## AREA RELATED TO CIRCLES

**1 MARK QUESTION** 

1) Lengthofanarcofasectorofacircleofradius randangle $\theta$  is

(A) $\frac{\theta}{360^0} \times \pi r^2$	(B) $\frac{\theta}{360^0} \times 2\pi r^2$
(C) $\frac{\theta}{180^0} \times 2\pi r$	(D) $\frac{\theta}{360^0} \times 2\pi r$

2) If the area of a circle is  $49\pi$  sq. units then its perimeter is

(A)7  $\pi$  units (B) 9  $\pi$  units

- (C)  $14\pi$ units (D)  $49\pi$ units
- 3) In the figure find the length of an arc AB of a circle centre 'O' if  $\angle$  AOB = 90<sup>0</sup>



- Writetheformulatofindareaofasectorofacircle,ifangleatthecentre is'θ'degrees.
- 5) If the perimeter and area of a circle are numerically equal , then find the radius of the circle.
- 6) The perimeter of a circle with centre 'O' is 24 cm , the angle formed

by an arc of the circle at its centre is  $30^{\circ}$ . Find the length of the arc AB.



## **2 MARK QUESTION**

7)

ABCD is a square of side 14 cm. Four congruent circles are drawn in the squ are as shown in the figure. Calculate the area of the shaded region. (Circles toucheach other externally and also sides of the square)

8) Inthefigure, *ABCD* is a square of side 14 cm. *A*, *B*, *C* and *D* are the centres of



four congruent circles such that e

9) ach circle touches 9) externally two of

the remaining three circles. Find the area of the shaded region.



10) Find the area of un-shaded region in the given circle of radius 7 cm and sector angle is 300 as in the figure .



## **3 MARK QUESTION**

- 11) ABandCDarethearcsoftwoconcentric circles with centre 'O'ofradius 21cmand7cm respectively. If  $\angle AOB$ 
  - $=\!30^\circ as shown in the figure, find \ the area of the shaded region.$



12) Inthefigure, *ABCD* is a square, and two semicircles to uch each other ext ernally at *P*. The length of each semicircular arc is equal to 11 cm. Find the area of the shaded region.



13) ABCD is a rectangle of length 20 cm and breadth 10 cm. OAPB is a sector of a circle of radius  $10\sqrt{2}$  cm. Calculate the area of the shaded region. [ Take  $\pi = 3.14$  ]



14) A hand fan is made up of cloth fixed in between the metallic wires. It is in the shape of a sector of a circle of radius 21 cm and of angle 120° as shown in the figure. Calculate the area of the cloth used and also find the total length of the metallic



15) In the figure ABCD is a square of side 14cm with Centre A,B,C and D four circles are drawn such that each circle touch externally two of the remaining three circles as shown in the figure. Find the area of the shaded region.



16) In the figure ABCD is a square , whose vertices lie on the circle. Find the area of the shaded region , if the perimeter of the circle is 88 cm .



17)  $\triangle$  ABC is right angled at A. The sides AB, BC and AC are the tangents to the circle with center 'O' as shown in the figure . If AB = 6 cm, BC = 8 cm, find the area of the shaded region



## **4 MARK QUESTION**

18) In the figure *AXB* and *CYD* are the arcs of two concentric circles with centre *O*. The length of the arc *AXB* is 11cm. If OC=7cm and  $\angle AOB=30^\circ$ , then find the area of the shaded region. [Take  $\pi=\frac{22}{7}$ ]



19) *ABCD* is a square of side14cm.A circle is drawn inside it which just touches the mid-points of sides of the square, as shown in the figure. If *P*,*Q*,*R* and *S* are the mid-points of the sides of the square, and *PQ*,*QR*,*RS* and *SP* are the arcs of the circle, then find the area of the shaded region.

