CHAPTER – 10

AERA OF CIRLCES

S.no	Points
1	A circle is a collection of all the points in a plane, which are equidistant from a fixed point in the plane
2	Equal chords of a circle (or of congruent circles) subtend equal angles at the center.
3	If the angles subtended by two chords of a circle (or of congruent circles) at the center (corresponding center) are equal, the chords are equal.
4	The perpendicular from the center of a circle to a chord bisects the chord.
5	The line drawn through the center of a circle to bisect a chord is perpendicular to the chord.
6	There is one and only one circle passing through three non-collinear points
7	Equal chords of a circle (or of congruent circles) are equidistant from the center (or corresponding centers).
8	Chords equidistant from the center (or corresponding centers) of a circle (or of congruent circles) are equal
9	If two arcs of a circle are congruent, then their corresponding chords are equal and conversely, if two chords of a circle are equal, then their corresponding arcs (minor, major) are congruent.
10	Congruent arcs of a circle subtend equal angles at the center.
11	The angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle
12	Angles in the same segment of a circle are equal
13	Angle in a semicircle is a right angle.
14	If a line segment joining two points subtends equal angles at two other points lying on the same side of the line containing the line segment, the four points lie on a circle.
15	The sum of either pair of opposite angles of a cyclic quadrilateral is 180°.
16	If the sum of a pair of opposite angles of a quadrilateral is 180°, then the quadrilateral is cyclic.

S.no	Terms	Descriptions
1	Circumference of a circle	$2\pi r$.
2	Area of circle	πr^2
3	Length of the arc of the sector of angle	Length of the arc of the sector of angle θ $\frac{\theta}{360} 2\pi r$
4	Area of the sector of angle	Area of the sector of angle θ $\frac{\theta}{360} \pi r^2$
5	Area of segment of a circle	Area of the corresponding sector – Area of the corresponding triangle