

for Maths New Model paper for 10th class
July-2020 100 Marks

Time: 2:45 hours

Max: Marks 100

MATHEMATICS

K.V.S.S.M.S. Sarma
M.Sc, B.Ed

S.A(Maths)
Z.P. Boys High School
Annalapuram.

Instructions:

1. Answer all the questions in a separate answer booklet.
2. The question paper consists of 4 sections and 33 questions
3. There is a internal choice in Section - IV
4. Write answers neatly and legibly

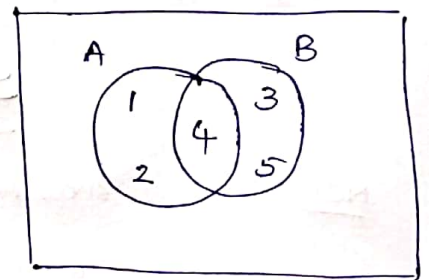
SECTION - I

12 x 1 = 12 Marks

Note:

1. Answer all the questions
2. Each question carries 1 mark.

1. What is the value of $\log_{\frac{2}{3}}\left(\frac{27}{8}\right)$?
2. Write a quadratic Equation with roots 4 and 3
3. Find $n(A \cup B)$ in the figure



4. What is the common difference of the progression $2, \frac{3}{2}, 1, \dots$?
5. Find the volume of a sphere of Radius 2.1 C.M.

6. If α, β are zeroes of $p(x) = x^2 - 5x + 6$ then find $\alpha + \beta - 3\alpha\beta$

7. The centre of a circle is at $(0,0)$ and a point on the circle is $(4,3)$. Find the length of the Radius of the circle.

8. Name of the quadrilateral, which satisfies both the conditions given below

Statement A: Diagonals are Equal

Statement B: All Sides are Equal

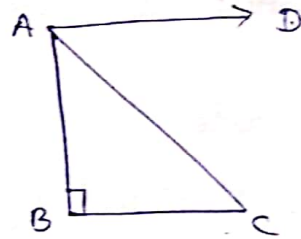
a, Rhombus b, parallelogram c, Rectangle d, Square

9. Find the value of $\operatorname{cosec} x - \frac{1}{\sin x}$ ($x \neq 0$)

10. One card is drawn from a well-shuffled deck of 52 cards. Find the probability that card will be an ace!

11. If the median of $x, \frac{x}{3}, \frac{x}{5}, \frac{x}{2}, \frac{x}{4}$ is 6, find 'x'

12. Name the 'angle of depression' from the figure given below in which $\angle B = 90^\circ$



Section - II

Note 1. Answer all questions $8 \times 2 = 16M$

2. each question carries 2 marks

13. Reduce the pair of Equations $\frac{2}{x} + \frac{3}{y} = 13$ and $\frac{5}{x} + \frac{4}{y} = -2$ ($x \neq 0, y \neq 0$) into a pair of Linear Equations in 2 variables a, b

14. $A = \{x \mid x \text{ is an even number less than } 10\}$
 $B = \{x \mid x \text{ is a prime number less than } 10\}$
Find $A \cap B$.

15. A cylinder and Cone have same bases of Equal Radii and are of Equal heights. Find their Volumes Ratio (3)

16. $\frac{1}{4}, \frac{1}{16}, \frac{1}{64}, \frac{1}{256}, \dots$ are in G.P? Justify

17. If $\tan 2A = \cot (A - 27^\circ)$ where $2A$ is acute angle. Find the value of A .

18. Verify that the points $(1, 2)$, $(-1, -1)$ and $(-3, -4)$ are collinear or not?

19. What do you mean by (1) mutually Exclusive events (2) impossible event?

20. Calculate the length of tangent from a point 15cm away from the centre of a circle of radius 9cm

Section - III

- Note
1. Answer all questions
 2. Each question carries 4 marks

$$8 \times 4 = 32\text{M}$$

21. P.T $3 + 2\sqrt{5}$ is irrational

22. Mary told her daughter, "Seven years ago, I was seven times as old as you were then. Also 3 years from now, I shall be 3 times as old as you will be." Find the present age of Mary and her daughter.

23. Find the roots of the equation $5x^2 - 6x - 2 = 0$ by the method of completing the square.

24. The 4th term of a Geometric progression is $\frac{2}{3}$ and the 7th term is $\frac{16}{81}$. Find the Geometric Series. (4)

25. Find the area of the triangle formed by the points by using Heron's Formula.

(1, 1) (1, 4) and (5, 1)

26. If $\cot \theta = \frac{7}{8}$ then find.

i, $\frac{(1+\sin \theta)(1-\sin \theta)}{(1+\cos \theta)(1-\cos \theta)}$ ii, $\frac{1+\cos \theta}{\sin \theta}$

27. State and prove Basic proportionality theorem.

28. The following table gives the literacy rate of 35 cities. Find the mean Literacy Rate.

Literacy Rate in %	45-55	55-65	65-75	75-85	85-95
Number of cities	3	10	11	8	3

Section - IV

5 × 8 = 40

Note 1. Answer all Questions

2. Each Question carries 8 marks

3. There is an internal choice for each question

29. $A = \{x \mid x \in \mathbb{N}, x < 10\}$ $B = \{x \mid x \text{ is a factor of } 10\}$

(a)

$C = \{1, 2, 3, \dots, 10\}$ then find 1, $A \cup B$ 2, $A \cap B$

3, $A - C$ (4) $B - C$

(OR)

(5) $A - (B \cup C)$ (6) $A - (B \cap C)$

29 b) A motor boat whose speed is 18 km/h in still water. it takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream. (5)

30 a) The sum of the 4th and 8th terms of an A.P. is 24 and the sum of the 6th and 10th terms is 44. Find the first 3 terms of the A.P.
(OR)

b) How many Silver coins 1.75 cm in diameter and thickness 2 mm , need to be melted to form a cuboid of dimensions $5.5 \text{ cm} \times 10 \text{ cm} \times 3.5 \text{ cm}$?

31 a) From the top of a building, the angle of elevation of the top of a cell tower is 60° and the angle of depression to its foot is 45° . If distance of the building from the tower is 7 m , then find the height of the tower.

OR

b) Find the co-ordinates of the points of trisection of the line segment joining the points $A(2, -2)$ and $B(-7, 4)$

32 (a) One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting

- | | |
|-------------------------|--------------------------|
| 1, a King of Red colour | 4, Ace of Spades |
| 2, a face card | 5, the Queen of diamonds |
| 3, Jack of hearts | 6, a Red face card. |

(b) A chord of a circle of Radius 10 cm subtends a Right angle $\text{\textcircled{6}}$
at the centre. Find the area of the corresponding
1. minor segment 2. major segment (Use $\frac{\pi}{4} = 3.14$)

33.

a) Draw the graph of the polynomial $p(x) = x^2 - x - 12$
and find zeroes, and verify.

(OR)

b) Construct an Isosceles triangle whose base is
8 cm and altitude is 4 cm then, Draw another triangle
whose sides are $1\frac{1}{2}$ times the corresponding sides
of the isosceles triangle.

prepared by.



(K.V.S.S.M.S. Sarma
M.Sc.B.Ed)

S.A (Maths)

Z.P. Boys High school
Amalapuram.