(Pages : 8)

ME 531

Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2026

MATHEMATICS

(English)

Time : 2½ Hours

Total Score : **80**

Instructions :

- Use the first 15 minutes to read the questions and think about the answers.
- There are 27 questions, spilt into **five** sections **A, B, C, D, E.**
- Answer all questions, but in questions of the type A or B, you need to answer only one of those.
- You can answer the questions in any order, writing the correct question number.
- Trigonometric tables are given at the end and can be used wherever necessary.
- Answers must be explained wherever necessary.
- No need to simplify irrationals like $\sqrt{2}$, $\sqrt{3}$, π etc. using approximations unless you are asked to do so.

SECTION - A

This Section has 8 questions of 1 score each. Select the correct answer from those given.

1. Which of the numbers below can be a term in the arithmetic sequence 5, 8, 11, . . . ? 1

   (a) 25 (b) 30 (c) 35 (d) 40

2. A line is drawn through the point (2, 3) Parallel to the x-axis. What are the co-ordinates of the point at which this line cuts the y-axis ? 1

   (a) (0, 2) (b) (0, 3) (c) (2, 0) (d) (3, 0)

3. Which of the following is the algebraic form of the arithmetic sequence 7, 11, 15, . . . ? 1

   (a) $3n+4$ (b) $4n+2$ (c) $4n+1$ (d) $4n+3$

4. What are the x- co-ordinates of the points where the graph of the polynomial $p(x)=x^2-9x+14$ cuts the x-axis ? 1

   (a) 2, 7 (b) 3, 6 (c) 2, −7 (d) −3, 6

5. The scores of 8 students in an exam are given below : 1

   50, 52, 66, 64, 56, 55, 70, 80

   Then the median score is :

   (a) 50 (b) 56 (c) 64 (d) 60

P.T.O.

Score

6. The surface area of a solid sphere is 120 square centimetres. If it is cut into two halves, what would be the surface area of one hemisphere in square centimetres ? 1

(a) 60 (b) 90 (c) 100 (d) 120

7. The equation of a circle is $(x-1)^2+(y-3)^2=9$. Read the following statements : 1

(i) Radius of the circle is 9.

(ii) Centre of the circle is (1, 3).

(iii) Radius of the circle is 3.

(iv) Centre of the circle is $(-1, -3)$.

Choose the **correct** answer from those given below :

(a) (i) and (ii) are true (b) (i) and (iv) are true

(c) (ii) and (iii) are true (d) (iii) and (iv) are true

8. Read the statements given below : 1

Statement 1 : In an equilateral triangle, the circumradius is twice its inradius.

Statement 2 : In a triangle with angles 30°, 60°, 90° the hypotenuse is twice the opposite side of 30°.

Choose the **correct** answer from those given below :

(a) **Statement 1** is true, **Statement 2** is false.

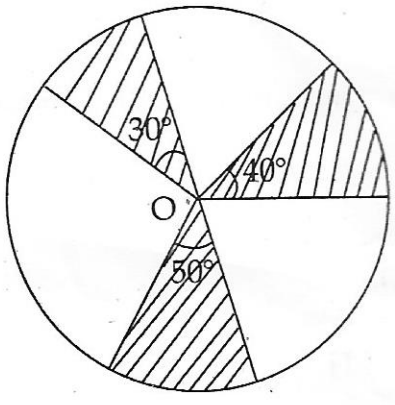
(b) **Statement 1** is false, **Statement 2** is true.

(c) Both **Statements** are true and **Statement 2** is not the reason of **Statement 1.**

(d) Both **Statements** are true and **Statement 2** is the reason of **Statement 1.**

SECTION - B

9. In the figure 'O' is the centre of the circle. If we put a dot inside the circle without looking then what is the probability that the dot falls inside the shaded part ? 2



Score

10. (A) A box contains 20 apples and 30 oranges and one is taken from it.

(i) What is the probability of getting an apple ? 1

(ii) What is the probability of getting an orange ? 1

(iii) If 10 more apples are put in the box, then what is the probability of getting an orange ? 1

OR

(B) A bag contains 7 white and 8 blue balls. In another bag there are 6 white and 10 blue balls. One ball from each bag is taken.

(i) In how many ways can a pair of balls be chosen, one from each bag ? 1

(ii) What is the probability of both being white ? 1

(iii) What is the probability that at least one is white ? 1

11. (A) The sum of first 7 terms of an arithmetic sequence is 140 and the sum of the first 8 terms is 180.

(i) What is its 4^{th} term ? 1

(ii) What is its 5^{th} term ? 1

(iii) Find the sum of first 10 terms. 2

OR

(B) (i) Calculate the sum of the first 15 natural numbers. 1

(ii) Write the sequence got by multiplying the natural numbers by 6 and adding 1. Find the sum of the first 15 terms of this sequence. 3

12. The table below shows the workers in a company sorted according to their daily wages.

Daily wages (Rs.)	Number of workers
400 - 500	7
500 - 600	8
600 - 700	10
700 - 800	9
800 - 900	5
900 - 1000	4

If the workers are arranged in the order of daily wages, then

(i) The daily wage of the worker at what position is taken as the median ? 1

(ii) According to our assumption, what is the daily wage of the 16^{th} worker ? 2

(iii) Calculate the median daily wage. 2

Score

SECTION - C

13. The co-ordinates of the point A is (1, 2) and the co-ordinates of the point B is (9, 10).
    (i) What are the co-ordinates of the midpoint of AB ? 1
    (ii) Calculate the co-ordinates of the point P which divides AB is the ratio 1 : 3. 2

14. (i) Draw x, y axes and mark the points A(−2, 0), B(4, 0), C(6, 4) and D(0, 4). 3
    (ii) What is the area of this parallelogram ABCD ? 1

15. (A) (−1, 1) and (2, 7) are two points on a line.
    (i) Find the slope of this line. 1
    (ii) Write the co-ordinates of any other point on this line. 1
    (iii) Prove that for any number x, the point $(x, 2x+3)$ is on this line. 2

    OR

    (B) A circle of radius 10 is drawn with origin as centre.
    (i) Write the co-ordinates of a point at which this circle cuts the x-axis. 1
    (ii) Check whether the point (5, 9) is inside, outside or on the circle. 2
    (iii) Write the equation of the circle. 1

SECTION - D

16. Consider the arithmetic sequence 4, 7, 10, . . .
    (i) What is the remainder on dividing each term of this sequence by 3 ? 1
    (ii) Prove that the square of each term is also a term of the sequence. 2

17. (A) Find the sum of the arithmetic sequences below :
    (i) $3+6+9+\ldots+60$ 2
    (ii) $6+12+18+\ldots+120$ 1
    (iii) $8+14+20+\ldots+122$ 1

    OR

    (B) The sum of first and 30th term of an arithmetic sequence is 60.
    (i) What is the sum of its second and 29th term ? 1
    (ii) What is the sum of its 15th and 16th term ? 1
    (iii) Find the sum of first 30 terms. 2

18. The longer side of a rectangle is 6 centimetres more than its shorter side. The diagonal of the rectangle is 30 centimetres.
    (i) Write down a second degree equation by taking the shorter side as x. 2
    (ii) What are the lengths of its sides ? 2

Score

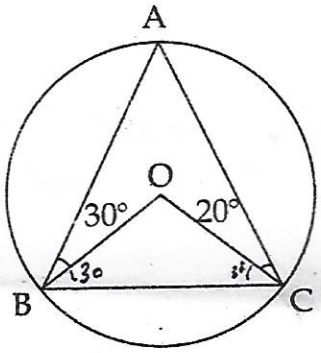
19. The sum of the first 'n' terms of an arithmetic sequence is $3n^2 + 6n$.

(i) What is the sum of the first 5 terms ? 1

(ii) How many terms of the sequence starting from the first must be added to get 360 ? 3

SECTION - E

20. (A) In the picture 'O' is the centre of the circle. $\angle ABO = 30°$, $\angle ACO = 20°$.

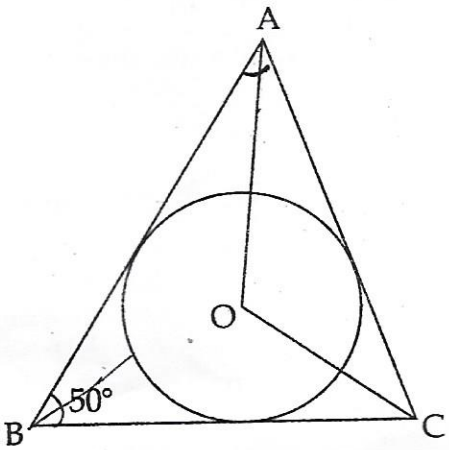


(i) Find the measure of $\angle BAC$. 2

(ii) What is the measure of $\angle BOC$? 1

OR

(B) In the picture, the incircle of a triangle is drawn with centre 'O' and $\angle ABC = 50°$.



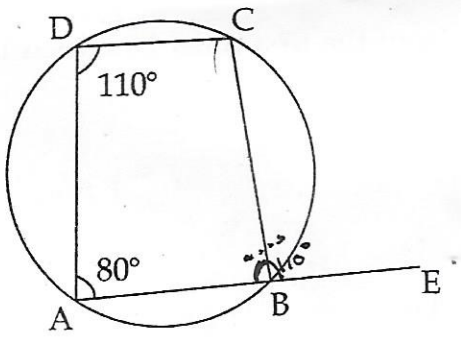
(i) If $\angle BAC = x°$, then what is the measure of $\angle OAC$ in terms of 'x' ? 1

(ii) Find the measure of $\angle AOC$. 2

P.T.O.

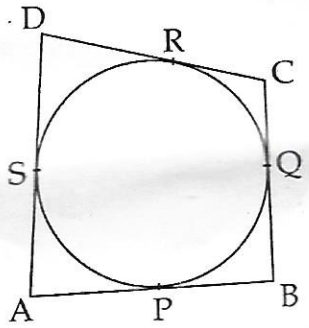
Score

21. (i) In the figure, ABCD is a cyclic quadrilateral $\angle A = 80°$, $\angle D = 110°$. Find the measures of $\angle BCD$ and $\angle CBE$. 2



(ii) Prove that in any cyclic quadrilateral, the outer angle at any vertex is equal to the inner angle at the opposite vertex. 2

22. (A) The tangents through the points. P, Q, R and S on the circle are AB, BC, CD and AD.



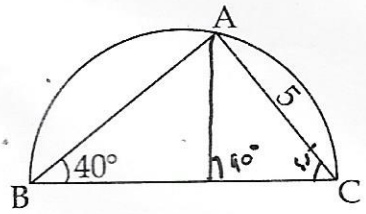
(i) If AP = 3 centimetres, then what is the length of AS. 1

(ii) Prove that AB + CD = AD + BC. 2

OR

(B) Calculate the radius of the incircle of a triangle with sides 6 centimetres, 8 centimetres and 10 centimetres. 3

23. In the figure, BC is the diameter of the semicircle. $\angle B = 40°$, AC = 5 centimetres.



(i) What is the measure of $\angle BAC$? 1

(ii) What is the radius of the semicircle ? 1

(iii) Find the perimeter of triangle ABC. 2

Score

19. The sum of the first 'n' terms of an arithmetic sequence is $3n^2 + 6n$.

(i) What is the sum of the first 5 terms ? 1

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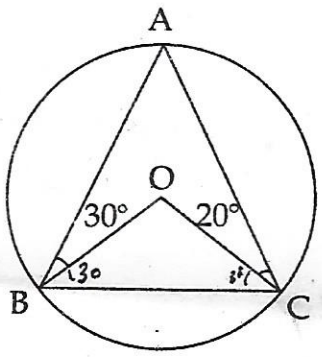

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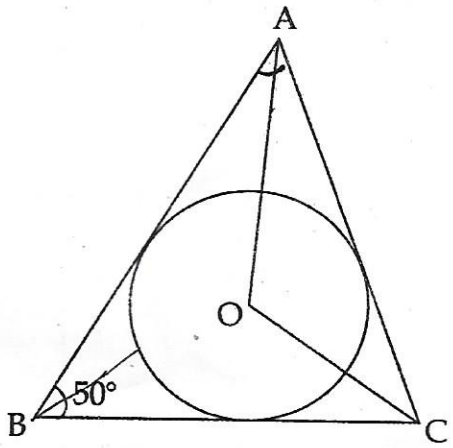

(i) If $\angle BAC = x°$, then what is the measure of $\angle OAC$ in terms of 'x' ? 1

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P.T.O.