

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]

- 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
- 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)
- 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
- 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
- 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
- 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 \_\_\_\_\_
- Find the solution set of the inequality  $||x| - 1| < 1 - x$



## Answers Key

1. (B)    2. (C)    3. (C)    4. (C)  
5. (B)    6.  $\frac{2}{3}$     7.  $(-, 0)$