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 $\frac{PA}{PB} = K$(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.....and.....
$(1983-2Marks)$

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 λ =.....
$(1991-2Marks)$

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, $\alpha-particle$ 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.....
$(1997-2Marks)$