

BOARD OF SECONDARY EDUCATION (AP)
SUMMATIVE ASSESSMENT – II
TENTH CLASS MATHEMATICS MODEL PAPER - 2018
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 a 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: 30

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. 4 × 1 = 4
1. Write $5 \log 2 + 2 \log 3$ as a single logarithm.
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. The radius of the base of a right circular cone is 3 cm and its slant height is 14 cm. Find its lateral surface Area.

SECTION – II

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries TWO marks. 5 × 2 = 10
5. Find the L.C.M and H.C.F of 12, 18, 102 by prime factorization method.
6. Show that 19 cm and 8 cm are the dimensions of a rectangle whose perimeter is 54 cm and whose length is 3 more than twice its breadth.
7. Write a quadratic polynomial with $\frac{2}{3}$ and 2 as its zeros.

8. Which term of the Arithmetic Progression 3, 8, 13, 18..... is 128.
9. For what values of 't' the pair of linear equation $5x + 2y + 3 = 0$ and $15x + 6y + t = 0$ represent coincident lines.

SECTION - III

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries FOUR marks.
- iii) Each question has Internal Choice.

4 × 4 = 16

10. A) Prove that $\sqrt{5} + 3\sqrt{7}$ is an Irrational number
(or)
B) $A = \{x/x \text{ is the zero of the polynomial } x^2 - 5x + 6\}$
 $B = \{x/x \text{ is a factor of } 42\}$
Find i) $A \cup B$ ii) $A \cap B$ iii) $A - B$ iv) $B - A$
11. 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 equation in two variables and find their solutions from the graph
 $2x + y = 5$ and $3x - 2y = 4$
12. A) 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 number 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.
(or)
B) Solve the following pair of equation by converting them as pair of Linear equation
$$\frac{x + y}{xy} = 2 \text{ and } \frac{x - y}{xy} = 6$$
13. A) A container which is right circular cylinder in shape has 12 cm as its diameter and 15 cm height is filled with ice cream. This ice cream is to be filled into cones of height 12 cm and diameter 6 cm with a hemispherical shape on the top. Find the number of such cones that can be filled with ice cream.
(or)
B) A cottage industry produces certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article (in rupees) was 3 more than twice the number of articles produced on that day. If the total cost of production on that day was Rs.90, find the number of articles produced and the cost of each article.

INSTRUCTIONS:

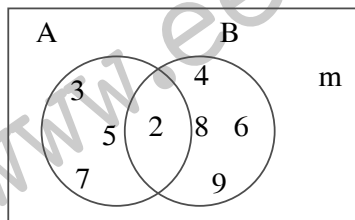
- i) Answer ALL the questions.
- ii) Each question carries $\frac{1}{2}$ Mark.
- iii) Answers are to be written in question paper only.
- iv) Marks will not be awarded in any case of over writing and rewriting or erased answers.
- v) Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for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

$$20 \times \frac{1}{2} = 10$$

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 ()

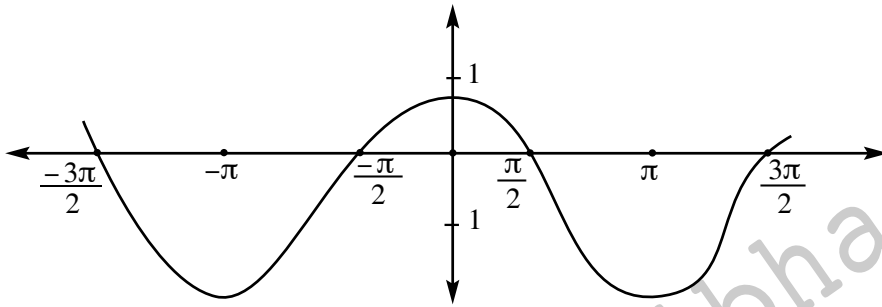
A) 5, 8, 11, 14, ...

B) 4, 6, 8, 10, ...

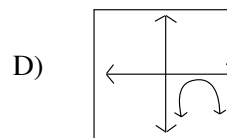
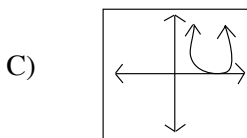
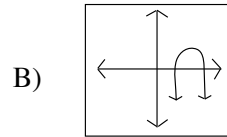
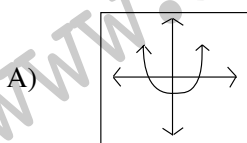
C) 3, 6, 9, 12, ..., 30

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 volume of a cube made of lead is 4096 cm^3 . It is melted and made into cylindrical shape of volume 8 cm^3 . The number of cylindrical objects are ()
- A) 500 B) 512 C) 1020 D) 1024
11. Total surface area of a hemisphere ()
- A) $2\pi r^2$ B) $3\pi r^2$ C) $\frac{2}{3} \pi r^3$ D) $\frac{4}{3} \pi r^3$
12. In the prime factorization of a number is $2^3 \times 5^2 \times 7 \times 11$. The number of consecutive zeros at the end of the number is ()
- A) 1 B) 2 C) 3 D) 4
13. Null set from the following ()
- A) $\{x/x \text{ is a prime factor of } 125\}$
 B) $\{x/x \text{ is the multiple of } 5\}$
 C) $\{x/x \text{ is a prime less than } 2\}$
 D) $\{x/x \text{ is a composite number greater than } 2\}$
14. The degree of the polynomial $\sqrt{2}x^5 - 3x^2 + 6$ is ()
- A) $\sqrt{2}$ B) 5 C) 2 D) 6
15. The pair of equation $3x - 2y = 6$ and $9x - 6y = 8$ has ()
- A) Unique solution B) No solution
 C) Many solutions D) Finite number of solutions
16. The Sum of n terms of an A.P. is $S_n = n(4n + 1)$ then its third term is ()
- A) 39 B) 13 C) 21 D) 93
17. If the roots of the quadratic equation $ax^2 + bx + c = 0$ ($a \neq 0$) are equal, then its graph is represented by ()



18. The sum of the roots of quadratic equation $3x^2 + \sqrt{3}x - 6 = 0$ is ()

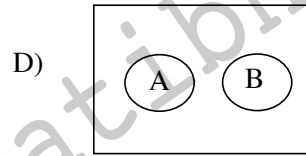
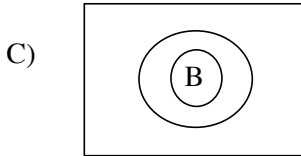
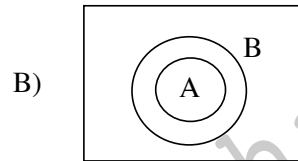
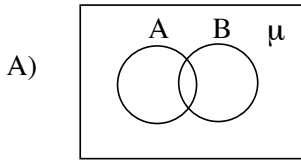
A) $-\sqrt{3}$

B) $\sqrt{3}$

C) $-\frac{1}{\sqrt{3}}$

D) $\frac{1}{\sqrt{3}}$

19. The Venn diagram that represents disjoint sets ()



20. $\log_a xy =$ ()

A) $\log_a x \times \log_a y$

B) $\log_a x - \log_a y$

C) $y \log_a x$

D) $\log_a x + \log_a y$

PART - B ANSWERS

1-B; 2-B; 3-A; 4-C; 5-B; 6-B; 7-A; 8-C; 9-C; 10-B; 11-B; 12-B; 13-C; 14-B; 15-B; 16-C; 17-C; 18-C; 19-D; 20-D.