

# CONIC SECTION

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## I. SECTION B

- 31) A hyperbola passes through point  $P(\sqrt{2}, \sqrt{2})$  and has foci at  $(\pm 2, 0)$ . Then the tangent to this hyperbola at P also passes through the point : (JEE M 2017)
- a)  $(-\sqrt{2}, -\sqrt{3})$       c)  $(2\sqrt{2}, 3\sqrt{3})$   
 b)  $(3\sqrt{2}, 2\sqrt{3})$       d)  $(\sqrt{3}, \sqrt{2})$
- 32) The radius of a circle, having minimum area, which touches the curve  $y = 4 - x^2$  and the lines  $y = |x|$  is : (JEE M 2018)
- a)  $4(\sqrt{2}+1)$       c)  $2(\sqrt{2}-1)$   
 b)  $2(\sqrt{2}+1)$       d)  $4(\sqrt{2}-1)$
- 33) Tangents are drawn to the hyperbola  $4x^2 - y^2 = 36$  at the points P and Q. If these tangents intersect at the point T(0, 3) then the area (in sq.units) of  $\Delta PTQ$  is: (JEE M 2018)
- a)  $54\sqrt{3}$     b)  $60\sqrt{3}$     c)  $36\sqrt{3}$     d)  $45\sqrt{5}$
- 34) tangent and normal are drawn at P(16, 16) on the parabola  $y^2 = 16x$ , which intersect the axis of the parabola at A and B, respectively. If C is the centre of the circle through the points P, A and B and  $\angle CPB = \theta$ , then the value of  $\tan \theta$  is : (JEE M 2018)
- a) 2      b) 3      c)  $4/3$       d)  $1/2$
- 35) Two sets A and B are as under:  
 $A = \{(a, b) \in \mathbb{R} \times \mathbb{R} : |a - 5| < 1 \text{ and } |b - 5| < 1\};$   
 $B = \{(a, b) \in \mathbb{R} \times \mathbb{R} : 4(a - 6)^2 + 9(b - 5)^2 \leq 36\}.$  Then: (JEE M 2018)
- a)  $A \subset B$   
 b)  $A \cap B$   
 c) neither  $A \subset B$  nor  $B \subset A$   
 d)  $B \subset A$
- 36) If the tangent at (1, 7) to the curve  $x^2 = y - 6$  touches the circle  $x^2 + y^2 + 16x + 12y + c = 0$  then the value of c is : (JEEM 2018)
- a) 185      b) 85      c) 95      d) 195
- 37) Axis of a parabola lies along X-axis. If its vertex and focus are at a distance 2 and 4 respectively from origin, on the positive X-axis then which of the following points does not lie on it? (JEE M 2018)
- a) (5,  $2\sqrt{6}$ )      c) (6,  $4\sqrt{2}$ )  
 b) (8, 6)      d) (4, -4)
- 38) Let  $0 < \theta < \pi/2$ . If the eccentricity of the hyperbola  $\frac{x^2}{\cos^2 \theta} - \frac{y^2}{\sin^2 \theta} = 1$  is greater than 2, then the length of its latus rectum lies in the interval: (JEE M 2019-9 Jan(M))
- a)  $(3, \infty)$       c)  $(2, 3]$   
 b)  $(3/2, 3]$       d)  $(1, 3/2]$
- 39) Equation of a common tangent to the circle  $x^2 + y^2 - 6x = 0$  and the parabola  $y^2 = 4x$ , is: (JEE M 2019-9 Jan(M))
- a)  $2\sqrt{3}y = 12x + 1$       c)  $2\sqrt{3}y = -x - 12$   
 b)  $\sqrt{3}y = x + 3$       d)  $\sqrt{3}y = 3x + 1$
- 40) If the line  $y = mx + 7\sqrt{3}$  is normal to the hyperbola  $\frac{x^2}{24} - \frac{y^2}{18} = 1$  then a value of m is: (JEEM 2019-9 April(M))
- a)  $\sqrt{5}/2$     b)  $\sqrt{15}/2$     c)  $2/\sqrt{5}$     d)  $3/\sqrt{5}$
- 41) if one end of a focal chord of the parabola  $y^2 = 16x$  is at (1, 4), then the length of this focal chord is : (JEE M 2019-9 Jan(M))
- a) 25      b) 22      c) 24      d) 20