

# 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)
- $(-\sqrt{2}, -\sqrt{3})$
  - $(3\sqrt{2}, 2\sqrt{3})$
  - $(2\sqrt{2}, 3\sqrt{3})$
  - $(\sqrt{3}, \sqrt{2})$
- 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)
- $4(\sqrt{2} + 1)$
  - $2(\sqrt{2} + 1)$
  - $2(\sqrt{2} - 1)$
  - $4(\sqrt{2} - 1)$
- 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)
- $54\sqrt{3}$
  - $60\sqrt{3}$
  - $36\sqrt{3}$
  - $45\sqrt{5}$
- 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)
- 2
  - 3
  - $\frac{4}{3}$
  - $\frac{1}{2}$
- 35) Two sets  $A$  and  $B$  are as under:  
 $A = \{(a, b) \in \mathbb{R} \times \mathbb{R} : |a - 5| < 1 \text{ and } |b - 5| < 1\}$   
 $B = \{(a, b) \in \mathbb{R} \times \mathbb{R} : 4(a - 6)^2 + 9(b - 5)^2 \leq 36\}$   
 (JEE M 2018)
- $A \subset B$
  - $A \cap B$
  - neither  $A \subset B$  nor  $B \subset A$
  - $B \subset A$
- 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)
- 185
  - 85
  - 95
  - 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)
- $(5, 2\sqrt{6})$
  - $(8, 6)$
  - $(6, 4\sqrt{2})$
  - $(4, -4)$
- 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))
- $(5, \infty)$
  - $(3/2, 3]$
  - $(2, 3]$
  - $(1, 3/2]$
- 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))
- $2\sqrt{3}y = 12x + 1$
  - $\sqrt{3}y = x + 3$
  - $2\sqrt{3}y = -x - 12$
  - $\sqrt{3}y = 3x + 1$
- 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))
- $\frac{\sqrt{5}}{2}$
  - $\frac{\sqrt{15}}{2}$
  - $\frac{2}{\sqrt{5}}$

d)  $\frac{3}{\sqrt{5}}$

- 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