



SSLC PRE MODEL EVALUATION JANUARY 2023

MATHEMATICS

Time : 1½ Hrs

(English Medium)

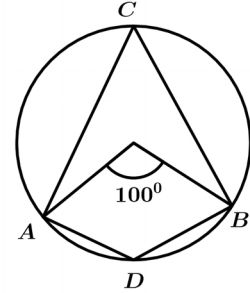
Score : 40

Answer any 3 questions from 1 to 4 . Each question carries 2 scores . (3 × 2 = 6)

1. In the figure O is the centre of the circle . $\angle AOB = 100^\circ$.

(a) What is the measure of $\angle ACB$?

(b) What is the measure of $\angle ADB$?



2. Consider the arithmetic sequence 2, 4, 6, ...

(a) What is its 10th term ?

(b) Write the algebraic form of the sequence .

3. When each side of a square was increased by 5 centimetres , the area became 121 square centimetres .

(a) By taking the length of a side of the original square as x centimetres , write a second degree equation using the above detail .

(b) What was the length of a side of the original square ?

4. Each letter of the word “ RAMANUJAN “ is written on paper slips and put in a box . A slip is to be drawn from it .

(a) What is the probability of getting the letter A ?

(b) What is the probability of not getting the letter A ?

Answer any 4 questions from 5 to 10 . Each question carries 3 scores . (4 × 3 = 12)

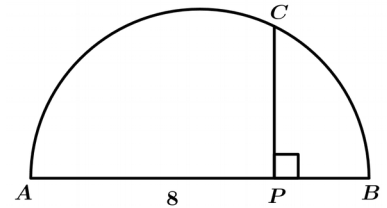
5. Draw a triangle of circumradius 3 centimetres and two of the angles 50° and 70° .

6. 1 is added to the product of two consecutive even numbers gives 289 .

(a) By taking the smaller number as x centimetres , write a second degree equation using the above detail .

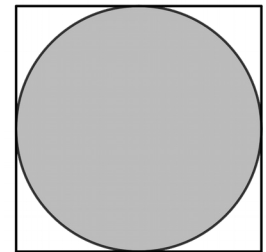
(b) Find the numbers .

7. In the figure AB is the diameter of the semicircle and P is a point on it. The perpendicular drawn through P meets the semicircle at C . $AB = 10$ centimetres, $PA = 8$ centimetres.



- (a) What is the length of PB ?
- (b) Compute the length of PC .
8. The sum of the first 5 terms of an arithmetic sequence is 35 and the sum of the first 9 terms is 99.
- (a) What are the 3rd and the 5th terms of the sequence ?
- (b) What is the common difference of the sequence ?

9. In the figure a square is touching the sides of a square. A dot is put in the figure without looking.



- (a) If the length of the square is taken as $2x$ centimetres, what is the diameter of the circle ?
- (b) What is the probability that the dot being inside the circle ?
- (c) What is the probability that the dot being outside the circle ?
10. The sum of the 5th and the 6th terms of an arithmetic sequence is 24.
- (a) What is the sum of the first and the 10th terms of the sequence ?
- (b) If the 4th term of the sequence is 9, what is its 7th term ?

Answer any 3 questions from 11 to 16. Each question carries 4 scores. ($3 \times 4 = 12$)

11. Draw a rectangle of length 5 centimetres and breadth 4 centimetres. Draw a square of the same area.

12. Compute the following sums.

- (a) $1 + 2 + 3 + \dots + 20$
- (b) $3 + 6 + 9 + \dots + 60$
- (c) $4 + 7 + 10 + \dots + 61$
- (d) $8 + 15 + 22 + \dots + 141$

13. In class 10 A , there are 30 boys and 20 girls . In 10 B , there are 25 boys and 20 girls .

One student is to be selected from each class .

- (a) What is the number of the possible pairs ?
- (b) What is the probability of both being boys ?
- (c) What is the probability of one boy and one girl ?
- (d) What is the probability of at least one boy ?

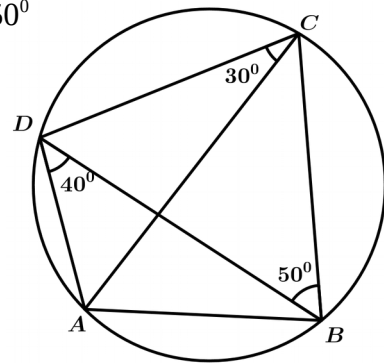
14. The sum of the first n terms of an arithmetic sequence is $n^2 + 4n$.

- (a) What is its first term ?
- (b) What is the sum of the first two terms ?
- (c) What is its common difference ?
- (d) Write the algebraic form of the sequence .

15. In the figure , $\angle ADB = 40^\circ$, $\angle ACD = 30^\circ$, $\angle CBD = 50^\circ$

Find the measures of the following angles .

- (a) $\angle ACB$
- (b) $\angle ABD$
- (c) $\angle BAC$
- (d) Central angle of the arc BCD .



16. (a) What number is to be added to $x^2 + 6x$ to get a perfect square ?
- (b) If $x^2 + 6x = 315$, find the natural number represented by x .

Answer any 2 questions from 17 to 21 . Each question carries 5 scores . ($5 \times 2 = 10$)

17. Draw a rectangle of length 6 centimetres and breadth 3 centimetres .

Draw another rectangle of the same area with a side 7 centimetres .

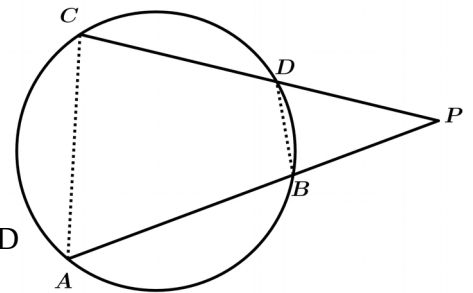
18. Look at the number pattern given below .

1
 2 3
 4 5 6
 7 8 9 10

.....

- (a) Write down the next two more lines of this pattern ?
- (b) What is the last number in the 9th line ?
- (c) What is the first number in the 10th line ?
- (d) What is the middle number in the 11th line ?

19. In the figure , two chords AB and CD of the circle are extended to meet at P .



- (a) If $\angle A = 80^\circ$, what is the measure of $\angle BDC$?
- (b) Check whether the angles of the triangles APC and BPD are the same or not .
- (c) Prove that $PA \times PB = PC \times PD$.

20. The longer side of rectangle is 7 centimetres more than its shorter side and its area is 144 square centimetres .

- (a) By taking the length of the shorter side as x centimetres , write a second degree equation using the above details .
- (b) Compute the length and the breadth of the rectangle .

21. The measures of the angles of a quadrilateral are in arithmetic sequence . The smallest angle is 30° .

- (a) What is the sum of the angles of a quadrilateral ?
- (b) What is the sum of the largest and the smallest angles of this quadrilateral ?
- (c) What is the common difference of the sequence .
- (d) Find the measures of the remaining angles of the quadrilateral .