EXERCISE-I

7.

1. The distance between the lines 3x - 2y = 1and 6x + 9 = 4y is

(A)
$$\frac{1}{\sqrt{52}}$$
 (B) $\frac{11}{\sqrt{52}}$
(C) $\frac{4}{\sqrt{13}}$ (D) $\frac{6}{\sqrt{13}}$

- 2. Two points A and B have coordinates (1, 1)and (3, -2) respectively. The co-ordinates of a point distant $\sqrt{85}$ from B on the line through B perpendicular to AB are
 - (A) (4, 7) (C) (5, 7) (B) (7, 4) (D) (-5, -3)
- 3. The distance of the point (-2, 3) from the line x y = 5 is
 - (A) $5\sqrt{2}$ (B) $2\sqrt{5}$
 - (C) $3\sqrt{5}$ (D) $5\sqrt{3}$
- 4. The distance of the lines 2x 3y = 4 from the point (1, 1) measured parallel to the line x + y = 1 is

(A)
$$\sqrt{2}$$
 (B) $\frac{5}{\sqrt{2}}$
(C) $\frac{1}{\sqrt{2}}$ (D) 6

- 5. Distance between the lines 5x + 3y 7 = 0and 15x + 9y + 14 = 0 is
 - (A) $\frac{35}{\sqrt{34}}$ (B) $\frac{1}{3\sqrt{34}}$ (C) $\frac{35}{3\sqrt{34}}$ (D) $\frac{35}{2\sqrt{34}}$
- 6. Distance between the parallel lines 3x + 4y + 7 = 0 and 3x + 4y 5 = 0 is
 - (A) $\frac{2}{5}$ (B) $\frac{12}{5}$ (C) $\frac{5}{12}$ (D) $\frac{3}{5}$

The position of the point (8,-9) with respect to the lines 2x + 3y - 4 = 0 and 6x + 9y + 8 = 0 is

- (A) Point lies on the same side of the lines(B) Point lies on the different sides of the line
- (C) Point lies on one of the line
- (D) None of these

8. The length of perpendicular from the point ($a \cos \alpha, a \sin \alpha$) upon the straight line $y = x \tan \alpha + c$, c > 0 is

- (A) $\cos \alpha$ (B) $\sin^2 \alpha$
- (C) $\csc^2 \alpha$ (D) $\csc^2 \alpha$

Concurrency of three lines

9. The value of k for which the lines 3x - 4y + 5 = 07x - 8y + 5 = 0, and 4x + 5y + k = 0 are concurrent is given by (B) 44 (A) - 45(C) 54 (D) - 54For what value of 'a' the lines x = 3, y = 410. and 4x - 3y + a = 0 are concurrent (B) - 1(A) 0 (C) 2(D) 3 11. The lines 15x - 18y + 1 = 0, 12x + 10y - 3 = 0 and 6x + 66y - 11 = 0are (A) Parallel (B) Perpendicular (C) Concurrent (D) None of these x + 2y - 9 = 0, 12. The straight lines 3x + 5y - 5 = 0 and ax + by - 1 = 0 are concurrent, if the straight line 35x - 22y + 1 = 0 passes through the point (A) (a,b)(B) (b, a)(C) (-a, -b)(D) None of these

- 13. If the lines ax + y + 1 = 0, x + by + 1 = 0and x + y + c = 0 (a, b, c being distinct and different from 1) are concurrent, then $\frac{1}{1-a} + \frac{1}{1-b} + \frac{1}{1-c} =$ (A) 0 **(B)** 1 (C) $\frac{1}{a+b+c}$ (D) None of these 14. If the lines ax + 2y + 1 = 0, bx + 3y + 1 = 0and cx + 4y + 1 = 0 are concurrent, then a, b. c are in (A) A. P. (B) G. P. (C) H. P. (D) None of these 15. The lines 2x + y - 1 = 0, ax + 3y - 3 = 0and 3x + 2y - 2 = 0 are concurrent for (A) All a(B) a = 4 only(D) a > 0 only (C) $-1 \le a \le 3$ 4x + 3y = 1, y = x + 516. lines If and 5y + bx = 3 are concurrent, then b equals (A) 1 (B) 3 (C) 6 (D) 0 17. Three lines 3x - y = 2, 5x + ay = 3and 2x + y = 3 are concurrent, then a =(A) 2 (B) 3 (D) - 2(C) - 1lx + my + n = 0, 18. The three lines nx + ly + m = 0mx + ny + l = 0, are
 - concurrent if (A) l = m + n (B) m = l + n
 - (C) n = l + m (D) l + m + n = 0

Foot of perpendicular, Transformation, Pedal points, Image of a point

19. The line 2x + 3y = 12 meets the *x*-axis at *A* and *y*-axis at *B*. The line through (5, 5) perpendicular to AB meets the *x*- axis, *y*- axis and the AB at *C*, *D* and *E* respectively. If *O* is the origin of coordinates, then the area of OCEB is

(A) 23 sq. units (B)
$$\frac{23}{2}$$
 sq. units

(C)
$$\frac{23}{3}$$
 sq. *units* (D) None of these

- 20. If A and B are two points on the line 3x + 4y + 15 = 0 such that OA = OB = 9units, then the area of the triangle OAB is (A) 18 sq. units (B) $18\sqrt{2}$ sq. units (C) $18/\sqrt{2}$ sq. units (D) None of these One vertex of the equilateral triangle with 21. centroid at the origin and one side as x + y - 2 = 0 is (A) (-1, -1)(B) (2,2)(C) (-2, -2)(D) None of these 22. The point (4, 1)undergoes the following two successive transformation (i) Reflection about the line y = x(ii) Translation through a distance 2 units along the positive *x*-axis Then the final coordinates of the point are (A)(4,3)(B)(3,4)(D) $\left(\frac{7}{2}, \frac{7}{2}\right)$ (C)(1, 4)
- 23. 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 intercepts p and a then

(A)
$$a^{2} + b^{2} = p^{2} + q^{2}$$

(B) $\frac{1}{a^{2}} + \frac{1}{b^{2}} = \frac{1}{p^{2}} + \frac{1}{q^{2}}$
(C) $a^{2} + p^{2} = b^{2} + q^{2}$
(D) $\frac{1}{a^{2}} + \frac{1}{p^{2}} = \frac{1}{b^{2}} + \frac{1}{q^{2}}$

24. The pedal points of a perpendicular drawn from origin on the line 3x + 4y - 5 = 0, is

(A)
$$\left(\frac{3}{5}, 2\right)$$
 (B) $\left(\frac{3}{5}, \frac{4}{5}\right)$
(C) $\left(-\frac{3}{5}, -\frac{4}{5}\right)$ (D) $\left(\frac{30}{17}, \frac{19}{17}\right)$

25. The image of a point A(3,8) in the line x + 3y - 7 = 0, is

- (A) (-1, -4) (B) (-3, -8)
- (C) (1, -4) (D) (3, 8)

- 26. The reflection of the point (4, -13) in the line 5x + y + 6 = 0 is (A) (-1, -14)(B)(3,4)(D)(-4, 13)(C)(1,2)If (-2, 6) is the image of the point (4, 2)27. with respect to line L = 0, then L =(A) 3x - 2y + 5(B) 3x - 2y + 10(D) 6x - 4y - 7(C) 2x + 3y - 5A straight line passes through a fixed point 28. (h, k). The locus of the foot of perpendicular on it drawn from the origin is (A) $x^2 + y^2 - hx - ky = 0$
 - (B) $x^2 + y^2 + hx + ky = 0$
 - (C) $3x^2 + 3y^2 + hx ky = 0$
 - (D) None of these

Bisectors of the angle between the lines, Point of intersection of the lines

- **29.** The combined equation of bisectors of angles between coordinate axes, is
 - (A) $x^2 + y^2 = 0$ (B) $x^2 - y^2 = 0$
 - (C) xy = 0
 - (D) x + y = 0
- 30. If the bisectors of the angles between the pairs of lines given by the equation $ax^2 + 2hxy + by^2 = 0$ and $ax^2 + 2hxy + by^2 + \lambda(x^2 + y^2) = 0$ be coincident, then $\lambda =$ (A) *a* (B) *b* (C) h
 - (D) Any real number