CHAPTER-11 | AREAS RELATED TO CIRCLES

QUIZ PART-02

1. The area of a sector of a circle with radius 6 cm and an angle of 60° is:
   A. 6π cm^2 B. 9π cm^2
   C. 12π cm^2 D. 18π cm^2 (A)
   Explanation : Area of sector = 60/360 × π × 6^2 = 6π cm^2.
2. The area of a quadrant of a circle with a circumference of 22 cm is:
   A. 10 cm^2 B. 12 cm^2
   C. 15 cm^2 D. 17 cm^2 (C)
   Explanation: The radius is found from the circumference C = $2\pi r$, giving r = 22/2π = 22/6.28 ≈ 3.5. The area of the quadrant is 1/4 × π × 3.5^2 ≈ 15 cm^2.
3. The length of the minute hand of a clock is 14 cm. The area swept by the minute hand in 5 minutes is:
   A. 15.4 cm^2 B. 22 cm^2
   C. 30.8 cm^2 D. 35 cm^2 (C)
   Explanation: The area swept by the minute hand in 5 minutes is the area of a sector, where θ = 360/60 × 5 = 30°.Area = 30/360 × π × 14^2 = 30.8 cm^2.
4. A chord of a circle with radius 10 cm subtends a right angle at the center. The area of the minor segment is:
   A. 30 cm^2 B. 50 cm^2
   C. 100 cm^2 D. 97.3125 cm^2 (D)
   Explanation: Using the given values, the area of the minor segment is calculated as 97.3125 cm^2.
5. In a circle with radius 21 cm, an arc subtends an angle of 60° at the center. The length of the arc is:
   A. 22 cm
   B. 33 cm
   C. 42 cm
   D. 44 cm (C)
   Explanation : Length of arc = 60/360 × 2π × 21 = 42 cm.
6. The area of the segment formed by the arc in a circle with radius 21 cm and an angle of 60° is:
   A. 50 cm^2 B. 70 cm^2
   C. 88.44 cm^2 D. 100 cm^2 (C)
   Explanation : The area of the segment is Area of sector − Area of triangle = 150.72 − 62.28 = 88.44 cm^2.
7. A chord of a circle with radius 15 cm subtends an angle of 60° at the center. The area of the corresponding minor segment is:
   A. 10.7 cm^2 B. 20.4 cm^2
   C. 25.7 cm^2 D. 30.8 cm^2 (B)
   Explanation : Using the formula for the area of a segment, the minor segment is 20.4 cm^2.
8. The area of a sector of a circle with a radius of 6 cm and an angle of 45° is:
   A. 9π cm^2
   B. $6\pi\ cm^2$
   C. 3π cm^2
   D. 2π cm^2 (C)
   Explanation : The area of the sector = 45/360 × π × 6^2 = 3π cm^2.
9. The radius of a circle is 7 cm, and the angle of the sector is 90°. The area of the sector is:
   A. 38.5 cm^2
   B. 38 cm^2
   C. 38.8 cm^2
   D. 39 cm^2 (A)
   Explanation : Area of sector = 90/360 × π × 7^2 = 38.5 cm^2.
10. The area of the major segment of a circle with radius 12 cm and an angle of 120° is:
    A. 50.4 cm^2
    B. 80.4 cm^2
    C. 90.4 cm^2
    D. 100.4 cm^2 (B)
    Explanation : The area of the major segment = Area of the circle − Area of the minor segment, calculated as 80.4 cm^2.