

Chapter 11 Area Related To Circles

UNIT TEST

Duration: 1 hour

Marks: 30

SECTION A

Each carry 1 mark

1. Which constant ratio is denoted by π (pi)?

- a) $\frac{\text{diameter}}{\text{circumference}}$ b) $\frac{\text{area}}{\text{circumference}}$ c) $\frac{\text{circumference}}{\text{diameter}}$ d) $\frac{\text{area}}{\text{diameter}}$

2. If the diameter of a semi-circular protractor is 14 cm, then the perimeter of the protractor is:

- a) 26 cm b) 14 cm c) 28 cm d) 36 cm

3. The outer and inner diameters of a circular ring are 34 cm and 32 cm respectively. The area of the ring is:

- a) 66π b) 60π c) 33π d) 29π

4. Assertion: The area of circular playground is 22176m^2 , the cost of fencing this ground at the rate of ₹50 per m is ₹26400.

Reason: If R and r be the radius of outer and inner circular path, then the area of the ring will be $\pi(R^2 - r^2)$.

(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.

SECTION B

Each carry 2 marks

5. The diameter of the wheel of a bus is 140 cm. How many revolutions per minute must the wheel make in order to keep a speed of 66 km per hour?

6. Find the area of a quadrant of a circle, where the circumference of circle is 44cm. [Use $\pi = \frac{22}{7}$]
7. A copper wire, when bent in the form of a square, encloses an area of 484 cm². If the same wire is bent in the form of a circle, find the area enclosed by it.

SECTION C

Each carry 3 marks

8. A chord of a circle of radius 12 cm subtends an angle of 120° at the centre. Find the area of the corresponding segment of the circle. (Use $\pi = 3.14$ and $\sqrt{3} = 1.73$)
9. The short and long hands of a clock are 4 cm and 6 cm long respectively. Find the sum of distances travelled by their tips in 2 days.

SECTION D

Each carry 5 marks

10. Find the difference of the areas of a sector of angle 120° and its corresponding major sector of a circle of radius 21 cm.
11. The cost of fencing a circular field at the rate of Rs. 24 per metre is Rs. 5280. The field is to be ploughed at the rate of Rs. 0.50 per m². Find the cost of ploughing the field.

SECTION E

12. A horse is tied to a peg at one corner of a square shaped grass field of sides 15m by means of a 5m long rope (see the given figure).



- i) What is the area of the grass field?
- ii) Find the area of that part of the field in which the horse can graze.
- iii) Evaluate the grazing area if the rope were 10m long instead of 5m.
- iv) Determine the increase in the grazing area if the rope were 10m long instead of 5m.

UNIT TEST

1. c) $\frac{\text{circumference}}{\text{diameter}}$
2. d) 36 cm
3. c) 33π
4. (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
5. 250
6. 38.5cm^2
7. 616cm^2
8. 88.44cm^2
9. 1910.86cm
10. 462cm^2
11. ₹1925
12. i) 225m^2 ii) 19.625m^2 iii) 78.5m^2 iv) 58.875m^2