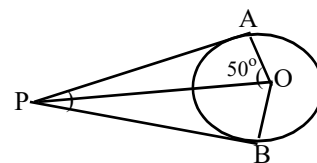


I. In the following questions, four choices are given for each questions, choose and write the correct answer along with its alphabet. **8x1=8**

1. The sum of first 'n' odd natural numbers
 (A) n^2 (B) $n(n-1)$ (C) $n(n+1)$ (D) $\frac{n(n+1)}{2}$
2. In $\triangle ABC$ if $AC^2=AB^2+BC^2$, then $\angle ABC =$
 (A) 45° (B) 60° (C) 90° (D) 120°
3. The pair of linear equations $4x+py+8=0$ and $2x+2y+2=0$ has one(unique) solution. Then the value of 'p' is
 (A) $p = 4$ (B) $p \neq 4$ (C) $p \neq -4$ (D) $p = -4$
4. Sides of two similar triangles are in the ratio 4:9. Areas of these triangles are in the ratio
 (A) 2:3 (B) 4:9 (C) 81:16 (D) 16:81
5. The straight line which touches the circle at one and only one point
 (A) secant (B) tangent (C) radius (D) chord
6. Length of an arc of a sector of a circle of radius 'r' and angle is ' θ '
 (A) $\frac{\theta}{360^\circ} \times \pi r^2$ (B) $\frac{\theta}{360^\circ} \times 2 \pi r^2$ (C) $\frac{\theta}{180^\circ} \times 2\pi r$ (D) $\frac{\theta}{360^\circ} \times 2\pi r$
7. The distance of a point P(x,y) from the origin O(o,o) is
 (A) $\sqrt{x^2-y^2}$ (B) $\sqrt{(x-y)^2}$ (C) $\sqrt{x^2+y^2}$ (D) $\sqrt{(x+y)^2}$
8. If q is an any positive integer, then $2q+1$ is always
 (A) positive even integer (B) positive odd integer
 (C) prime number (D) square number

II. Answer the following . **8x1=8**

9. Write the common difference of an A.P, whose n^{th} term is, $a_n=3n+7$.
10. State Thales theorem.
11. Write the number of solution/s for the pair of linear equations $2x+3y+5=0$ and $x+4y=8$.
12. In the figure, AP and BP are tangents drawn from an external point P to a circle with centre O and $\angle AOP = 50^\circ$, then write the measure of $\angle APB$.
13. Find the perimeter of a circle of radius 7cm.



14. Find the coordinates of the mid point of the line joining the points (4,3) and (2,5).
 15. State fundamental theorem of Arithmetic.
 16. Express the denominator of $\frac{23}{20}$ in the form of $2^m \times 5^n$ and state whether the given fraction is terminating or non terminating repeating decimal.

III. Answer the following .

8x2=16

17. Find the 20th term of the following A.P using formula : 2, 7, 12,.....

OR

How many 2 digit numbers are divisible by 5 ? Find out using formula.

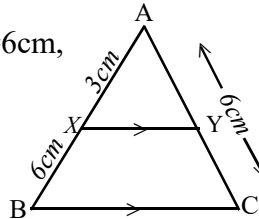
18. Solve the pair of linear equations : $2x+y=4$
 $5x-2y=1$

19. Find the area of a sector of a circle with radius 6cm, if angle of the sector is 60°.
 20. Draw a line segment AB of length 10cm and divide it in the ratio 3:2.
 21. Find the distance between the points (2,3) and (10,9) using distance formula.
 22. Find the coordinates of the point which divides the line segment joining the points (-1,7) and (4,-3) in the ratio 2:3.
 23. Find the H.C.F. of 455 and 42 using Euclid's division algorithm.

OR

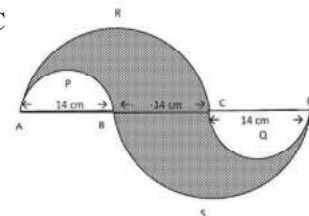
Find the L.C.M of 28 and 42 using prime factorisation method.

24. In the figure, $XY \parallel BC$, $AX=3\text{cm}$, $BX=6\text{cm}$,
 $AC=6\text{cm}$, find the length of CY .



IV. Answer the following .

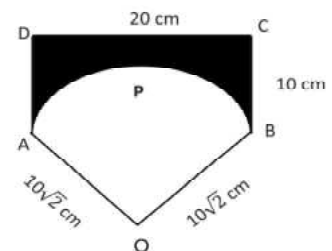
25. In the figure, APB and CQD are semicircles of diameter 14cm each, while ARC and BSD are semicircles of diameter 28cm each. Find the area of the shaded region. ($\pi = \frac{22}{7}$)



9x3=27

OR

ABCD is a rectangle of length 20cm and breadth 10cm, OAPB is a sector of a circle of radius $10\sqrt{2}\text{cm}$, calculate the area of the shaded region . (Take $\pi = 3.14$)



26. Find the sum of first 15 terms of the following A.P using suitable formula : $4+7+10+\dots\dots$
27. Five years ago, Nuri was thrice as old as Sonu. Ten years later Nuri will be twice as old as Sonu. How old are Nuri and Sonu ?

OR

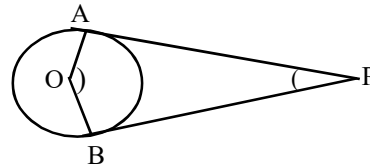
A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction.

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

OR

Prove that 'the length of tangents drawn from an external point to a circle are equal'.

29. In the adjoining figure, PA and PB are tangents drawn from an external point 'P' to a circle with centre 'O'. Then prove that $\angle AOB + \angle APB = 180^\circ$.



30. How many terms of the A.P $9,17,25, \dots\dots$ must be taken to give a sum 636 ?
31. Draw a pair of tangents to a circle of radius 3cm which are inclined to each other at an angle of 60° and measure the length of the tangents.
32. Find the value of 'K' if the points A(2,3) , B(4,K) and C(6,-3) are collinear.

OR

Show that the points A(2, 6) , B(-2,0) and C(6,0) are the vertices of an isosceles triangle.

33. Prove that $\sqrt{5}$ is an irrational number.

V. Answer the following .

4x4=16

34. In an A.P, the sum of first, third and fifth terms are 39 and the sum of second, fourth and sixth terms are 51. Then find the 10th term of the A.P.

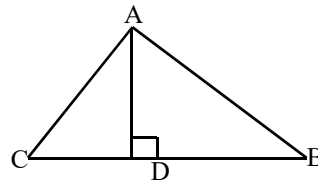
OR

Find three consecutive numbers which are in A.P. whose sum is 24 and product is 440.

35. Solve Graphically : $x+y=5$
 $3x+y=9$

36. Construct triangle ABC given, AB=6cm, BC=5cm and AC=7cm, then construct a triangle similar to it, whose sides are $\frac{3}{4}$ of the corresponding sides of the first triangle.

37. The perpendicular from A on side BC of a $\triangle ABC$ intersect BC at D, such that $DB=3CD$.
Prove that $2AB^2=2AC^2+BC^2$.



VI. Answer the following .

1x5=5

38. State and prove Angle-Angle-Angle (A. A. A.) similarity criterion for two triangles.
