

AP BOARD SSC CLASS 10

MATHEMATICS PAPER 1 MODEL PAPER SET 1

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.
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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:

4x1=4

- i) Answer ALL the questions.
- ii) Each question carries ONE mark.

1. Expand $\log \frac{343}{125}$
2. Write a polynomial and create two questions of it.
3. By comparing the ratios $\frac{a_1}{a_2}, \frac{b_1}{b_2}, \frac{c_1}{c_2}$, find out whether the lines represented by the pair of linear equations $14x-4y+8=0$, $7x+6y-9=0$ intersect at a point, are parallel or are coincident.
4. Find the volume of right circular cone with radius 4 cm., and height 3.5 cm.

SECTION – II

Instructions:

5x2=10

- i) Answer ALL the questions.
- ii) Each question carries TWO marks.
5. Show that one and only one out of n , $n+2$ or $n+4$ is divisible by 3, where 'n' is any positive integer.
6. Write the following sets in other forms (Roster to Set builder form and vice versa)
 - (i) $A=\{2, 9, 28, 65, 126\}$
 - (ii) $C=\{x:x \text{ is a prime number less than } 20\}$
 - (iii) $B=\{2, 6, 12, 20, 30\}$
 - (iv) $D=\{x:x \text{ is a letter in the word 'Examination'}\}$

7. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial $g(x)$, the quotient and remainder were $x - 2$ and $-2x + 4$, respectively. Find $g(x)$.
8. Solve the given pair of equations using substitution method.
 $x - 7y = -42$ and $x - 3y = 6$
9. An oil drum is in the shape of a cylinder having the following dimensions; diameter is 2m. and height is 6m. The painter charges Rs.5 per sq.m. to paint the drum. Find the total charges to be paid to the painter for 10 drums.

SECTION – III

Instructions:

4x4=16

- i) Answer ALL the questions.
- ii) Each question carries FOUR marks.
- iii) There is an internal choice to the questions under this Section.

10 A. Prove that $\sqrt{p} + \sqrt{q}$ is irrational, where p, q are primes.

(OR)

10 B. If $A = \{4, 8, 12, 16, 20\}$, $B = \{5, 10, 15, 20\}$, then show that

- (i) $A \cup B = B \cup A$ (ii) $A \cap B = B \cap A$ (iii) $A - B \neq B - A$
 (iv) $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

11 A. Find the quadratic polynomial whose zeroes are the solution of the linear equations $2x + y - 5 = 0$ and $3x - 2y - 4 = 0$

(OR)

11 B. A boat goes 30 km. upstream and 44 km. downstream in 10 hours. In 13 hours it can go 40 km. upstream and 55 km. downstream. Determine the speed of the stream and that of the boat in still water.

12 A. The diameter of a metallic sphere is 6 cm. It is melted and drawn into a wire having diameter of the cross section as 0.2 cm. Find the length of the wire.

(OR)

12 B. A container shaped like a right circular cylinder having diameter 12 cm. and height 15 cm. is full of ice cream. The ice cream is to be filled into cones of height 12 cm. and diameter 6 cm. having a hemispherical shape on the top. Find the number of such cones which can be filled with ice cream.

13 A. Draw the graph of $p(x) = x^2 - 4x + 5$ and find the zeroes of the polynomial.

(OR)

13 B. In a garden there are some bees and flowers. If one bee sits on each flower then one bee will be left. If two bees sit on each flower, one flower will be left. Find the number of bees and number of flowers by using graph.

Time: 30 Minutes

PART - B

Marks: 10

INSTRUCTIONS:

20 x ½ = 10

- i) Answer ALL the questions.
- ii) Each question carries ½ 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.

SECTION – IV

14. The LCM of two numbers is 1200. Which of the following cannot be their HCF? []
1. 600 2. 500 3. 400 4. 200
15. The decimal expansion of the rational number $\frac{14587}{1250}$ will terminate after ____ decimal places []
1. 1 2. 2 3. 3 4. 4
16. If 'n' is a natural number, then $9^{2n} - 4^{2n}$ is always divisible by []
1. 5 2. 13 3. Both 5 & 13 4. None of these
17. The sum of the exponents of the prime factors in the prime factorization of 196, is []
1. 1 2. 2 3. 4 4. 6
18. If $A = \{x/x \in \mathbb{N}, 1 < x < 10\}$ then $n(A) =$ []
1. 3 2. 4 3. 8 4. 10
19. $A =$ set of zeroes of $x^2 + 3x + k$, $B =$ set of zeroes of $x^2 + 9x - 10$ and $A - B = \{2\}$ then $k =$ ____ []
1. 1 2. 2 3. 3 4. 4
20. A is the set of factors 12. Which of the following is not an element of A? []
1. 1 2. 4 3. 5 4. 12
21. Which of the following is not the cardinality of the set of its subsets? []
1. 2 2. 64 3. 1024 4. 44
22. If the sum of the zeroes of the polynomial $p(x) = 2x^3 - 3kx^2 + 4x - 5$ is 6, then the value of 'k' is []
1. 2 2. 4 3. - 2 4. - 4
23. If the product of zeroes of the polynomial $p(x) = ax^3 - 6x^2 + 11x - 6$ is 4 then a is []
1. $\frac{3}{2}$ 2. $\frac{-3}{2}$ 3. $\frac{2}{3}$ 4. $\frac{-2}{3}$
24. If the product of two zeroes of the polynomial $p(x) = 2x^3 + 6x^2 - 4x + 9$ is 3, then its third zero is []
1. $\frac{3}{2}$ 2. $\frac{-3}{2}$ 3. $\frac{9}{2}$ 4. $\frac{-9}{2}$
25. What should be subtracted to the polynomial $x^2 - 16x + 30$, so that 15 is the zero of the resulting polynomial? []
1. 30 2. 14 3. 15 4. 16
26. The value of 'k' for which the system of equations $kx - y = 2$, $6x - 2y = 3$ has a unique solution, is []
1. = 3 2. $\neq 3$ 3. $\neq 0$ 4. = 0

27. The value of 'k' for which the system of equations $x+2y - 3 = 0$ and $5x + ky + 7 = 0$ has no solution, is []

1. 10 2. 6 3. 3 4. 1

28. The sum of the ages of father and his son in years is 65 and twice the difference of their ages is 50. Then age of the father in years []

1. 45 2. 40 3. 50 4. 55

29. The solution to $2x+3y - 6 = 0$ and $4x+6y - 12 = 0$ is []

1. (0,2) 2. (1,1) 3. (1,2) 4. (4,0)

30. The diagonals of a rhombus are 10 cm. and 24 cm., then the area is _____ cm^2 []

1. 200 2. 120 3. 240 4. 20

31. If the volume and L.S.A. of a cylinder are 154 cm^3 and 88 cm^2 , then the radius of the base is _____ cm. []

1. 1.75 2. 3.75 3. 3.5 4. 7

32. The radius of a sphere is 14 cm. Then its surface area is _____ cm^2 []

1. 2644 2. 2466 3. 4624 4. 2464

33. The surface area of a sphere and a cube are equal. Then the ratio of their volumes is []

1. $\sqrt{11}:\sqrt{21}$ 2. $\sqrt{31}:\sqrt{21}$ 3. $\sqrt{21}:\sqrt{11}$ 4. $\sqrt{21}:\sqrt{31}$

Part – B : Answers

14	15	16	17	18	19	20	21	22	23
2	4	1	3	3	2	3	4	2	1
24	25	26	27	28	29	30	31	32	33
2	3	2	1	1	1	2	3	4	3