SSLC EXAMINATION, MARCH - 2019

MATHEMATICS

(English)

Time : 2½ Hours Total Sc

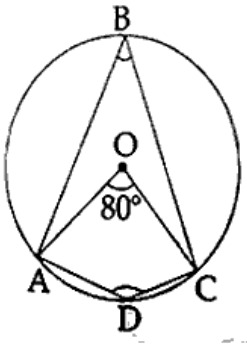
INSTRUCTIONS :

- Read each question carefully before writing the answer.
- Give explanations wherever necessary.
- First 15 minutes is Cool-off time. You may use the time to read the questions and pl answers.
- No need to simplify irrationals like $\sqrt{2}$, $\sqrt{3}$, π etc., using approximations unless you are a do so.

1. In the figure O is the centre of the circle. $\angle AOC = 80°$

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

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



2. (a) Write the first integer term of the arithmetic sequence $\frac{1}{7}, \frac{2}{7}, \frac{3}{7}$.....

   (b) What is the sum of the first 7 terms of this sequence ?

3. (a) If C(−1, k) is a point on the line passing through the points A(2, 4) and B(4, 8) which number is k ?

   (b) What is the relation between the x coordinate and the y coordinate of any point on this line ?

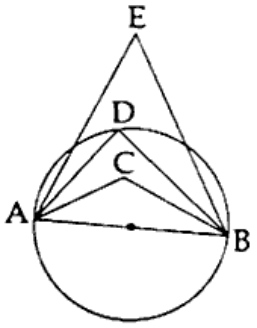
4. (a) Find P(1) if $P(x) = x^2 + 2x + 5$.

   (b) If $(x-1)$ is a factor of $x^2 + 2x + k$, What number is k ?

5. (a) What is the remainder on dividing the terms of the arithmetic sequence 100, 107, ... by 7 ?

   (b) Write the sequence of all three digit numbers. Which leaves remainder 3 on divi by 7 ? Which is the last term of this sequence ?

6. AB is the diameter of the circle. D is a point on the circle.



$\angle ACB + \angle ADB + \angle AEB = 270°$. Measure of one among $\angle ACB$, $\angle ADB$, $\angle AEB$ is 110°. Writ the measures of $\angle ADB$, $\angle ACB$, and $\angle AEB$.

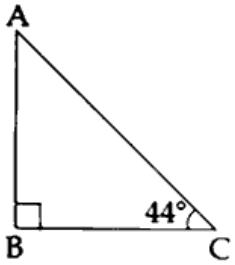
7. If x is a natural number

   (a) What number is to be added to $x^2 + 6x$ to get a perfect square ?

   (b) If $x^2 + ax + 16$ is a perfect square which number is 'a' ?

   (c) If $x^2 + ax + b$ is a perfect square prove that $a^2 = 4b$.

8. In the figure $\angle B = 90°$, $\angle C = 44°$



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

   (b) Which among the following is tan 44° ?

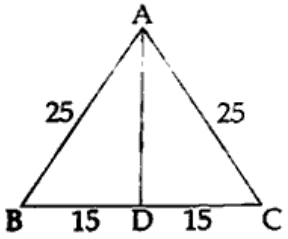
$$\left(\frac{AB}{BC}, \frac{AB}{AC}, \frac{BC}{AB}, \frac{BC}{AC}\right)$$

   (c) Prove that $\tan 44° \times \tan 46° = 1$.

9. Draw a circle of radius 3 centimetres. Mark a point P at a distance 6 centimetres from the centre of the circle. Draw tangents from P to the circle.

10. (a) Find the coordinates of the point on x axis, which is at a distance 4 units from (3, 4).
(b) Find the coordinates of the points on x axis at a distance 5 units from (3, 4).

11. The given figure is the lateral face of a square pyramid. AB = AC = 25 centimetres and BD = DC = 15 centimetres.
(a) What is the length of its base edge ?
(b) Find the lateral surface area of the pyramid.

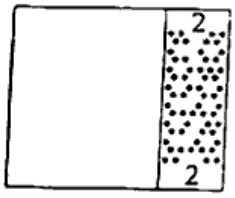


question 12- missing

13. Find the following sums :
(a) $1+2+3+\ldots\ldots\ldots\ldots+100$
(b) $1+3+5+\ldots\ldots\ldots\ldots+99$
(c) $2+4+6+\ldots\ldots\ldots\ldots+100$
(d) $3+7+11+\ldots\ldots\ldots\ldots+199$

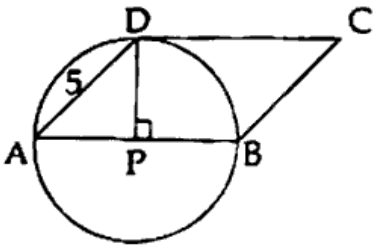
14. A box contains some green and blue balls. 7 red balls are put into it. Now the probability of getting a red ball from the box is $\frac{7}{24}$ and that of a blue ball is $\frac{1}{3}$.
(a) How many balls are there in the box ?
(b) How many of them are blue ?
(c) What is the probability of getting a green ball from the box ?

15. Land is acquired for road widening from a square ground, as shown in the figure. The width of the acquired land is 2 metres. Area of the remaining ground is 440 square metres.



(a) What is the shape of the remaining ground ?
(b) What is the length of the remaining ground ?

16. In the figure P is the centre of the circle. A,B and D are points on the circle. $\angle P = 90°$, AD = 5 centimetres.



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

(b) What is the area of triangle APD ?

(c) Find the area of the parallelogram ABCD.