H. T.T. GOVT GIRLS HIGHSCHOOL, CHALLAKERE, CHITRADURGA-DIST

SUMMATIVE ASSESMENT-1 : SEPTEMBER/OCTOBER -2019

CLASS : 10 ***QUESTION PAPER*** ***MARKS : 80***

SUBJECT:MATHEMATICS ***TIMINGS : 3 hours***

I. *In the following questions, four choices are given for each questions, choose and write the correct answer along with its alphabet :* ***1x8=08***

1. *In an AP with first term 'a' and common difference 'd', the n^{th} term is given by*

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

2. *The 10^{th} term of an A.P. 5,9,13,..... is*

   a) 36 *b) 31* *c) 41* *d) 21*

3. *The pair of linear equations is consistent with a unique solution when*

   a) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ *b)* $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ *c)* $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ *d)* $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

4. *The coordinates of a point on the x-axis are of the form*

   a) (x, y) *b)* (x, 0) *c)* (0, x) *d)* (y, 0)

5. *The formula for finding the coordinates of the pointP(x,y) from the origine is*

   a) $\sqrt{(x+y)}$ *b)* $\sqrt{(x+y)^2}$ *c)* $\sqrt{x^2+y^2}$ *d)* $\sqrt{x^2-y^2}$

6. *All squares are*

   a) equal *b) Congruent* *c) having same area* *d) similar*

7. *The maximum numbers of tangents that can be drawn to a circle from an external point Is* *a)* 1 *b)* 2 *c)* 3 *d)* 4

8. *The formula used to find the circumference of a circle is*

   a) $2\pi r$ *b)* $2\pi r^2$ *c)* $4\pi r$ *d)* πr^2

II. Answer the following questions : ***1x8=08***

9. *If the first term and common difference of an A.P are 6 and 5 respectively, find its 3^{rd} term.*

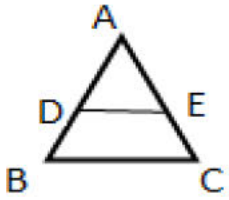
10. *If the n^{th} term of an A.P is $4n^2-1$, then find the 8^{th} term.*

11. *Find out whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident.* $9x+3y+12=0$

    $18x+6y+24=0$

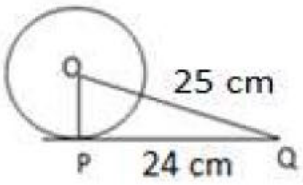
12. *Find the coordinates of the midpoint of the line segments joining the points (6,2) and (4,4)*

13. *In the given triangle ABC, DE||BC. If DE=5cm, BC=8cm and AD=3.5cm, then find the length of AB.*



14. *State 'Basic proportionality theorem'.*

15. *From a point **Q**, the length of the tangent to a circle is 24cm and the distance of **Q** from the centre is 25cm.Then find the radius of the circle.*



16. *If the perimeter and area of the circle are numerically equal, then find the radius of the circle.*

III. Answer the following questions : ***2x8=16***

17. *Find the sum of first 51 terms of an AP whose second and third terms are 14 and 18 respectively.*

18. *Determine the AP whose 3^{rd} term is 16 and the 7^{th} term is exceeds the 5^{th} term by 12.*

19. *Solve :* $3x+4y = 10$

$2x-2y = 2$

20. *Find the distance between the points A(8,-3) and B(0,9) by using distance formula.*

21. *A ladder 10m long reaches a window 8m above the ground. Find the distance of the foot of the ladder from base of the wall.*

OR

The perimeters of two similar triangles are 25cm and 15cm. If one side of the first triangle is 9cm, find the corresponding side of the second triangle.

22. *Prove that the tangents drawn at the ends of a diameter of a circle are parallel.*

23. *Draw a circle of radius 3cm. Construct a pair of tangents to it, from a 8cm away from Its centre.*

24. *A horse is tied to a peg at once corner of a square shaped grass field of side 15m by means of a 5m long rope(see fig). find the area of that part of the field in which the horse can graze.*

IV. Answer the following questions : ***3x9=27***

25. *A sum of the Rs.700 is to be used to give seven cash prizes to students of a school for their overall academic performance. If each prize is Rs.20 less than its preceding prize, find the value of each prizes.*

OR

In a flower bed, there are 23 rose plants in the first row, 21 in the second row, 19 in the third row, and so on. There are 5 rose plants in the last row. How many rows are there in the flower bed?

26. *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

The larger of two supplementary angles exceeds the smaller by 18 degrees. Find them.

27. *Find the area of the triangle formed by joining the midpoints of the sides of the triangle whose vertices are A(2,2), B(4,4) and C(2,6)*

28 .*Find the coordinates of the points of trisection of the line segment joining (4,-1) and (-2,-3)*

OR

Find the perimeter of the triangle whose vertices are (-2,1), (4,6) and (6,-3)

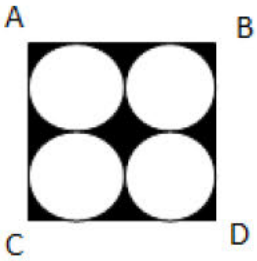
29. *Prove that ' The tangents drawn to a circle from an external point are equal.'*

30. *Two Concentric circles are of radii 5cm and 3cm. find the length of the chord of the larger circle which touches the smaller circle.*

31. *Construct a triangle of sides 4cm, 5cm and 6cm and then a triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.*

32. *Draw a triangle ABC with side base BC=8cm and altitude 4cm, and then construct another triangle whose sides are $\frac{5}{3}$ times the corresponding sides of the isosceles triangle ABC.*

33. Find the area of the shaded region in the fig, where ABCD is a square of side 14cm.



V. Answer the following questions : ***4x4=16***

34. *The sum of the 4^{th} and 8^{th} terms of an AP is 24 and the sum of the 6^{th} and 10^{th} terms is 44. Find the first three terms of the AP.*

OR

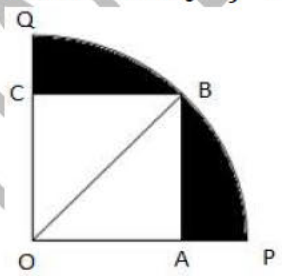
IF the sum of first 8 terms of arithmetic progressions is 136 and that of first 15 terms is 465, then find the sum of first 25 terms.

35. *Prove that "The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides."*

36. *Solve the pair of linear equations graphically :* $2x + y - 6 = 0$

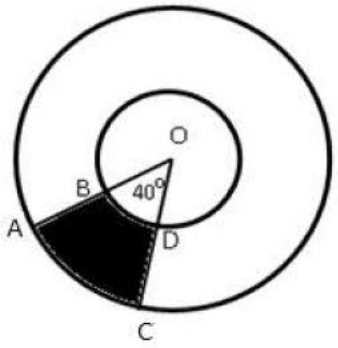
$4x - 2y - 4 = 0$

37. *In the fig, a square OABC is inscribed in a quadrant OPBQ. If OA=20cm, find the area of the shaded region. (Use* π=3.14)



OR

Find the area of the shaded region in the fig,
If radii of the two concentric circles with centre 'o' are 7cm and 14cm respectively and $\angle AOC = 40^0$



VI. Answer the following questions : ***5x1=5***

38. *State and prove Pythagoras theorem.*