

TIME: 3 hrs

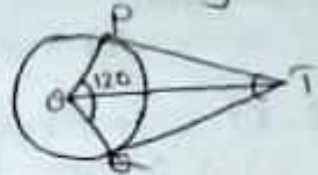
I Four alternative are given to each question choose appropriate answer, write it along its alphabet. 8x1=8

1) If 'a' is the first term, and 'l' is the last term of the A.P, then sum of first 'n' terms is

- a) $\frac{n}{2}(a+l)$ b) $\frac{n}{2}(a-l)$ c) $n(a+l)$ d) $a(n+1)$

2) 'O' is the center of the circle, TP & TE are tangent to the circle if $\angle POA = 120^\circ$ then $\angle PTE =$ _____

- a) 50° b) 60° c) 120° d) 80°



3) The distance between the origin & the point $(-a, -b)$ is

- a) 1 b) $\sqrt{-a^2+b^2}$ c) $\sqrt{a^2-b^2}$ d) $\sqrt{a^2+b^2}$

4) Area of concentric circle of radii R & r is

- a) $\pi(R^2-r^2)$ b) $\pi(R^2+r^2)$ c) infinity d) No solution

5) The HCF of 20 & 8 is 4 then the LCM of them is

- a) 40 b) 20 c) 16 d) 18

6) The pair of equation $x+2y=3$ & $5x+10y=-1$ has _____ solu

- a) one b) Two c) infinity d) No solution

7) The ratio of the corresponding sides of two similar triangle is 4:9 then the ratio of (area) of these two triangle's is

- a) 2:3 b) 4:9 c) 81:16 d) 16:81

8) Area of the sector of a circle of radius 'r' with angle θ is _____

- a) $\frac{2r^2\theta}{180}$ b) $\frac{2r^2\theta}{360}$ c) $\frac{\pi r^2\theta}{360}$ d) $\frac{\pi r^2\theta}{180}$

II Answer the following

8x1=8

Q) find area of sector of circle with radius 7cm and angle of angle sector 60° .

10. Express 140 as a product of its prime factors.
11. In an A.P if $a_3 = 7$ and $d = 6$ then write the value of first term 'a'?
12. The length of a tangent from a point A at distance 5cm from the center of the circle 4cm. find radius of circle.
13. In figure $MN \parallel AB$ $BC = 7.5$ cm, $AM = 4$ cm & $MC = 2$ cm find BN

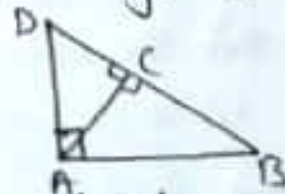


14. Write whether the following pair of equations is consistent or not. $x + y = 14$ & $x - y = 4$
15. If $(2, P)$ is midpoint of the line segment joining the points $(6, -5)$ & $(-2, 11)$ find value of P.
16. The distance of the point $(-3, 4)$ from x-axis _____

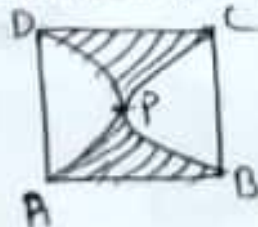
III Answer the following

8x2=16

17. Prove that $5 - \sqrt{3}$ is irrational
18. find the relation b/w x & y such that the point (x, y) is equidistant from the points $(-1, 1)$ & $(3, 5)$
19. The 4th term of an AP is zero. Prove that 9th term of A.P is three times its 11th term.
20. In figure $\triangle ABD$ is right angle triangle at A & $AC \perp BD$ prove that $AB^2 = BC \times BD$



21. In figure ABCD is a square of side 14cm and APD & BPC are semicircles. find area of shaded region.



- 22) Draw a circle of radius 4cm . Draw two tangents to the circle inclined at an angle of 60° to each other.
- 23) Five years ago, Sagar was twice as old as Tiru. Ten years Sagar's age will be ten years more than Tiru's age. Find their present age.
- 24) For what value of K , the following pair of linear equations have no solution?
 $2x + 3y = 9$, $6x + (K-2)y = (3K-2)$.

III Answer the following $9 \times 3 = 27$

- 25) The sum of numerator and denominator of a fraction is 3 less than twice the denominator. If each of the numerator and denominator is decreased by one, the fraction becomes $\frac{1}{2}$. Find the fraction.

(OR)

The sum of two numbers is 8. Determine the numbers if the sum of their reciprocals is $\frac{8}{15}$.

- 26) The sum of first six terms of an A.P is 42. The ratio of its 10th term to its 30th term is $1:3$. Calculate the 1st and thirteenth term of the A.P.
- 27) In figure $PA = 24\text{cm}$ $RP = 7\text{cm}$ and O is the center of the circle. Find the area of shaded region.



- 28) Prove that the lengths of two tangents drawn from an external point to a circle are equal.

(OR)

Prove that the tangent at any point of a circle is perpendicular to the radius through point of contact.

- 29) Construct a triangle ABC with sides 4cm , 5cm & 6cm and then another triangle whose sides are $\frac{5}{3}$ of the corresponding sides of the first triangle.

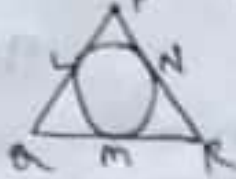
THREE QUESTIONS

30) Find the value of k if the points $P(5,4)$, $Q(7,k)$ & $R(9,-2)$ are collinear.

(OR)
Find the coordinates of the points of trisection of the line segment joining the points $(3,-2)$ & $(-3,-4)$

31) Prove that $\sqrt{5}$ is ir-rational.

32) In fig. a circle is inscribed in a $\triangle PQR$ with $PQ=10\text{cm}$, $QR=8\text{cm}$, $PR=12\text{cm}$, find the length of QM , RN & PL .



33) BL & CM are medians of $\triangle ABC$ right angle at A
prove that $4[BL^2 + CM^2] = 5BC^2$

(OR)

In rectangle $wxyz$ $xy + yz = 17\text{cm}$ & $x^2 + y^2 = 26\text{cm}$ calculate the length and breadth of the rectangle.

IV Answer the followings

$$4 \times 4 = 16$$

34) If $1 + 4 + 7 + 10 + \dots + x = 287$ find value of x .

(OR)

In an AP if the 6th and 13th terms are 35 and 70 respectively find the sum of its first 10 terms.

35) State and prove thales' theorem.

36) find the area of the quadrilateral whose vertices taken in a order $(-5,-3)$, $(-4,-6)$, $(2,-1)$ & $(1,2)$

37) A boat goes 30km upstream & 44km down stream in 10 hours
in 13 hours it can goes 40km upstream & 55 km down stream
determine speed of the stream & speed of boat in still water

V Answer the following

$$1 \times 5 = 5$$

38) solve graphically & mathematically $2x + y = 10$ & $2x - y = 2$

