EXERCISE – II MULTIPLE CORRECT (OBJECTIVE QUESTIONS)

1. If one vertex of an equilateral triangle of side 'a' lies at the origin and the other lies on the line $x - \sqrt{3}\, y = 0$ then the co-ordiantes of the third vertex are

(A) (0, a) (B) $\left(\frac{\sqrt{3}\,a}{2}, -\frac{a}{2}\right)$ (C) (0, –a) (D) $\left(-\frac{\sqrt{3}\,a}{2}, \frac{a}{2}\right)$

2. If one diagonal of a square is the portion of the line $\frac{x}{a}+\frac{y}{b}=1$ intercepted by the axes, then the extremities of the other diagonal of the square are

(A) $\left(\frac{a+b}{2}, \frac{a+b}{2}\right)$ (B) $\left(\frac{a-b}{2}, \frac{a+b}{2}\right)$

(C) $\left(\frac{a-b}{2}, \frac{b-a}{2}\right)$ (D) $\left(\frac{a+b}{2}, \frac{b-a}{2}\right)$

3. If $\frac{x}{c} + \frac{y}{d} = 1$ is a line through the intersection of $\frac{x}{a} + \frac{y}{b} = 1$ and $\frac{x}{b} + \frac{y}{a} = 1$ and the lengths of the perpendiuclars drawn from the origin to these lines are equal in lengths then

(A) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c^2} + \frac{1}{d^2}$ (B) $\frac{1}{a^2} - \frac{1}{b^2} = \frac{1}{c^2} - \frac{1}{d^2}$

(C) $\frac{1}{a} + \frac{1}{b} = \frac{1}{c} + \frac{1}{d}$ (D) none

4. A and B are two fixed points whose co-ordinates are (3, 2) and (5, 4) respectively. The co-ordinates of a point P if ABP is an equilateral triangle, is/are

(A) $\left(4-\sqrt{3}, 3+\sqrt{3}\right)$ (B) $\left(4+\sqrt{3}, 3-\sqrt{3}\right)$

(C) $\left(3-\sqrt{3}, 4+\sqrt{3}\right)$ (D) $\left(3+\sqrt{3}, 4-\sqrt{3}\right)$

5. Straight lines 2x + y = 5 and x – 2y = 3 intersect at the point A. Points B and C are chosen on these two lines such that AB = AC. Then the equation of a line BC passing through the point (2, 3) is

(A) 3x – y – 3 = 0 (B) x + 3y – 11 = 0

(C) 3x + y – 9 = 0 (D) x – 3y + 7 = 0

6. The straight lines x + y = 0, 3x + y – 4 = 0 and x + 3y – 4 = 0 form a triangle which is

(A) isosceles (B) right angled

(C) obtuse angled (D) equilateral