

Date: 19-Jul-2026**Time: 60min****Pair of Lines****Marks: 20****SECTION A**

Q.1 **Select and write the correct answer for the following multiple choice type of questions:** **(4)**

i If the sum of the slopes of the lines represented by $x^2 + kxy - 3y^2 = 0$ is twice their product, then the value of 'k' is _____.

(A) 2

(B) 1

(C) -1

(D) -2

ii If the lines represented by $3y^2 + 9xy + kx^2 = 0$ are perpendicular to each other, then k =

(A) 1

(B) -2

(C) -3

(D) 0

Q.2 **Answer the following questions:** **(2)**

i Show that lines represented by $x^2 + 6xy + 9y^2 = 0$ are coincident.

ii Find the value of product of the slopes for pair of lines $2x^2 + 8xy + 3y^2 = 0$.

SECTION B

Attempt any TWO of the following questions: **(4)**

Q.3 Find the measure of the acute angle between the lines represented by $2x^2 + 7xy + 3y^2 = 0$

Q.4 Find the joint equation of lines $x + y - 3 = 0$ and $2x + y - 1 = 0$.

Q.5 Find k if one of the lines given by $6x^2 + kxy + y^2 = 0$ is $2x + y = 0$.

SECTION C

Attempt any TWO of the following questions: **(6)**

Q.6 Find k, if slope of one of the lines given by $kx^2 + 4xy - y^2 = 0$ exceeds the slope of the other by 8.

Q.7 If one of the lines given by $ax^2 + 2hxy + by^2 = 0$ bisects an angle between the co-ordinate axes, then show that $(a + b)^2 = 4h^2$.

Q.8 Show that equation $2x^2 - xy - 3y^2 - 6x + 19y - 20 = 0$ represents a pair of lines.

SECTION D

Attempt any ONE of the following questions: (4)

Q.9 Show that the lines $x^2 - 4xy + y^2 = 0$ and $x + y = 10$ contain the sides of an equilateral triangle. Find the area of the triangle.

Q.10 Find p and q if the equation $2x^2 + 8xy + py^2 + qx + 2y - 15 = 0$ represents a pair of parallel lines.