Dr.K.K.R GOWTHAM (E.M) HIGH SCHOOL :: GUDIVADA

Class : X – State **Marks : 50**

Sub : Mathematics *MODEL PAPER - II* **Time: 2 ½ hrs**

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Instructions:

1. There are four sections and 33 questions in the paper.
2. Answers should be written in a given answer booklet.
3. There is internal choice in Section-IV.
4. Write all the questions visible & legibly.
5. 15 minutes are given for reading the question paper and 2.30 hours given for answering questions.

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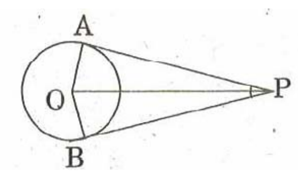
SECTION – A (12× ½ = 6M)

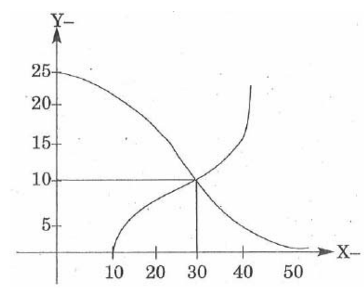
Note: 1. Answer all the question's

2. Each Question carries ½ Mark.

1. If $\Delta APB = 85^0$, then $\angle AOB$=?



2. 'O' is the centre of a circle having radius 6cm. 'P' is a point which is 6 cm. away from the centre of the circle. How many tangents can be drawn to the circle from P?
3. A boy who is standing at a distance of 20m from the foot of the pillar, is observing the top end of a pillar of height 20m. What is his angle of elevation?
4. Draw the table needed to find the Mean by 'Direct Method'?
5. What is the median from the following graph?



6. If in an random experiment E, $\overline{E}$ are respectively the complementary events, then which of the following is correct?

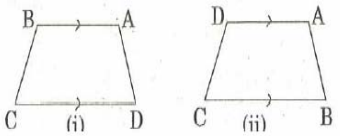
   A) $P(E) + P\left(\overline{E}\right) = 2$ B) $P(E) + P\left(\overline{E}\right) = 1$

7. Which of the following is not correct?

   i) $\sin(90-\theta) = \cos\theta$ ii) $\sin(90+\theta) = \cos\theta$

8. In ΔABC, if $\angle B = 90^0$ then $\sin A$ =?

9. In a trapezium ABCD, if $\overline{AD} \parallel \overline{BC}$ then the figure is shown as :



10. In ΔABC, $\overline{DE} \parallel BC$ if $\overline{AD}$ = 2cm , DE = 3cm, and AB = 6cm, then BC =?

11. If the line passing through P(x_1, y_1) , Q (x_2, y_2) makes an angle 'θ ' With the positive X – axis, then the slope of the line?

12. Find the distance between the points (0, 0) and (a, b)

SECTION – B (8× 1 = 8 M)

Note: 1. Answer all the Questions

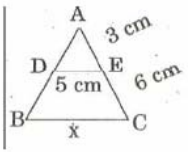
2. Each Question carries 1 Mark

13. Determine 'x' so that '2' is the slope of the line passing through P (2, 5) and Q (x, 3).

14. Navya and Rekha are playing chess game. It is known that the probability of Navya winning the match is 0.82. What is the probability of Rekha winning the match.

15. Express cosecθ in terms of tan θ

16. In the given figure, ΔABC ~ Δ ADE, then find the value of 'x '.



17. The mean for a grouped data is calculated by $\bar{x} = a + \dfrac{\sum f_i d_i}{\sum f_i}$ what do the terms 'f_i' and 'd_i' represent in the above formula?

18. If a tower of height 'h' is observed from a point with a distance 'd' and angle 'θ', then express the relation among h, d and θ.

19. If 3 tan A = 4 then find sinA.

20. Find the length of the tangent from a point, which is 9.1 cm away from the center of the circle, whose radius is 8.4cm.

SECTION – C (8× 2 = 16 M)

Note: 1. Answer all the Questions

2. Each Question carries 2 Mark.

21. Find the point on X – axis, which is equidistant from (2, -5) and (-2, 9) .

22. If a circle touches all the four sides of a quadrilateral ABCD at the points P, Q, R and S; then prove that AB + CD = BC + DA.

23. One card is drawn form a well – shuffled deck of cards. Find the probability of getting ….

    i) an ace ii) A red king

24. Write the formula for Median of a grouped data and explain each letter in it.

25. If tanA = $\frac{1}{\sqrt{3}}$ and tan B = $\sqrt{3}$, then find sinA. cosB + cosA. Sin B. (A, B < 90^0).

26. A boy observed the top of an electric pole at an angle of elevation of 60^0 when the observation point is 6 meters away from the foot of the pole. Find the height of pole?

27. Find the value = $\frac{\sec 15^0}{\operatorname{cosec} 75^0} + \frac{\sin 72^0}{\cos 18^0} - \frac{\tan 33^0}{\cot 57^0}$

28. Prove that if the areas of two similar triangles are equal, then they are congruent.

SECTION – D (5× 4 = 20 M)

Note: 1. Answer all the Questions

2. Each Question has internal choice.

3. Each Question carries 4 Marks.

29. a) Prove that a line drawn through the midpoint of one side of a triangle parallel to another side bisects the third side….

(Or)

b) Find the area of triangle formed by A (-5, -1), B (3, -5) and C (5, 3) also find the area of triangle formed by mid points each sides Δ ABC and ratio between the areas.

30. a) If tan x = $\frac{5}{12}$, then and the value of sec x and $\sqrt{\frac{\sec x + 1}{\sec x - 1}}$

(Or)

b) There is a tower beside the road, Rahim standing at the top of the tower observes two cars A and B on either side of the tower at an angle of depression 30^0 and 60^0 are proaching the foot of the tower with a uniform speed of 10m/s and 5m/s respectively. If the height of the tower is 100 $\sqrt{3}$ m, then find which car reaches the tower first and how many seconds the other car is late by the first one.

31. a) A bag contains 6 yellow balls and some green balls. The probability of getting a green ball is triple that of a yellow ball. Determine number of green balls in the bag and find the probability of each colour ball when a ball is drawn at time randomly.

(Or)

b) Find the coordinates of point divided a line segment join as A (6, 0) and B (0, -4) into four equal parts.

32. a) The following distribution gives the marks of 80 students in SA-2 of Mathematics. Draw ogive curve for the distribution.

Marks Scored	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	01	06	11	20	16	10	08	05

(Or)

b) Draw a circle of radius 6cm. From appoint 10cm away from its centre, construct the pair of tangents to the circle and measure their lengths. Verify by using Pythagoras Theorem.

33. a) A tower to height 'b' m has a flag staff on its top. The tower and the flag staff subtend equal angles at a point distant 'a' m from the foot of the tower. Then find length of the flag staff.

(Or)

b) If the median of 60 observations, given below is 28.5. Find the value of x and y.

C.I.	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	5	x	20	15	y	5