

Topics : Fundamentals of Mathematics, Straight Line, Hyperbola, Ellipse

Type of Questions		M.M., Min.
Single choice Objective (no negative marking) Q.1,2,3,4,5	(3 marks, 3 min.)	[15, 15]
Fill in the Blanks (no negative marking) Q.6	(4 marks, 4 min.)	[4, 4]
Subjective Questions (no negative marking) Q.7	(4 marks, 5 min.)	[4, 5]

1. Number of possible ordered pairs of all positions of point P, so that area of rectangle PDOC is 30 sq. units is
 (A) 3 (B) 2 (C) 1 (D) 0

2. Point P(-1, 4) is translated by $5\sqrt{2}$ units parallel to the line $2x + 2y + 3 = 0$ so that its ordinate increases. Let Q be its new position, then image of Q with respect to the line $2x + 2y + 3 = 0$ is
 (A) (0, -6) (B) (-4, -2) (C) $\left(-\frac{21}{2}, \frac{9}{2}\right)$ (D) (-6, 0)

3. If the point $(1 + \cos \theta, \sin \theta)$ lies between the region corresponding to the acute angle between the lines $3y = x$ & $6y = x$ and $a < \tan \frac{\theta}{2} < b$, then $[a + b]$ is equal to
 (where $[\cdot]$ denotes the greatest integer function)
 (A) 9 (B) 1 (C) 0 (D) none of these

4. The equation $(x - 2)^2 + (y + 4)^2 = 25 \frac{(x + 2y - 4)^2}{5}$ represents
 (A) parabola (B) ellipse (C) Hyperbola (D) Pair of lines

5. The equation, $9x^2 + 4y^2 - 18x - 16y - 11 = 0$ represents
 (A) a parabola (B) an ellipse
 (C) a hyperbola (D) a pair of straight lines

6. If $(a^2 + b^2)^3 = (a^3 + b^3)^2$ and $ab \neq 0$ then the numerical value of $\frac{a}{b} + \frac{b}{a}$ is equal to _____

7. Find the solution set of the inequality $||x| - 1| < 1 - x$