

CONIC SECTION

EE24BTECH11038 - MALAKALA BALA SUBRAHMANYA ARAVIND

I. SECTION B

- 31) A hyperbola passes through point $\mathbf{P}(\sqrt{2}, \sqrt{2})$ 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 $\mathbf{T}(0, 3)$ then the area (in sq.units) of ΔPTQ 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 $\mathbf{P}(16, 16)$ 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) $\frac{4}{3}$ d) $\frac{1}{2}$
- 35) Two sets A and B are as under:
 $A = \{(a, b) \in \mathbb{R} \times \mathbb{R} : |a - 5| < 1 \text{ and } |b - 5| < 1\}$;
 $B = \{(a, b) \in \mathbb{R} \times \mathbb{R} : 4(a-6)^2 + 9(b-5)^2 \leq 36\}$. 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 : (JEE M 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: (JEE M 2019-9 April(M))
- a) $\frac{\sqrt{5}}{2}$ b) $\frac{\sqrt{15}}{2}$ c) $\frac{2}{\sqrt{5}}$ 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