5 Questions

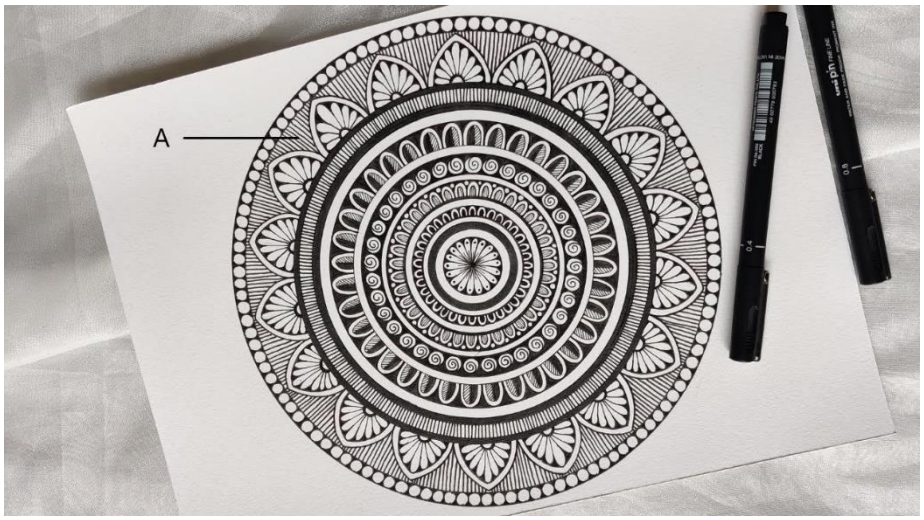
STD: X

SUBJECT: MATHEMATICS

Name & School Address of the Teacher	Sonia Parmar Bharatiya Vidya Bhavans V M Public School Teen Rasta, Makarpura, Vadodara Gujarat
Name of the Unit / Topic	**Areas Related to Circles**
The Core Concepts and Major Areas of the Unit / Topic	1. Area between two concentric Circles 2. Areas of sectors, quadrants and semicircles
Learning Outcome of the Unit	1. Apply the concepts of areas of different parts of circles in order to solve for various circular objects in real life.

QUESTIONS (1- 5)

Q1, Q2 and Q3 are case based questions. Q 4 and 5 are Assertion Reasoning questions.

Q. No.	Questions
Case study Q1.	The word Mandala comes from the ancient Indian language (Sanskrit), which means ***a Circle or Center***. Mandala is drawn from the central point and is surrounded by beautiful patterns and decorations that are connected and interrelated.  The given mandala art is made up of 13 concentric circles using different radius. a) Find the area of the mandala, given that the radius of the outer circle is 14 cm. b) Find the area between the two concentric circle(indicated as "A"), if the inner radius is 10 cm and the outer radius is 13 cm.
Case study Q2.	Madhubani art, also known as Mithila art is a style of painting practiced in the Mithila region of India and Nepal. It is named after the Madhubani district of Bihar India, which is where it originated. The adjoining painting consists of four fishes at the four corners and two in the circular region in the middle of the painting. a) Consider the dimensions of the innermost margin as 21cm X 35cm. In order to draw the fishes at the four corners, the artist started with drawing four quadrants of radius 7 cm. Find the area of each quadrant. b) Determine the radius of each semicircle (indicated as "A") drawn between the two fishes on the opposite sides of the painting. Find the area of each of these semicircles. (A) 

Case study Q3.	Vaibhavi wanted to paint a wall clock on a circular MDF board of radius 40 cm. She decided to use warli art, which uses a set of geometrical shapes like a circle, a triangle and a square. a) What mathematical concept should Vaibhavi use to obtain the centre of the circle? b) Find the area of that part of the circle where the bigger warli girls have been painted, if the radius of the outer circle is 35 cm and the inner radius is 28 cm. c) Determine the area between the same concentric circles enclosed by the hour hand and the minute hand, if the angle formed between them is 60^o. 
Q4.	**Assertion (A):** A medium sized circular pizza is equally divided into 8 parts. The central angle of each slice is 45^o. **Reason(R):** Central angle of a circle is 360^o. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A). (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true
Q5.	**Assertion(A):** The area swept by the minute hand of length 10.5 cm between 5:10 am and 5:40 am is 173.25 cm^2. **Reason (R):** Area of a circle is πr^2. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A). (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true

ANSWER KEY 1-5

Q. No.	ANSWERS
1.C.S.	a) 616 cm^2 b) 216.85 cm^2 (approx.)
2.C.S.	a) 38.5 cm^2 b) r = 3.5 cm, Area of semicircle = 19.25 cm^2
3. C.S.	a) centre is the intersecting point of the perpendicular bisector of any two chords of the circle. b) 1386 cm^2 c) 231 cm^2
4.A.R.	Option (a)
5.A.R.	Option (b)