8.CIRCLE

EE24BTECH11023-RASAGNA

SECTION-A JEE Main/AIEEE (C)

14. The triangle PQR is inscribed in the circle $x^2+y^2=25$.If Q and R have co-ordinates (3,4) and (-4,3) respectively,then $\angle QPR$ is equal to

(2000S)

(a) $\frac{\pi}{2}$
(b) $\frac{\pi}{3}$
(c) $\frac{\pi}{4}$
(d) $\frac{\pi}{6}$

15. If the circles $x^2+y^2+2x+2ky+k=0$ intersect orthogonally,then k is

(2000S)

(a) 2 or $-\frac{3}{2}$
(b) -2 or $-\frac{3}{2}$
(c) 2 or $\frac{3}{2}$
(d) -2 or $\frac{3}{2}$

16. Let AB be a chord of the circle $x^2+y^2=r^2$ subtending a right angle at the centre.then the locus of the centroid of the triangle PAB as P moves on the circle is

(2001s)

(a) a parabola
(b) a circle
(c) an ellipse
(d) a pair of straight lines

17. Let PQ and RS be tangents at the extremities of the diameter PR of a circle of radius r. If PS and RQ intersect at a point X on the circumference of the circle, then 2r equals

(2001S)

(a) $\sqrt{PQ.RS}$
(b) (PQ+RS)
(c) 2PQ.RS/(PQ+RS)
(d) $\sqrt{(PQ^2+RS^2)}/2$

18. If the tangent at the point P on the circle $x^2+y^2+6x+6y=2$ meets a straight line $5x-2y+6=0$ at a point on the y-axis, then the length of PQ is

(2002S)

(a) 4
(b) $2\sqrt{5}$
(c) 5
(d) $3\sqrt{5}$

19. The centre of the circle inscribed in square formed by the lines $x^2-8x+12=0$ and $y^2-14y+45=0$, is

(2003S)

(a) (4,7)
(b) (7,4)
(c) (9,4)
(d) (4,9)

20. If one of the diameters of the circle $x^2+y^2-2x-6y+6=0$ is a chord to the circle with the centre (2,1),then the radius of the circle is

(2004S)

(a) $\sqrt{3}$
(b) $\sqrt{2}$
(c) 3
(d) 2

21. A circle is given by $x^2+(y-1)^2=1$, another circle C touches it externally and also the x-axis, then the locus of its centre is

(2005S)

(a) $\{(x,y):x^2=4y\} \cup \{(x,y):y\leq 0\}$
(b) $\{(x,y):x^2+(y-1)^2=4\} \cup \{(x,y):y\leq 0\}$
(c) $\{(x,y):x^2=y\} \cup \{(0,y):y\leq 0\}$
(d) $\{(x,y):x^2=4y\} \cup \{(0,y):y\leq 0\}$

22. Tangents drawn from the point P(1,8) to the circle $x^2+y^2-6x-4y-11=0$ touch the circle at the points A and B. The equation of the circumcircle of the triangle PAB is

(2009)

(a) $x^2+y^2+4x-6y+19=0$
(b) $x^2+y^2-4x-10y+19=0$
(c) $x^2+y^2-4x+6y-29=0$
(d) $x^2+y^2-4x-6y+19=0$

23. The circle passing through the point $(-1,0)$ and touching the y-axis at (0,2)also passes through the point

(2011)

(a) $(-\frac{3}{2},0)$
(b) $(-\frac{5}{2},2)$

(c) $(-\frac{3}{2},\frac{5}{2})$
(d) $(-4,0)$

24. The locus of the mid-point of the chord of contacy of tangents drawn from points lying on the straight line $4x-5y=20$ to the circle $x^2+y^2=9$ is

(2012)

(a) $20(x^2+y^2)-36x+45y=0$
(b) $20(x^2+y^2)+36x-45y=0$
(c) $36(x^2+y^2)-20x+45y=0$
(d) $36(x^2+y^2)+20x-45y=0$

25. A line $y=mx+1$ intersects the circle$(x-3)^2+(y+2)^2=25$ at the points P and Q. if the mid point of the line segment PQ has x-coordinate $-\frac{3}{5}$, then which one of the following options is correct?

(JEE Adv. 2019)

(a) $2\le m<4$
(b) $-3\le m<-1$
(c) $4\le m<6$
(d) $6\le m<8$

SECTION-A JEE Main/AIEEE (D)

1. The equations of the tangents drawn from the origin to the circle $x^2+y^2-2rx-2hy+h^2=0$,are

(1988-2 Marks)

(a) $x=0$
(b) $y=0$
(c) $(h^2-r^2)x-2rhy=0$
(d) $(h^2-r^2)x+2rhy=0$

2. The number of common tangents to the circles $x^2+y^2=4$ and $x^2+y^2-6x-8y=24$ is

(1998-2 Marks)

(a) 0
(b) 1
(c) 3
(d) 4

3. If the circle $x^2+y^2=a^2$ intersects the hyperbola $xy=c^2$ in four points $P(x_1,y_1),Q(x_2,y_2),R(x_3,y_3),S(x_4,y_4)$,then

(1998-2 Marks)

(a) $x_1+x_2+x_3+x_4=0$
(b) $y_1+y_2+y_3+y_4=0$
(c) $x_1x_2x_3x_4=c^4$
(d) $y_1y_2y_3y_4=c^4$