

Straight Lines and pairs of Straight Lines

EE24BTECH11041-MOHIT

I. A -FILL IN THE BLANKS

- 1.The area enclosed within the curve $|x| + |y| = 1$ is ... (1981-2 Marks)
2. $y = 10^x$ is the reflection of $y = \log x$ in the line whose equation is... (1982-2 Marks)
- 3.The set of lines $ax + by + c = 0$, where $3a + 2b + 4c = 0$ concurrent at the point ... (1982-2 Marks)
- 4.Given the points $A(0, 4)$ and $B(0, -4)$, the equation of the locus of the point $p(x, y)$, such that $|AP - BP| = 6$ is ... (1983-1 Marks)
- 5.If a, b and c are in A.P, then the straight line $ax + by + c = 0$ will always pass through a fixed point whose coordinate are ... (1984-2 Marks)
- 6.The orthocentre of the triangle formed by the lines $x + y = 1$, $2x + 3y = 6$ and $4x - y + 4 = 0$ lies in the quadrant number. ... (1985-2 Marks)
- 7.Let the algebraic sum of the perpendicular distances from the points $(2, 0)$, $(0, 2)$ and $(1, 1)$ to a variable straight line be zero; then the line passes through a fixed point whose coordinates are... (1991-2 Marks)
- 8.The vertices of a triangle are $A(-1, -7)$, $B(5, 1)$ and $C(1, 10)$. The equation of the bisector of the angle $\angle ABC$ is... (1993-2 marks)

II. B-TRUE/FALSE

- 1.The straight line $5x + 4y = 0$ passes through the point of intersection of the straight lines $x + 2y - 10 = 0$ and $2x + y + 5 = 0$. (1983-1 Marks)
- 2.The lines $2x + 3y + 19 = 0$ and $9x + 6y - 17 = 0$ cut the coordinate axes in concyclic points. (1988-1 Marks)

III. C-MCQs WITH ONE CORRECT ANSWER

- 1.The points $(-a, -b)$, $(0, 0)$, (a, b) and (a^2, ab) are: (1979)
 - 1) collinear
 - 2) Vertices of a parallelogram
 - 3) Vertices of a rectangle
 - 4) None of these

- 2.The points of the $(4, 1)$ undergoes the following three transformations successively. (1980)

- 1) Reflection about the line $y = x$.
- 2) Translation through a distance of x -axis.
- 3) Rotation through an $\frac{\pi}{4}$ about the origin in the counter clockwise direction.

Then the final position of the point is given by the coordinates.

- 1) $(\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}})$
- 2) $(-\sqrt{2}, 7\sqrt{2})$
- 3) $(-\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}})$
- 4) $(\sqrt{2}, 7\sqrt{2})$

- 3.The straight lines $x + y = 0$, $3x + y - 4 = 0$, $x + 3y - 4 = 0$ form a triangle which is (1983-1 Marks)

- 1) isosceles
- 2) equilateral
- 3) right angled
- 4) none of these

4. If $p = (1, 0)$, $Q = (-1, 0)$ and $R = (2, 0)$ are three given points, then locus of the points S satisfying the relation

$SQ^2 + SR^2 = 2SP^2$ is (1988-2 Marks)

- 1) a straight line parallel to x -axis
- 2) a circle passing through the origin
- 3) a circle with the centre at the origin
- 4) a straight line parallel to y -axis

- 5.Line L has intercepts a and b on the coordinate axes. When the axes are rotated through a given angle, keeping the origin fixed, the same line L has intercept p and q , then (1990-2 Marks)

- 1) $a^2 + b^2 = p^2 + q^2$
- 2) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2} + \frac{1}{q^2}$
- 3) $a^2 + p^2 = b^2 + q^2$
- 4) $\frac{1}{a^2} + \frac{1}{p^2} = \frac{1}{b^2} + \frac{1}{q^2}$