



B.M.K TUTORIALS, SHIMOGA

SSLC MID TERM EXAMINATION-MODEL PAPER - 3

Time : 3 hrs

Subject : Mathematics

Max. Marks = 80

I. Answer the following questions.**1 x 8 = 8**

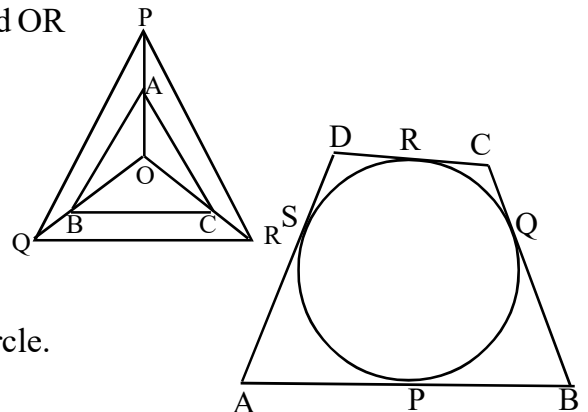
- 1) Write the formula to find sum to n-terms of an AP
- 2) State Converse of Pythagoras Theorem
- 3) Write the Standard form of Pairs of Linear Equations in two variables
- 4) Write the formula to find the perimeter of a circle
- 5) Write the formula to find the area of a sector
- 6) Write the formula to find the distance between two points $A(x_1, y_1)$ and $B(x_2, y_2)$
- 7) Express 156 as a product of prime factors
- 8) Angle in a semicircle is

II. Answer the following questions.**1 x 8 = 8**

- 9) Find the sum of all natural numbers from 1 to 25
- 10) In $\triangle ABC$, $\angle B = 90^\circ$ if $AB = 12\text{cm}$, $BC = 5\text{cm}$ Find AC
- 11) Solve $x + y = 5$ and $2x - 3y = 4$
- 12) is the biggest chord of the circle
- 13) Find the length of the arc a sector of a circle with radius 6cm if angle of the sector is 60°
- 14) Find the LCM of 12, 15 and 21
- 15) $\triangle ABC \sim \triangle DEF$ and their areas be respectively 64 cm^2 and 121 cm^2 . If $EF = 15.4\text{ cm}$. Find BC
- 16) The area of the triangle formed by the points (x_1, y_1) , (x_2, y_2) and (x_3, y_3) is

III. Answer the following questions.**2 x 8 = 16**

- 17) If the 3rd and 9th terms of an AP are 4 and -8 respectively, which term of this AP is Zero?
- 18) In the given Fig. A, B and C are points on OP, OQ and OR respectively such that $AB \parallel PQ$ and $AC \parallel PR$,
Show that $BC \parallel QR$.
- 19) The larger of two supplementary angles exceeds the smaller by 18 degrees. Find them.
- 20) A quadrilateral ABCD is drawn to circumscribe a circle.

Prove that $AB + CD = AD + BC$ 



21) The length of the minute hand of a clock is 14cm.

Find the area swept by the minute hand in 5 minutes

22) Draw a circle of radius 6cm. From a point 10cm away from its centre, Construct the pair of tangents to the circle.

23) Find the value of y for which the distance between the points P(2, -3) and Q(10, y) is 10 units

24) Use Euclid’s Algorithm to find HCF of 4052 and 12576

IV. Answer the following questions.

3 x 9 = 27

25) The sum of the 4th and 8th terms of an AP is 24 and the sum of 6th and 10th terms is 44. Find the first three terms of the AP?

OR

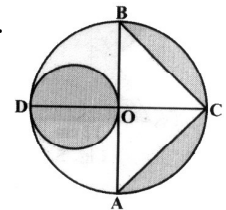
The first term of an AP is 5, the last term is 45 and the sum is 400. Find the number of terms and common difference?

26) A vertical pole of length 6 m casts a shadow 4 m long on the ground and at the same time a tower casts a shadow 28 m long. Find the height of the tower.

OR

If the areas of two similar triangles are equal. Prove that they are congruent.

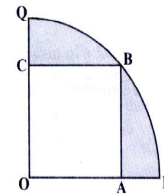
27) AB and CD are two diameters of a circle (with centre O) perpendicular to each other and OD is a diameter of the smaller circle. If OA = 7cm. Find the area of the shaded region.



OR

In the fig. a square OABC is inscribed in a quadrant OPBQ.

If OA = 20 cm find the area of the shaded region



28) Prove that “ The tangent at any point of a circle is perpendicular to the radius through the point of contact”

29) Five years hence, the age of Jacob will be three times that of his son. five years ago, Jacob’s age was seven times that of his son. What are their present ages?

30) Draw a right triangle in which the sides (other than hypotenuse) are of length 4cm and 3cm

Then construct another triangle whose sides are $\frac{5}{3}$ times the corresponding sides of the given triangle

31) Find the ratio in which line segment joining A (1, -5) and B (-4, 5) is divided by the x-axis.

Also, find the coordinates of the point of division.

- 32) ABC is an Isosceles right angled at C Prove that $AB^2 = 2AC^2$
- 33) If the sum of first 7 terms of an AP is 49 and that of 17 terms is 289. Find the sum of first n terms.

V. Answer the following

4 x 4 = 16

- 34) Draw a triangle ABC with Sides $BC = 6\text{cm}$, $AB = 5\text{cm}$, $AC = 5\text{cm}$ $\angle ABC = 60^\circ$, Then construct a triangle whose sides are $\frac{3}{4}$ times the corresponding sides of triangle ABC
- 35) 5 pencils and 7 pens together cost Rs. 50 whereas 7 pencils and 5 pens together cost Rs. 46. Find the cost of one pencil and that of one pen. Graphically
- 36) 200 logs are stacked in the following manner : 20 logs in the bottom row, 19 in the next row, 18 in the row next to it and so on. In how many rows are the 200 logs placed and how many logs are in the top row.?

OR

A man takes a loan of Rs. 1000 & agrees to repay with a total interest of 140. in 12 instalment. each instalment being less than the immediately preceding one by Rs. 10. What should be the first instalment?

- 37) Prove that "If one angle of a triangle is equal to one angle of the other triangle and the sides including these angles are proportional then the two triangles are similar."

OR

Prove that the area of an equilateral triangle described on one side of a square is equal to half the area of equilateral triangle described on one of its diagonals.

VI. Answer the following

5 x 1 = 5

- 38) Prove that "In a right angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides"