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 algebric 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 coordinates axes in concylic 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 distances 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) $\left(\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
2) $(-\sqrt{2}, 7\sqrt{2})$
3) $\left(-\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
4) $(\sqrt{2}, 7\sqrt{2})$

3.The straight lines $x+y = 0, 3x+y-4 = 0, x+3y-4 = 0$ from 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 lines 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) $\frac{1}{a^2} + \frac{1}{p^2} = \frac{1}{b^2} + \frac{1}{q^2}$