Reg No : ....

Sign   :......................

DIET WAYANAD

SSLC PRE MODEL EXAMINATION – 2022

MATHEMATICS

(ENGLISH)

Time 2.30 Hours   Total Score :80

Instructions :

- 15 minutes is given as cool off time.

- Use cool off time to read the question and plan your answers.

- Attempt the question according to the instructions.

- Keep in mind, the score and time while answering the questions.

- The maximum score for questions from1 to 35 will be 80.

- No need to simplify irrationals like $\sqrt{2}, \sqrt{3}, \pi$ etc. Using approximations unless you are asked to do so.

PART I

A. Answer any 4 questions from 1 to 6. 1 score each.   4X1 = 4
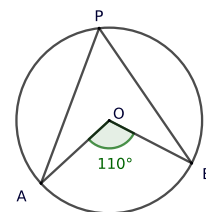
1. What is the common difference of the Arithmetic sequence 3,7,11,?

   (3,   4,   5,   6)

2. In the figure,O is the centre of the circle and $\angle$ AOB $=110^0$.

   What is the measure of $\angle$APB.

   (55^0, 70^0, 220^0, 125^0)

3. Letters of the word 'WAYANAD' has been written in seperate

   paper slips. If we take one paper slip from it,what is the probability of getting the letter 'W'.

   $(\ \dfrac{1}{5}\ ,\quad \dfrac{1}{7}\ ,\quad \dfrac{1}{6}\ ,\quad \dfrac{2}{7}\ )$

4. A point lies on the Y axis at a distance of 5 units from the X axis. What is its co ordinates?

     [(5,0),   (5,5),   (-5,0),   (0,5)]
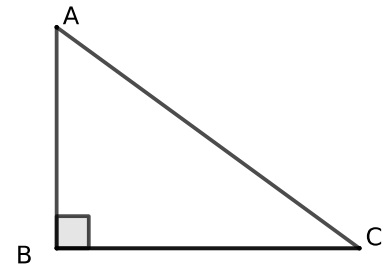
5. If $p(x) = x^2+2x+1$ find $p(1)$.

     (2, 9, 1, 4)

6. The score achieved by a cricket player in 7 matches are given below. Find the mean of the scores.12,40,8,30,60,110,20

     (60, 40, 50, 70)

B. Answer all the questions from 7 to 10. (1Score Each)   **4x1 = 4**

7. In the figure $\angle$ B $=90^0$.Which among the following is Tan C

  ($\dfrac{AB}{BC}$, $\dfrac{AB}{AC}$, $\dfrac{BC}{AB}$, $\dfrac{BC}{AC}$)

8. The perimeter of a triangle is 48 cm and its incircle radius is 4 cm. Calculate the area of the triangle.

    ($192cm^2$, $144\,cm^2$, $96cm^2$, $48cm^2$)

9. Height of a square pyramid is 8 cm and its base edge is 12 cm. Find the slant height?

    (10cm, 15cm, 5cm,8cm)

10.   Find the radius of the circle $x^2+y^2=16$?

     (16, 3, 4, 5)

PART II

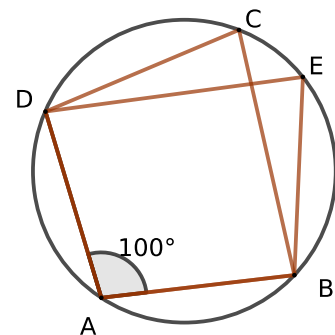**A.Answer any 3 questions from 11 to 15. Each question carries 2 score.**

3x2 = 6

11. In the figure O is thecentre of the circle and A,B,C,D,E are
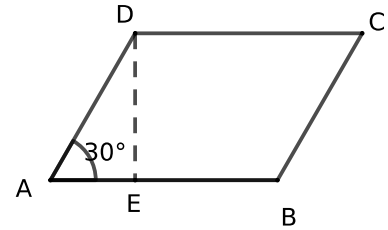
    points on it. If $\angle$ A $=100^0$,

    a) Find $\angle$ C.

    b) Find $\angle$ E.

12. In parallelogram ABCD, AB=8 cm AD =6 cm and
    ∠ A =60^0.

    a) Find the distance from D to the side AB.

    b) Find the area of parallelogram.

13. Draw a circle of radius 4 cm. Mark a point P on the circle. Draw a tangent through the point P.

14. Consider the line passing through the points (1,2), and (3,6)

    a) What is the slope of the line ?

    b) Write down the co ordinatesof another point on this line .

15. Consider the polynomial p(x) = x^2-7x+k.

    a) Find p(2).

    b) What is the value of k, if (x-2) is a factor of p(x).

B.Answer any two questions from 16 to 18. Each question carries 2

score.   **2x2 = 4**

16. In a box, there are ten slips numbered from 1 to 10 and in another box 5 slips numbered from 1 to 5. One slipis taken from each box.

    a) In how many different ways, can we select a pair of slips, one from each box ?

    b) What is the probability of both the digits being same **?**

17. The base perimeter of a square pyramid is 40 cm, length of lateral edge is 13 cm.

    a) What is the length of base edge?

    b) What is the slant height ?

18. (3,1) is a point on a line with slope 2

    a) What is the equation of this line?

    b) Check whether (5,5) is a point on this line?

PART III

A. Answer any three questions from 19 to 23. Each question carries 4 score

<p align="center">3x4 = 12</p>

19. Draw a triangle of circumradius3 cm and two of its angles 50^0 and 60^0 ?

20. A man is asked to sayany two digit number .

    a) How many two digit numbers are there?

b) What is the probability of getting a perfect square?

c) What is the probability of getting a multiple of 10?

d) What is the probability of the product of the digits being a prime?

21. In $\triangle$ ABC, AB=10 cm,BC =12 cm, $\angle$ B =120^0. $\angle$ C =30^0.

a) Find the perpendicular distance from A to BC ?

b) Find the area of $\triangle$ ABC.

c) Find the length of AC
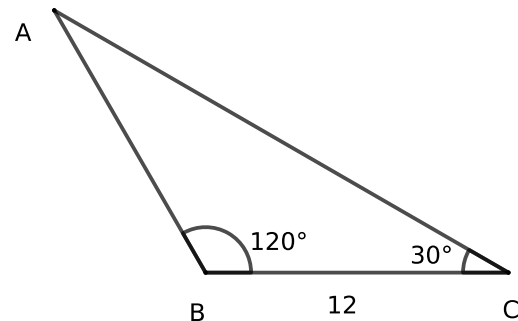
22. Consider the polynomial p(x) = x^2-6x+10

a) Find p(1)

b) Write a factor of p(x)- p(1)

c) Write p(x)- p(1) as the product of two first degree polynomials

23. The table below shows theworkers of a factory sorted according to their daily wages.

Daily wages(Rs)	Number of workers
500	5
600	3
700	4
800	10
900	5
1000	6
1100	2

a) If the workers are arranged in increasing order of wages, what is the daily wage of the worker at the 8th position?

b) If the workers are arranged in increasing order of daily wage, the daily wage of the worker at what position is taken as the median?

c) Find the median daily wage.

B. Qns.24 to 25 - Answer any one from the following. 4x1 = 4

24. The length of the rectangle is 5 cm more than its breadth. Its area is 300 cm^2.

a) If breadth is 'x', find its length in terms of x.

b) Write the second degree equation representing the area

c) Find the length and breadth of the rectangle.

25.   Draw a triangle with sides 5cm,6cm and 7cm. Draw its incircle.

PART IV

A. Answer any three questions from 26 to 29. 6 score each.   3x6 = 18

26.
   a) Find the area of a rectangle with sides 5cm and 3cm.

   b) Draw a rectangle with sides 5cm and 3cm.

   c) Draw a square having the same area as that of the rectangle.

27.   A boy standing at one bank of a river sees the top of a tree on the other bank directly

   opposite to the boy, at an elevation of 60^0. Stepping 40 m back, he sees the top at an

   elevation of 30^0.

   a) Draw a rough figure based on the given details.

   b) What is the height of the tree.

   c) What is the width of the river?

28.   The perimeter of a rectangle is 20cm and its area is $24 \, cm^2$.

   a) What is the sum of length and breadth of the rectangle?

   b) If length is taken as 'x' what is the breadth of the rectngle?

   c) Form a second degree equation and find the sides .

29.   In the figure, O is the centre of incircle of

   △ABC. Also, ∠ POQ =120^0,

   a) Find∠ B

   b) Draw a circle of radius 3 cm .

   c) Draw the triangle with angles $60^0,50^0$ and 70^0

      and all its sides are tangents to this circle .
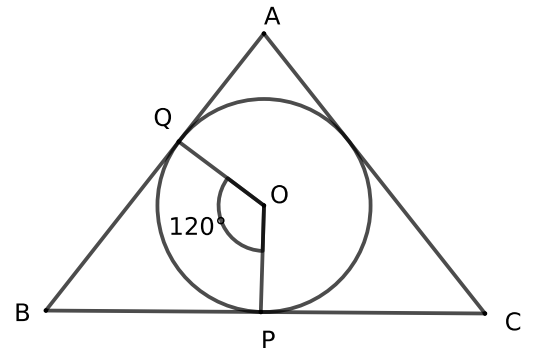
B. Answer any two questions from 30 to 32 . (6 score each)   2x6 = 12

30.   Consider the arithmetic sequence 10,16,22,...

   a) Find the common difference of the sequence.

   b) Find the algebraic expression of the sequence.

   c) What is its 20th term?

   d) At which position does the term 64 occur in the sequence?

   e) Find the algebraic expression for the sum of first n terms of the sequence.

   f) Find out the sum of first 20 terms of the sequence.

31.   The marks obtained by 35 students in mathematics examination are given below.

Marks	Number of Students
0 -10	5
10-20	9
20-30	10
30-40	7
40-50	4

a) The mark of the student at which position is taken as the median mark?

b) Which is the median class ?

c) Find the number of students in the median class?

d) What is the assumed mark of 15th student?

e) Find the median mark ?

32. A circle with centre at the origin cuts the x axis at the point A(5,0)
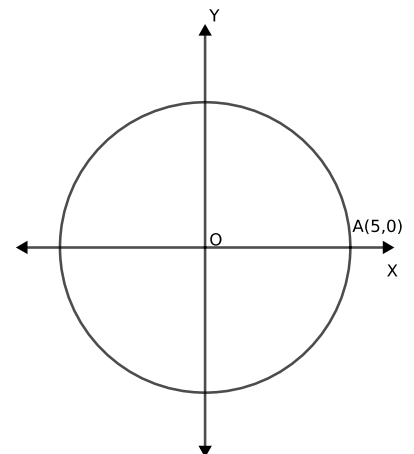
a) What is the radius of the circle?

b) Write the coordinates of the point where the circle cuts the y axis.

c) Write the equation of the circle.

d) Check whether the point (3,4) lies on this circle.

e) Write the coordinates of one more point on this circle

PART V

A. Answer any 2 questions from 33 to 35. 8 score each.   (2x8 = 16)

33. Look at the following pattern

$$1$$
$$2\ 3\ 4$$
$$5\ 6\ 7\ 8\ 9$$
$$.........................$$
$$...........................$$

a) Write the next line of this pattern.

b) Write the sequence of last numbers in each line.

c) What will be thelast number in the 9th line ?

d) Write the first and last numbers of the 10th line .

e) Write the number of numbers in each line as a sequence.

f) Write the algbraic form of this sequence.

g) How many numbers are there in 20th line ?

h) How many numbers are needed to write 20 lines in the given pattern?

34. A sector of central angle 216^0 is cut out from a circle of radius 15 cm and is rolled up into a cone.

a) What is the slant height of the cone?

b) What is the radius of the cone ?

c) What is the height of the cone ?

d) Find the curved surface area of the cone ?

e) Find the volume of the cone ?

f) What is the central angle of remaining sector?

g) What is the radius of the cone which is rolled out from the remaining sector?

35.

a) Draw X axis and Y axisand mark the following points.

   A(1,1),B(4,3),C(5,7),D(2,5)

b) Select an appropriate name for the quadrilateral obtained by joining the points A,B,C,D in order.

   (Rectangle, Square, Trapezium,Parallelogram)

c) Find out coordinates of the midpoint of AC.

d) Find out the slop of the lines AB,CD.