SHIKSHA CLASSES

BOARD QUESTION PAPER

Subject : Maths - I **Topic: 4. Pair of Straight Line** **Total Marks : 20**

Class : XII **Time : 1 Hr.**

Section A

Q.1 : Choose the correct option : 4

i) The value of k if one of the lines given by $6x^2 + kxy + y^2 = 0$ is $2x + y = 0$ is

a) 3 b) 4 c) 5 d) 6

ii) The equation of the lines passing through the point (1,2)and parallel to coordinate axes.

a) $xy + y - 2x + 2 = 0$ b) $xy - y + 2x + 2 = 0$

c) $xy + y - 2x - 2 = 0$ d) $xy - y - 2x + 2 = 0$

Q.2 : Solve the following questions: **2**

i) Find the principal values of the following : $\sin^{-1}(\frac{1}{2})$

ii) Find the combined equation of the following pairs of lines: $2x + y = 0$ and $3x - y = 0$

Section B

: Solve the following : (ANY2) 4

Q.3 : Find the joint equation of the lines passing through the origin and having inclinations 60^0 and 120^0 with the X-axis.

Q.4 : Find k if the slopes of the lines represented by $kx^2 + 5xy + y^2 = 0$ differ by 1.

Q.5 : Find the joint equation of the lines

$2x + y + 1 = 0$ and $2x - y - 1 = 0$

Section C

: Answer the following : (ANY 2) 6

Q.6 : Find the seperate equation of $2x^2 + 7xy + 3y^2 = 0$

Q.7 : The slope of one of the line represented by the equation $ax^2 + 2hxy + by^2 = 0$ is five times the other, show that $5h^2 = 9ab$.

Q.8 : If one of the line represented by

$ax^2 + 2hxy + by^2 = 0$ is px – qy =0 show that $aq^2 + 2hpq + bp^2 = 0$

Section D

Answer the following : (ANY 1) 4

Q.9 : Find the joint equation of pair of lines passing through the origin and perpendicular to the lines given by

$5x^2 + 2xy - 3y^2 = 0$

Q.10: Show that the acute angle between the lines $ax^2 + 2hxy + by^2 = 0$ is

$$\theta = \tan^{-1}\left|\frac{2\sqrt{h^2 - ab}}{a+b}\right|$$

Hence find the condition that lines are

i) coincident

ii) perpendicular

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