PRAGATHI...THE SCHOOL

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GRADE X	*Mathematics*	*Date : 16/11/2022*
Time Allowed: 1 Hrs	*U*NIT TEST	*Max Marks: 30*

General Instructions :

1. This Question paper contains - **five sections** A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.

2. **Section A** has 3 **MCQ's and 01** Assertion-Reason based questions of 1 mark each.

3. **Section B** has 3 **Very Short Answer (VSA)-type** questions of 2 marks each.

4. **Section C** has 2 **Short Answer (SA)-type** questions of 3 marks each.

5. **Section D** has 2 **Very Long Answer (VLA)-type** questions of 5 marks each.

6. **Section E** has 1 **Long Answer (LA)-type** question of 4 marks each.

SECTION A

(Multiple Choice Questions)   Each question carries 1 mark

1. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is

   a) 10   b) −10   c) 5   d) −5

2. If 2 and $1/2$ are the zeros of $px^2 + 5x + r,$ then

   a) P = r =2   b) p = r = −2   c) p = 2, r = −2   d) p = −2, r = 2

3. How many zeros are there for the given polynomial?
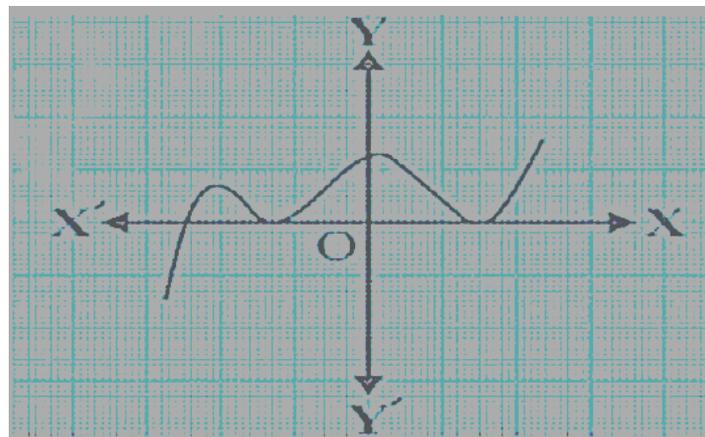
   a) 0   b) 1   c) 2   d) 3

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is
followed by a statement of
Reason (R). Choose the correct answer out of the following choices.

(a) Both A and R are true and R is the correct explanation of (A)

(b) Both A and R are true but R is not the correct explanation of (A)

(c) A is true but R is false.   (d) A is false but R is true.

4. **Assertion (A):** In a circle of radius 6 cm, the angle of a sector is 60°. Then the area of
the sector is 132/7 cm²

Reason (R): Area of the circle with radius r is πr^2.

SECTION B

This section comprises of very short answer type-questions (VSA) of 2 marks each

5. Find a quadratic polynomial with the given numbers are the sum and product of its zeros
respectively -1/4 , 1/4

6. The circumference of a circle is 22 cm. Calculate the area of its quadrant (in cm²).

7. In the Figure, PQ and AB are respectively the arcs of two concentric circles of a radii 7 cm
and 3.5 cm and centre O. If ∠POQ = 30°, then find the area of the shaded region.
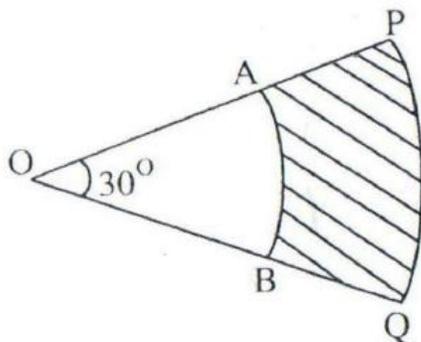
OR

Find the area of the major segment APB, in the figure of a circle of radius 35 cm and
∠AOB = 90°. (Use π = 22/7)
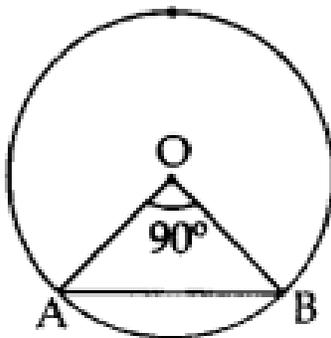
SECTION C
(This section comprises of short answer type questions (SA) of 3 marks each)

8. Write the zeros of the quadratic polynomial $f(x) = 4\sqrt{3}x^2 + 5x - 2\sqrt{3}$

OR

Find the zeros of the $8x^2 - 4$ and verify the relationship between the zeros and the coefficients.

9. An umbrella has 8 ribs which are equally spaced . Assuming umbrella to be a flat circle of radius 45 cm, find the area between the two consecutive ribs of the umbrella.
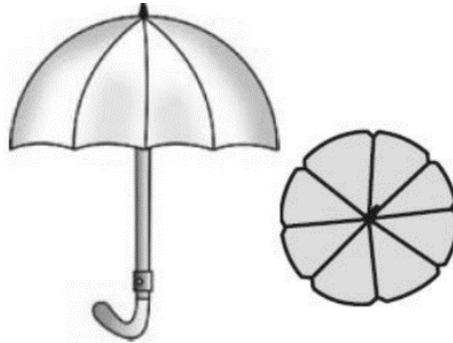

SECTION D
(This section comprises of very long answer-type questions (VLA) of 5 marks each)

10. A horse is tied to a peg at one corner of a square shaped grass field of side 15 m by means of a 5 m long rope .

Find (i) the area of that part of the field in which the horse can graze.

(ii) the increase in the grazing area if the rope were 10 m long instead of 5 m.

(Use π = 3.14)
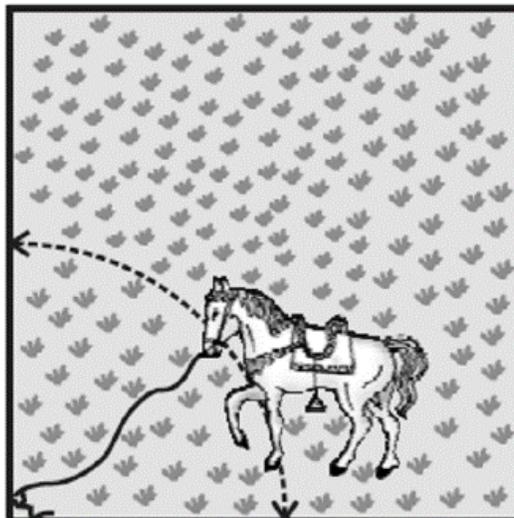
11. In the given fig, APB and CQD are semi circles of diameter 7 cm each, while ARC and BSD are semicircles of diameter 14 cm each. Find the perimeter of the shaded region. (Use π = 22/7)
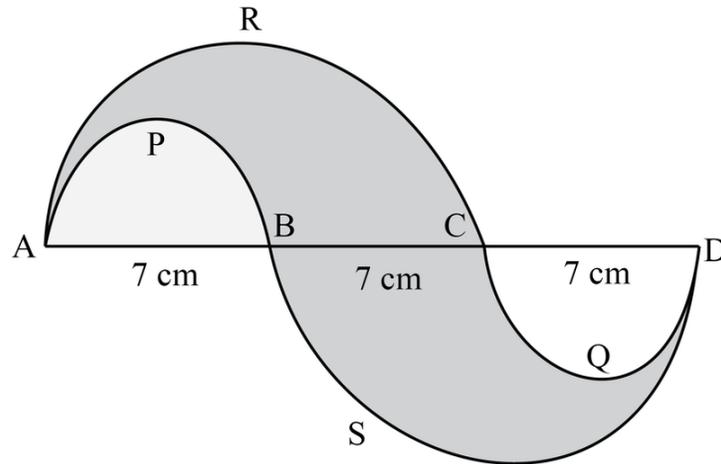
OR

In Figure, two concentric circles with centre O, have radii 21 cm and 42 cm. If ∠AOB = 60°, find the area of the shaded region. [Use π = 22/7]
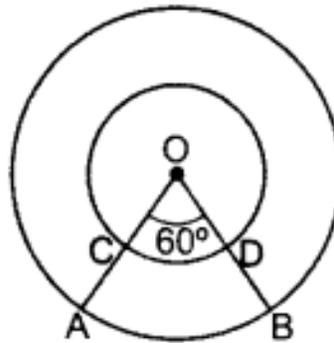
SECTION E
(This section comprises of long answer-type questions (LA) of 4 marks each)

12. Find the area of the segment AYB shown in Fig. , if radius of the circle is 21 cm and ∠ AOB = 120°. (Use π = 22/7)