

BOARD OF SECONDARY EDUCATION (TELANGANA)
SUMMATIVE ASSESSMENT – I
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) Answer 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. Find the value of $\log_{\frac{4}{3}} \left(\frac{256}{625} \right)$.
2. If $A = \{0, 2, 4\}$, $B = \{3, 4\}$ then find $n(A \cup B)$.
3. Is $7 \times 3 \times 2 + 3$ is composite number? Justify.
4. Write A & B sets, $A - B \neq B - A$.
5. Verify $\frac{1}{2}$ is zero of polynomial $x^2 - x + \frac{1}{4}$.
6. Sum of the zero's = 4, product of the zero's is 3, write quadratic polynomial.
7. Rajitha told that $x^2 + \frac{1}{x} + 1$ is not a polynomial? Justify.

SECTION - II

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries TWO marks. 6 × 2 = 12
- 8. Find the L.C.M. & G.C.D. of 10, 15 and 25 by using prime factors product method.
- 9. If $\log x = 2 \log 5 + \frac{1}{3} \log 27 - \log 3$ then find \sqrt{x} .
- 10. If $A = \{x/x \in \mathbb{N}, 4 \leq x \leq 8\}$, $B = \{x/x \in \mathbb{N}, x \leq 6\}$ then find $A \cap B$.
- 11. If α, β, γ are the zero's of $x^3 - 5x^2 - 2x + 24$ then find the values of $\alpha + \beta + \gamma$ & $\alpha\beta\gamma$.
- 12. Write 2 examples of polynomial which is having only one zero.
- 13. If $A = \{x/x \in \text{primes}, x < 10\}$, $B = \{x/x \in \text{primes}, x < 30\}$, find $A \cup B$ and $A \cap B$.

SECTION - III

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries FOUR marks.
- iii) Each question has Internal Choice. 4 × 4 = 16
- 14. a) Prove that $\sqrt{3} - \sqrt{2}$ is irrational number. Is $(\sqrt{3} + \sqrt{2})(\sqrt{3} + \sqrt{2})$ is Rational or Irrational number?
(OR)
b) If $x^2 + y^2 = 34xy$ then show that $2 \log(x + y) = 2(\log 3 + \log 2) + \log x + \log y$.
- 15. a) If $A = \{x : x \in \mathbb{N}, x < 10\}$, $B = \{x: x \in \text{prime}, x < 10\}$, $C = \{x: x \in \text{even number}, x < 10\}$, $D = \{x: x \in \text{prime number}, x < 10\}$ find i) $A - C$ ii) $A - B$ iii) $B - C$ iv) which are the disjoint sets
(OR)
b) α, β are the zero's of $5x^2 - 7x + 1$, then find $\frac{1}{\alpha} + \frac{1}{\beta} - \alpha\beta$
- 16. a) Draw the graph of $p(x) = x^2 + x - 12$ and find zero's.
(OR)
b) Draw the Venn diagrams of
i) $A \cup B$ ii) $A \cap B = \phi$ iii) $A - B$ iv) $B - A$
- 17. a) $-8 + 7x - 2x^2 + 14x^3 + 8x^4$ is divided by $4x^2 + 3x - 2$ remainder is $ax + b$, then find a, b.
(OR)
b) Write 2 examples of $p(x), g(x)$ if $p(x) = g(x) \times q(x) + r(x)$ & $r(x) = 0$

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 any 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.

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

18. $13915 = 5 \times 11^n \times 23$ then n = ()
 A) 1 B) 2 C) 3 D) 4
19. If $A \subset B$ then $A \cup B =$ ()
 A) A B) ϕ C) B D) None
20. ${}_2 \log_2 5 =$ ()
 A) 2 B) 25 C) 1 D) 5
21. If $n(A) = 3$, $n(B) = 4$ & $A \subset B$ then $n(A \cup B) =$ ()
 A) 4 B) 3 C) 7 D) 12
22. 0.10110111011110..... is a ()
 A) Rational number B) Whole number
 C) Irrational number D) Natural number
23. Which of the following is correct? ()
 i) $N \subseteq Z \subseteq Q$ ii) $Q \not\subseteq R$ iii) $N \not\subseteq Q$
 A) i, ii B) i, iii C) ii, iii D) ii
24. Sum of the factors of a polynomial $3x^3 + 5x^2 - 6x + 2$ is ()
 A) 10 B) 16 C) 4 D) 6
25. Zero's of a polynomial $p(x) = (x + 2)(x + 3)$ is ()
 A) 2, 3 B) 2, -3 C) -2, 3 D) -2, -3
26. If $3x^3 + 3x^2 + 6x$ is divided by $3x$ then remainder is ()
 A) 1 B) 0 C) $x^2 + x + 2$ D) None
27. α, β, γ are the zero's of a cubic polynomial $x^3 + 5x^2 + 4$ then $\alpha\beta + \beta\gamma + \gamma\alpha =$ ()
 A) 0 B) 5 C) 4 D) 1

PART – B

ANSWERS

18-B; 19-C; 20-D; 21-A; 22-C; 23-B; 24-C; 25-D; 26-B; 27-A.

Writer: P. Venugopal