8.circle

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6) The lines $2x-3y=5$ and $3x-4y=7$ are diameters of a circle having area as 154 sq.units.Then the equation of the circle is **(2003)**
   (a) $x^2+y^2-2x+2y=62$
   (b) $x^2+y^2+2x-2y=62$
   (c) $x^2+y^2+2x-2y=47$
   (d) $x^2+y^2-2x+2y=47$

7) If a circle passes through the point (a,b) and cuts the circle $x^2+y^2=4$ orthogonally, then the locus of its centre is **(2004)**
   (a) $2ax-2by-\left(a^2+b^2+4\right)=0$
   (b) $2ax+2by-\left(a^2+b^2+4\right)=0$
   (c) $2ax-2by+\left(a^2+b^2+4\right)=0$
   (d) $2ax+2by+\left(a^2+b^2+4\right)=4$

8) A variable circle passes through the fixed point $\mathbf{A}\,(p,q)$ and touches x-axis.The locus of the other end of the diameter through **A**is **(2004)**
   (a) $(y-q)^2=4px$
   (b) $(x-q)^2=4py$
   (c) $(y-p)^2=4qx$
   (d) $(x-p)^2=4qy$

9) If the lines $2x+3y+1=0$ and $3x-y-4=0$ lie along diameter of a circle of circumference 10π, then the equation of the circle is **(2004)**
   (a) $x^2+y^2+2x-2y-23=0$
   (b) $x^2+y^2-2x-2y-23=0$
   (c) $x^2+y^2+2x+2y-23=0$
   (d) $x^2+y^2-2x+2y-23=0$

10) Intercept on the line $y=x$ by the circle $x^2+y^2-2x=0$ is **AB**.Equation of the circle on **AB** as a diameter is **(2004)**
   (a) $x^2+y^2+x-y=0$
   (b) $x^2+y^2-x+y=0$
   (c) $x^2+y^2+x+y=0$
   (d) $x^2+y^2-x-y=0$

11) If the circles $x^2+y^2+2ax+cy+a=0$ and $x^2+y^2-3ax+dy-1=0$ intersect in two distinct points **P** and **Q** then the line $5x+by-a=0$ passes through **P** and **Q** for **(2005)**
   (a) exactly one value of a
   (b) no value of a
   (c) infinitely many values of a
   (d) exactly two values of a

12) A circle touches the x-axis and also touches the circle with centre at $(0,3)$ and radius 2. The locus of the centre of the circle is **(2005)**
   (a) an ellipse
   (b) a circle
   (c) a hyperbola
   (d) a parabola

13) If a circle passes through the point (a,b) and cuts the circle $x^2+y^2=p^2$ orthogonally, then the equation of the locus of its centre is **(2005)**
   (a) $x^2+y^2-3ax-4by+\left(a^2+b^2-p^2\right)=0$
   (b) $2ax+2by-\left(a^2-b^2+p^2\right)=0$
   (c) $x^2+y^2-2ax-3by+\left(a^2-b^2-p^2\right)=0$
   (d) $2ax+2by-\left(a^2+b^2+p^2\right)=0$

14) If the pair of lines $ax^2+2(a+b)xy+by^2=0$ lie along diameters of a circle and divide the circle into four sectors such that the area of one of the sectors is thrice the area of another sector then **(2005)**
   (a) $3a^2-10ab+3b^2=0$
   (b) $3a^2-2ab+3b^2=0$
   (c) $3a^2+10ab+3b^2=0$
   (d) $3a^2+2ab+3b^2=0$

15) If the lines $3x-4y-7=0$ and $2x-3y-5=0$ are two diameters of a circle of area 49π square units, the equation of the circle is **(2006)**
   (a) $x^2+y^2+2x-2y-47=0$
   (b) $x^2+y^2+2x-2y-62=0$
   (c) $x^2+y^2-2x+2y-62=0$
   (d) $x^2+y^2-2x+2y-47=0$

16) Let **C** be the circle with centre $(0,0)$ and radius 3 units.The equation of the locus of the mid points of the chords of the circle **C** that subtend an angle of $\frac{2\pi}{3}$ at its centre is **(2006)**
   (a) $x^2+y^2=\frac{3}{2}$
   (b) $x^2+y^2=1$
   (c) $x^2+y^2=\frac{27}{4}$
   (d) $x^2+y^2=\frac{9}{4}$

17) Consider a family of circles which are passing through the point $(-1,1)$, and are tangent to x-

axis.If (h, k) are the coordinate of the centre of the circles, then the set of values of k is given by the interval **(2007)**

(a) $\frac{-1}{2} \leq k \leq \frac{1}{2}$ (c) $o \leq k \leq \frac{1}{2}$
(b) $k \leq \frac{1}{2}$ (d) $k \geq \frac{1}{2}$

18) The point diametrically opposite to the point $\mathbf{P}(1, 0)$ on the circle $x^2 + y^2 + 2x + 2y - 3 = 0$ is **(2008)**

(a) $(3, -4)$ (c) $(-3, -4)$
(b) $(-3, 4)$ (d) $(3, 4)$

19) The differential equation of the family of circles with fixed radius 5 units and centre on the line $y = 2$ is
(a) $(x-2)\,y'^2 = 25 - (y-2)^2$
(b) $(y-2)\,y'^2 = 25 - (y-2)^2$
(c) $(y-2)^2\,y'^2 = 25 - (y-2)^2$
(d) $(x-2)^2\,y'^2 = 25 - (y-2)^2$

20) If **P** and **Q** are the points of intersection of the circles $x^2 + y^2 + 3x + 7y + 2p - 5 = 0$ and $x^2 + y^2 + 2x + 2y - p^2 = 0$ then there is a circle passing through **P**,**Q** and $(1, 1)$ for: **(2009)**
(a) all except one value of p
(b) all except two values of p
(c) exactly one value of p
(d) all value of p