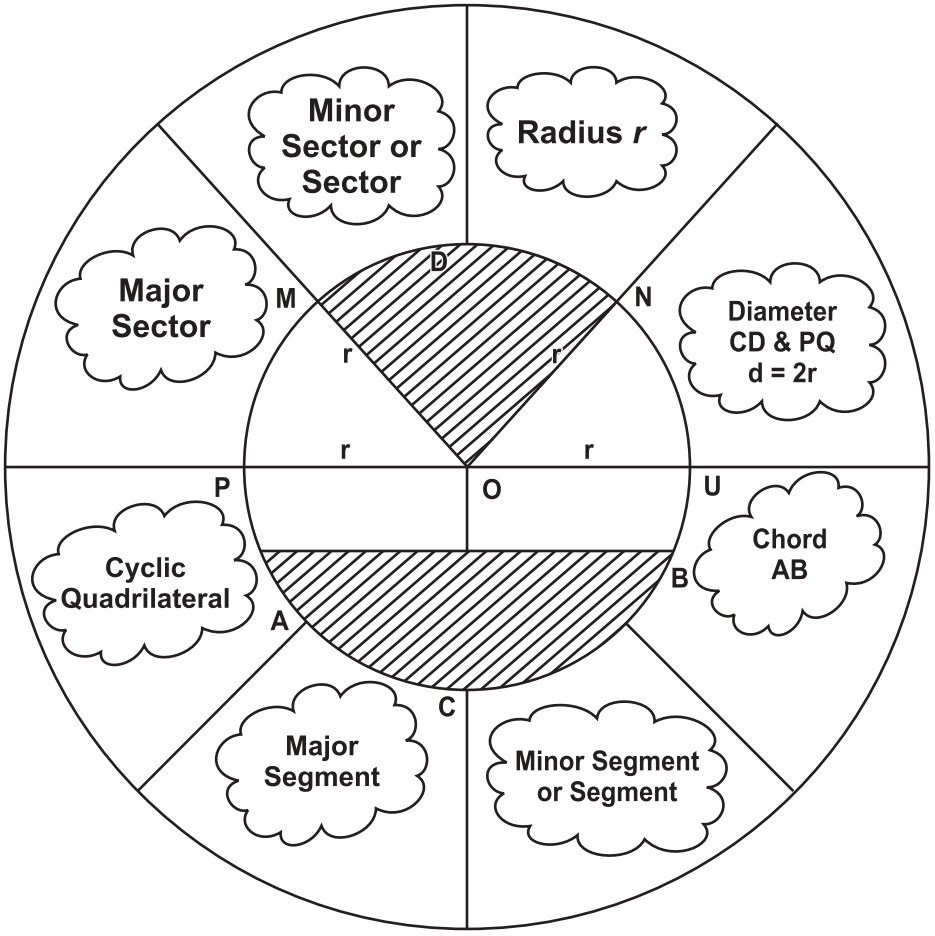
CHAPTER-10

CIRCLES
MIND MAPPING



Centre of Circle = O
Radius of Circle = OP = OQ = OM = ON = r
Diameter of Circle = PQ = d = 2r
Chord of Circle = AB
Sector of Circle = MON = Region
= between two radii and Corresponding are

Segment = ACB
Region between
Chord and Corresponding
Cyclic Quadrilateral :-
If the sum of pair of opposite angles
of quadrilateral is 180° = □PABQ

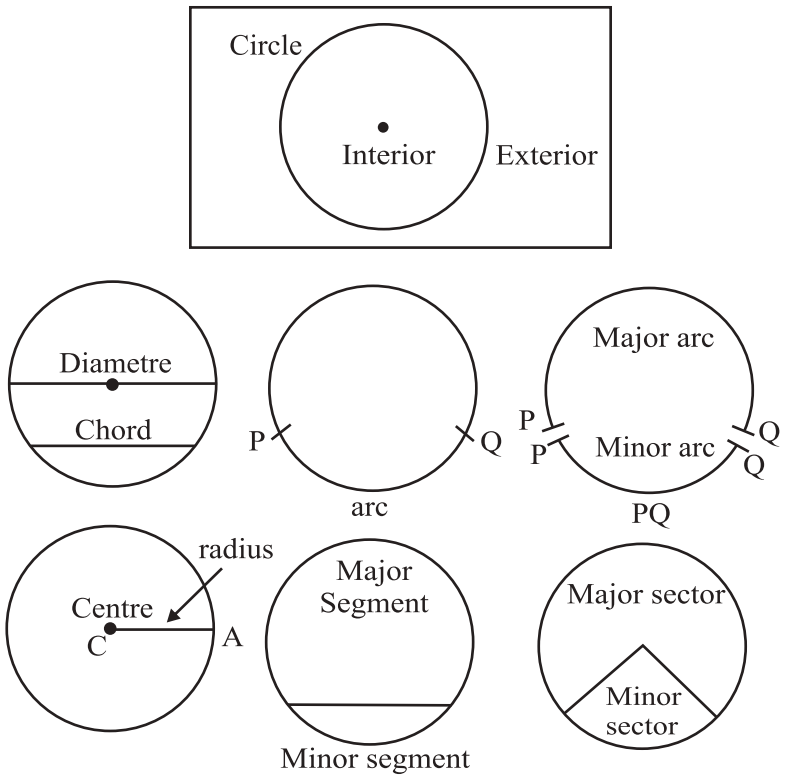
CHAPTER-10

CIRCLES

KEY POINTS

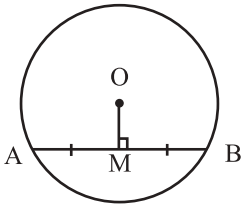
- The collection of those points in a plane which are at a fixed distance from a given fixed point is called a circle. The fixed point is called centre of the circle and the fixed distance is called radius.

  Circle and related Terms !

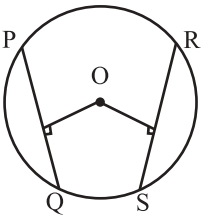


- There is one and only one circle passing through three non-collinear points.
- Equal chords of a circle subtends equal angles at centre.
- If angles subtended by chords at centre are equal then chords are equal.
- The perpendicular from centre to a chord of a circle, bisects the chord.

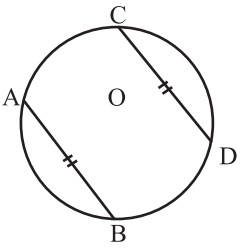
- The line joining the centre of a circle to the mid point of a chord is perpendicular to the chord.



- Equal chords of a circle are equidistant from centre.
- Chords equidistant from centre are equal in length.

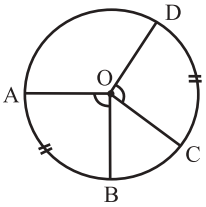


- If two chords of a circle are equal then corresponding arcs are equal.
- If arcs of a circle are equal then corresponding chords are also equal.



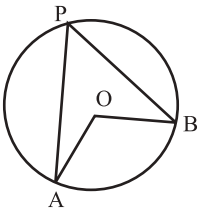
- Congruent arcs (or equal arcs) of a circle subtends equal angles at centre.

$\Rightarrow$ $\boxed{\angle AOB = \angle COD}$



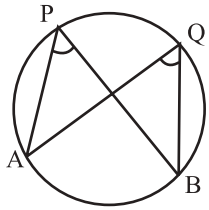
- The angle subtended by an arc at the centre of circle is twice the angle which is subtended at remaining part of the circle.

$\Rightarrow$ $\boxed{\angle AOB = 2\angle APB}$



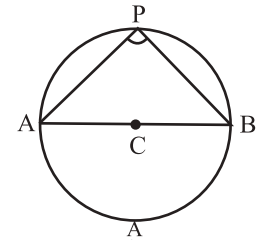
- Any two angles in the same segment of the circle are equal.

⇒ $\angle APB = \angle AQB$



- Angle in semi circle is right angle.

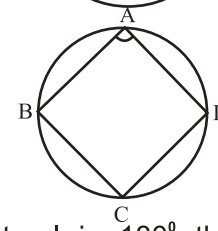
⇒ $\angle APB = 90°$



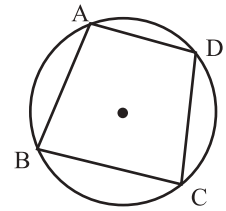
- In a cyclic quadrilateral the sum of opposite angles is 180^0.

⇒ $\angle A + \angle C = 180°$

⇒ $\angle B + \angle D = 180°$

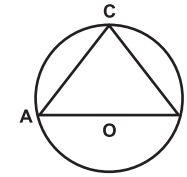


- If sum of opposite angles of a quadrilateral is 180^0 then that quadrilateral is cyclic quadrilateral.



PART – A

1. In fig. AOB is a diameter of the circle and AC = BC the $\angle CAB$ is equal to :



a) 30° b) 45°

c) 60° d) 90°

2. In fig. AB and CD are two equal chords of a circle with centre O. OP and OQ are perpendiculars on chords AB and CD respectively. If $\angle POQ = 150°$ then $\angle APQ$ is equal to

a) 30° b) 75°

c) 15° d) 60°