

**Topics : Circle, Straight Lines, Pair of Straight Lines**

**Type of Questions**

**M.M., Min.**

Single choice Objective (no negative marking) Q.1,2	(3 marks, 3 min.)	[6, 6]
Multiple choice objective (no negative marking) Q.3,4	(5 marks, 4 min.)	[10, 8]
Subjective Questions (no negative marking) Q.5,6	(4 marks, 5 min.)	[8, 10]
Match the Following (no negative marking) Q.7	(8 marks, 8 min.)	[8, 8]

- A variable line cuts the lines  $x^2 - (a + b)x + ab = 0$  in such a way that intercept between the lines subtends a right angle at origin. The locus of the foot of the perpendicular from origin on the variable line is:  
 (A)  $x^2 + y^2 - (a + b)x + ab = 0$  (B)  $x^2 + y^2 + (a + b)x - ab = 0$   
 (C)  $x^2 + y^2 + (a + b)x + ab = 0$  (D)  $x^2 + y^2 - (a + b)x - ab = 0$
- If the equation  $2x^2 + 3xy + by^2 - 11x + 13y + c = 0$  represents two perpendicular straight lines, then  
 (A)  $b = -2$  (B)  $b = 2$  (C)  $c = 2$  (D)  $c = -2$
- Point(s) on the line  $x = 3$  from which the tangents drawn to the circle  $x^2 + y^2 = 8$  are at right angles is/are  
 (A)  $(3, -\sqrt{7})$  (B)  $(3, \sqrt{23})$  (C)  $(3, \sqrt{7})$  (D)  $(3, -\sqrt{23})$
- The possible radius of a circle whose centre is at origin and which touches the circle  $x^2 + y^2 - 6x - 8y + 21 = 0$ , is  
 (A) 2 (B) 3 (C) 5 (D) 7
- The centre of a square is at the origin and one vertex is  $A(2, 1)$ . Find the co-ordinates of other vertices of the square.
- Plot the straight lines on the co-ordinate axes.  
 (i)  $y = x$  (ii)  $y = -x$  (iii)  $y = x + 1$
- | Column - I  | Column-II |
|---|-----------|
| (A) If the distance between the lines $(x + 7y)^2 + \sqrt{2}(x + 7y) - 42 = 0$ is $r$ , then $(5r^2 - 10)$ equals to                              | (p) 1     |
| (B) If the sum of the distance of a point from two perpendicular lines in a plane is 1, then its locus is $ x  +  y  = k$ , where $k$ is equal to | (q) 3     |
| (C) If $6x + 6y + m = 0$ is acute angle bisector of lines $x + 2y + 4 = 0$ & $4x + 2y - 1 = 0$ , then $m$ is equal to                             | (r) 2     |
| (D) Area of the triangle formed by the lines $y^2 - 9xy + 18x^2 = 0$ and $y = 6$ is   | (s) 7     |

# Answers Key

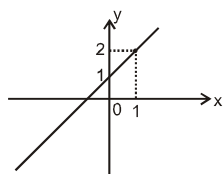
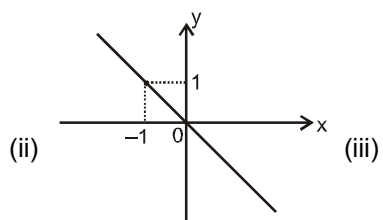
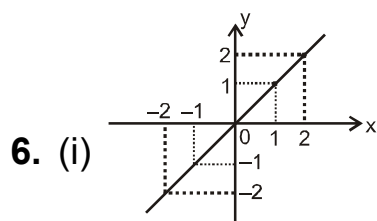
1. A

2. A

3. AC

4. BD

5.  $(-2, -1)$ ,  $(-1, 2)$ ,  $(1, -2)$



7. (A)  $\rightarrow$  (s), (B)  $\rightarrow$  (p), (C)  $\rightarrow$  (s), (D)  $\rightarrow$  (q)