the capital letters (A/ B/ C/ D) showing the correct answer for the following questions in the brackets provided against them.

v) Marks will not be awarded in case of rewriting, over writing. **20 × 1 = 20**

1. Which of the following is false? ( )

1) $\log_a a = 1$ 2) $\log_a 1 = 0$

3) $\log_a x^m = m.\log_a x$ 4) $\log_a xy = \log_a x.\log_a y$

2. LCM of 12 and 18 is 36 then HCF is ( )

1) 4 2) 6 3) 9 4) 12

3. If $A = \{x : x = n^3 + 1, n \in N, n < 3\}$, then its Roster form ( )

1) {2, 9, 28} 2) {1, 9, 28} 3) {2, 9} 4) {1, 9}

4. If $P(x) = x^2 + 2x - 3$ then $P(O) + P(-1) =$ ( )

1) -7 2) 7 3) 6 4) -6

5. Sum of the zero's of $3x^2 - 5x + 6$ is ( )

1) $\frac{-5}{3}$ 2) $\frac{5}{3}$ 3) 2 4) -2

6. $a_1x + b_1y + c_1 = 0$, $a_2x + b_2y + c_2 = 0$ lines are parallel. Then lines are ( )

1) Coincident 2) Consistent 3) Inconsistent 4) Independent

7. In a Rhombus of side 5 cm, one of the diagonals is 6 cm long. Then length of the second diagonal is ( )

1) 6 cm 2) 8 cm 3) 10 cm 4) 11 cm

8. In a right triangle, the square of one side in equal to the sum of the squares of the other two sides' It is a ( )

1) Basic proportionality theorem

2) Pythagorean theorem

3) Thales converse theorem

4) Pythagorean converse theorem

9. If $\tan A = \frac{3}{5}$ then $\cot A =$ ( )

1) $\frac{4}{5}$ 2) $\frac{3}{5}$ 3) $\frac{5}{3}$ 4) $\frac{2}{5}$

10. $\frac{2\tan 30°}{1 + \tan^2 45°} =$ ( )

1) $\frac{2}{\sqrt{3}}$ 2) $\frac{\sqrt{3}}{2}$ 3) $\frac{1}{\sqrt{3}}$ 4) $\sqrt{3}$

11. If $4\ log\ (x + 3) = log\ 81$, then the value of x is ( )

1) 0 2) 1 3) 3 4) 78

12. 7 is deleted from the data 3, 7, 8, 10, 11, 12 then the median increases by ( )

1) 1.5 2) 0.5 3) 1 4) 2

13. The mode of the values of sin90°, cos90°, tan45°, sec60°, cosec90° is ( )

1) 0 2) 1 3) 2 4) $\sqrt{2}$

14. $\frac{1}{\cos^2 A} - \frac{\sin^2 A}{\cos^2 A} =$ ( )

1) 1 2) $\sin^2 A$ 3) 0 4) $\cos^2 A$

15. At a particular instance, if the length of the shadow of tower of height is 10m, $\frac{10}{\sqrt{3}}$ m, then the angle made by sun's rays with the ground at that time is ( )

1) 30° 2) 45° 3) 60° 4) 90°

16. Which of the following is not true? ( )

1) $\cos\theta = \sqrt{1 - \sin^2\theta}$ 2) $\sin\theta \times \operatorname{cosec}\theta = 1$

3) $\sec\theta \times \cos\theta = 1$ 4) $\sin^2\theta - \cos^2\theta = 1$

17. $\Delta ABC \sim \Delta PQR$, $\angle Q + \angle R = 125°$ then $\angle A =$ ( )

1) 55° 2) 155° 3) 125° 4) 65°

18. If $2x + 3y = 5$ and $4x + py = 10$ has infinite solutions then P = ( )

1) 3 2) 4 3) 6 4) 8

19. The coefficient of x^3 in the polynomial $3x^5 + 4x^4 - 3x^3 + x^2 + x + 1$ is ( )

1) 3 2) 4 3) 5 4) –3

20. If set A and B are disjoint sets and n(A) = 4, n(B) = 3 then $n(A \cup B) =$ ( )

1) 7 2) 4 3) 3 4) 1