

CHAPTER 8- Circles

EE24BTECH11021 - Eshan Ray

SECTION-A [*JEEADVANCED/IIT – JEE*]

A:FILL IN THE BLANKS

- 1) If A and B are points in the plane such that $\frac{PA}{PB} = K(\text{constant})$ for all P on a given circle, then the value of K cannot be equal to
(1982 – 2Marks)
- 2) The points of intersection of the line $4x - 3y - 10 = 0$ and the circle $x^2 + y^2 - 2x + 4y - 20 = 0$ are
(1983 – 2Marks)
- 3) The lines $3x - 4y + 4 = 0$ and $6x - 8y - 7 = 0$ are tangents to the same circle. The radius of the circle is
(1984 – 2Marks)
- 4) Let $x^2 + y^2 - 4x - 2y - 11 = 0$ be a circle. A pair of tangents from the point (4, 5) with a pair of radii form a quadrilateral of area
(1985 – 2Marks)
- 5) From the origin chords are drawn to the circle $(x - 1)^2 + y^2 = 1$. The equation of the locus of the mid-points of these chords is
(1985 – 2Marks)
- 6) The equation of the line passing through the points of intersection of the circles $3x^2 + 3y^2 - 2x + 12y - 9 = 0$ and $x^2 + y^2 + 6x + 2y - 15 = 0$ is
(1986 – 2Marks)
- 7) From the point A (0, 3) on the circle $x^2 + 4x + (y - 3)^2 = 0$, a chord AB is drawn and extended to a point M such that $AM = 2AB$. The equation of the locus of M is
(1986 – 2Marks)
- 8) The area of the triangle formed by the tangents from the point (4, 3) to the circle $x^2 + y^2 = 9$ and the line joining their point of contact is
(1987 – 2Marks)
- 9) If the circle $C_1 : x^2 + y^2 = 16$ intersects another circle C_2 of radius 5 in such a manner that common chord is of maximum length and has a slope equal to $\frac{3}{4}$, then the coordinates of the centre of C_2 are
(1988 – 2Marks)
- 10) The area formed by the positive x-axis and the normal and the tangent to the circle $x^2 + y^2 = 4$ at $(1, \sqrt{3})$ is
(1989 – 2Marks)
- 11) If a circle passes through the points of intersection of the coordinate axes with the lines $\lambda x - y + 1 = 0$ and $x - 2y + 3 = 0$, then the value of $\lambda =$
(1991 – 2Marks)
- 12) The equation of the locus of the mid-points of the circle $4x^2 + 4y^2 - 12x + 4y + 1 = 0$ that subtend an angle of $\frac{2\pi}{3}$ at its centre is
(1993 – 2Marks)
- 13) The intercept of the line $y = x$ by the circle $x^2 + y^2 - 2x = 0$ is AB. Equation of the circle with AB as a diameter is
(1996 – 1Mark)
- 14) For each natural number k, let C_k denote the circle with radius k centimetres and centre at the origin. On the circle C_k , α -particle moves k centimetres in the counter-clockwise direction. After completing its motion on C_k , the particle moves to C_{k+1} in the radial direction. The motion of the particle continues in this manner. The particle starts at (1, 0). If the particle crosses the positive direction of the x-axis for the first time on the circle C_n then n=
(1997 – 2Marks)
- 15) The chords of contact of the pair of tangents drawn from each point on the line $2x + y = 4$ to $x^2 + y^2 = 1$ pass through the point
(1997 – 2Marks)