Govt. Junior College, Gorur. Hassan Tq.
First Summative Examination- 2018-19

Time : 3 hrs   **Mathematics – 10th Standard**   **Marks :80**

I. Choose the Correct Answer :   **1X8=8**

1. If $a_n=3n-4$ then sum of first two terms of an AP
   a) 1   b) -1   c) 3   d) 5
2. missing term in an AP: 2, _ , 26
   a) 13   b) 4   c) 12   d) 14
3. $\Delta ABC \sim \Delta DEF$ and their areas be, respectively 36 cm^2 and 144 cm^2. If EF=4 cm then BC
   a) 4 cm b) 2 cm   c) 16 cm   d) 8 cm
4. Example for Pythagorean triplets are
   a) 3,4,7   b) 7,12,14 , c) 6,8,10 d) 7,24,26
5. The graphical representation of the linear equations 3x+2y=5 and 2x-3y=7
   a) Intersecting lines   b) Coincident lines c) Parallel lines d) None of these
6. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle 80^0, then ∟POA is
   a) 60^0 b) 100^0 c) 70^0 d) 50^0
7. circle of radius 'r' measuring angle at the centre is P (in Degrees), then area of the sector
   a) $\frac{p}{180}$ X 2∏R   b) $\frac{p}{180}$ X 2∏R^2 c) $\frac{p}{360}$ X ∏R^2 d) $\frac{p}{720}$ X 2∏R^2
8. Co-ordinates of the mid points which divides the line segment joining the points P(5,10) & Q(7,14)
   a) (6,12)   b) (12,6) c) (-6,12) d) (6,-12)

II. Answer the following :   **1X6=6**

9. If a=10, d=2 then write three terms of an AP.
10. State Pythagoras theorem.
11. Find the solutions of linear equations x+y=10 and x-y=2.
12. If TP and TQ are the two tangents to a circle with centre 'O' so that ∟POQ=110^0 then   find ∟PTQ.
13. Find the distance between origin and the point P(3,4)
14. Write the prime factors of 140

**III. Solve:**   **2X16=32**

15. How many two digit numbers are divisible by 3.   **OR**
    Which term of the AP : 3,8,13,18,….. is 78?
16. How many terms of an AP: 9,17,25….. must be taken to give a sum of 636?

17. In a ΔABC, DE∥BC then find EC & AC
18. In a figure ΔOBA ~ ΔODC. ∟BOC=125^0, ∟COD=70^0 then find ∟DOC, ∟DCO & ∟OAB
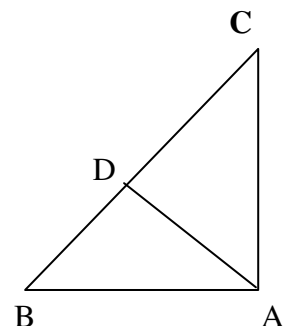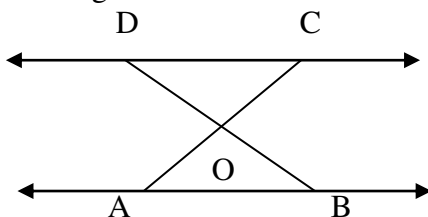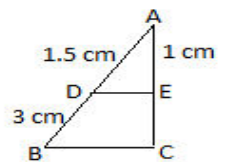
19. In a ΔABC, AD⊥BC then prove that AB^2+CD^2= BD^2+AC^2
20. Solve the pair of linear equations 2x+y=6 & 2x-y=2 find the value of x & y
21. A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction.
22. Check whether the pair of linear equations are consistent or not: 5x-4y+8=0 & 7x+6y-9=0

23. 2 pencils and 3 rubber together cost ₹9. Whereas 4 pencil and 6 rubber together cost ₹18. Find the cost of one pencil and that of one rubber.
24. The length of a tangent from a point at a distance 6 cm from the centre of the circle is 4 cm, find the radius of the circle.
25. Find the area of the shaded region in the figure, if ABCD is a square of side 14 cm and APD and BPC are semicircles. .

OR
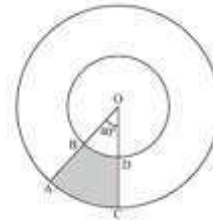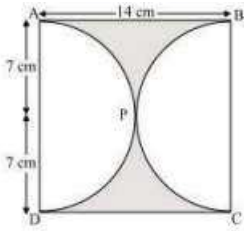
Find the area of the shaded region in the figure, if radii of the two concentric circles with centre O are 7cm and 14 cm respectively and $\angle$ AOC=40^0

26. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60^0
27. Find the point on the x-axis which is equidistant from (2,-5) & (-2,9).
28. Find the value of 'k'. if the points (7, -2), (5,1) & (3,k) are collinear.
29. Draw a line segment of 7.6 cm and divide it in the ratio 5:8. Measure the two parts.
30. Use Euclid's division algorithm to find HCF of 135 &225.

IV. Solve the following: 3X6=18

31. Construct a triangle of sides 5cm, 6cm and 7cm and then another triangle whose sides are $\frac{7}{5}$ of the corresponding sides of the first triangle.
32. Construct a tangent to a circle of radius 4cm from a point on the concentric circle of radius 6cm and measure its length.
33. A guy wire attached to a vertical pole of height 18cm is 24 cm long and has a stake attached to the other end. How far from the base of the pole should the stake be driven so that the wire will be taut ?

OR

In an equilateral triangle ABC, D is a point on side BC such that BD =$\frac{1}{3}$ BC. P.T. $AD^2 = 7AB^2$

34. A chord of circle of radius 10cm subtends a right angle at the centre. Find the area of the corresponding :
i) minor segment ii) major segment (use ∏= 3.14)

OR

Find the area of the shaded region in the fig. where a circular arc of radius 6cm has been drawn with vertex O of an equilateral triangle OAB of side 12cm as centre.
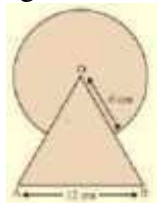
35. P.T. the tangent at any point of a circle is perpendicular to the radius through the point of contact.

OR

P.T. the lengths of tangents drawn from an external point to a circle are equal.

36. P. T. √2 is an irrational **OR**
Show that any positive odd integer is of the form 6q+1, or 6Q+3, where q is some integer

V. Solve : 4X4=16

37. in an AP sum of 3rd and 7th term is 6 and product is 8 then find the sum of first 16th terms
38. state and prove Thales theorem **OR**
P.T. If in two triangles, sides of the triangle are proportional to the sides of the other triangle, then their corresponding angles are equal and hence the two triangles are similar.
39. Solve the pair of linear equations graphically : 2x +y = 8 & x + 2y = 7
40. Find the area of the quadrilateral whose vertices, taken in order are (-4,-2), (-3.-5), (3,-2) and (2,3)

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