12 Straight Line

1. What is the equation of the line which passes through (4 – 5) and is perpendicular to $3x + 4y + 5 = 0$?
   (A) $4x - 3y - 31 = 0$ (B) $3x - 4y - 41 = 0$
   (C) $4x + 3y - 1 = 0$ (D) $3x + 4y + 8 = 0$
2. The value of k for which the lines $2x + 3y + a = 0$ and $5x + ky + a = 0$ represent family of parallel lines is
   (A) 3 (B) 4.5
   (C) 7.5 (D) 15
3. What is the equation of a straight line which passes through (3, 4) and the sum of whose x and y intercepts is 14 ?
   (A) $4x + 3y = 24$ (B) $2x + y = 14$
   (C) $4x - 3y = 0$ (D) $3x + 4y = 25$
4. What is the equation of the straight line passing through (5, – 2) and (– 4, 7) ?
   (A) $5x - 2y = 4$ (B) $-4x + 7y = 9$
   (C) $x + y = 3$ (D) $x - y = 1$
5. The equation of the line , the reciprocals of whose intercepts on the axes are m and n, is given by
   (A) $nx + my = mn$ (B) $mx + ny = 1$
   (C) $mx + ny = mn$ (D) $mx - ny = 1$
6. The equation of the locus of a point which is equidistant from the axes is
   (A) $y = 2x$ (B) $x = 2y$
   (C) $y = \pm x$ (D) $2y + x = 0$
7. What is the equation of the line through (1, 2) so that the segment of the line intercepted between the axes is bisected at the point ?
   (A) $2x - y = 4$ (B) $2x - y + 4 = 0$
   (C) $2x + y = 4$ (D) $2x + y + 4 = 0$
8. What is the equation of straight line passing through the point (4, 3) and making equal intercepts on the coordinate axes ?
   (A) $x + y = 7$ (B) $3x + 4y = 7$
   (C) $x - y = 4$ (D) None of these
9. What is the equation of the line midway between the lines $3x - 4y + 12 = 0$ and $3x - 4y = 6$?
   (A) $3x - 4y - 9 = 0$ (B) $3x - 4y + 9 = 0$
   (C) $3x - 4y - 3 = 0$ (D) $3x - 4y + 3 = 0$
10. The equation of the line joining the origin to the point of intersection of the lines $\frac{x}{a} + \frac{y}{b} = 1$ and $\frac{x}{b} + \frac{y}{a} = 1$ is
    (A) $x - y = 0$ (B) $x + y = 0$
    (C) $x = 0$ (D) $y = 0$
11. A line passes through (2, 2) and is perpendicular to the line $3x + y = 3$, its $y-$intercepts is
    (A) $\frac{3}{4}$ (B) $\frac{4}{3}$
    (C) $\frac{1}{3}$ (D) 3
12. The length of perpendicular from the origin to a line is 5 units and the line makes an angle 120° with the positive direction of $x-$axis. The equation of the line is
    (A) $x + \sqrt{3}y = 5$ (B) $\sqrt{3}x + y = 10$
    (C) $\sqrt{3}x - y = 10$ (D) None of these
13. A straight line passes through the points (5, 0) and (0, 3). The length of the perpendicular from the point (4, 4) on the line is
    (A) $\frac{\sqrt{17}}{2}$ (B) $\frac{\sqrt{17}}{7}$
    (C) $\frac{15}{\sqrt{34}}$ (D) $\frac{17}{2}$
14. The equation of a straight line which makes on angle 45° with the x-axis with y-intercepts 101 units is
    (A) $10x + 101y = 1$ (B) $101x + y = 1$
    (C) $x + y - 101 = 0$ (D) $x - y + 101 = 0$

15. What is the value of λ, if the straight line $(2x + 3y + 4) + \lambda (6x - y + 12) = 0$ is parallel its y-axis ?
(A) 3 (B) – 6
(C) 4 (D) – 3

16. What is the perpendicular distance between the parallel lines $3x + 4y = 9$ and $9x + 12y + 28 = 0$?
(A) $\frac{7}{3}$ units (B) $\frac{8}{3}$ units
(C) $\frac{10}{3}$ units (D) $\frac{11}{3}$ units

17. The points (5, 1), (1, – 1) and (11, 4) are
(A) Collinear
(B) Vertices of right angle triangle
(C) Vertices of equilateral triangle
(D) Vertices of an isosceles triangle

18. For what value of k are the two straight lines $3x + 4y = 1$ and $4x + 3y + 2k = 0$, equidistant from the point (1, 1) ?
(A) $\frac{1}{2}$ (B) 2
(C) – 2 (D) $-\frac{1}{2}$

19. If the three verticals of the parallelogram $ABCD$ are $A(1, a)$, $B(3, a)$, $C(2, b)$, then D is equal to ?
(A) $(3, b)$ (B) $(0, b)$
(C) $(4, b)$ (D) $(5, b)$

20. What is the inclination of the line $\sqrt{3}x - y - 1 = 0$?
(A) 30° (B) 60°
(C) 135° (D) 150°

21. What is the angle between the line $x + y = 1$ and $x - y = 1$?
(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{4}$
(C) $\frac{\pi}{3}$ (D) $\frac{\pi}{2}$

22. What is the equation of the line passing through the point of intersection of the given lines and parallel to x-axis ?
(A) $y + 1 = 0$ (B) $y - 1 = 0$
(C) $y - 2 = 0$ (D) $y + 2 = 0$

23. What is the equation of the line passing through the point of intersection of the given lines and parallel to y-axis ?
(A) $x + 1 = 0$ (B) $x - 1 = 0$
(C) $x - 2 = 0$ (D) $x + 2 = 0$

24. $(a, 2b)$ is the mid-point of the line segment joining the points (10, – 6) and $(k, 4)$. If $a - 2ab = 7$ then what is the value of k ?
(A) 2 (B) 3
(C) 4 (D) 5

25. What is the acute angle between the lies represented by the equations $y - \sqrt{3}x - 5 = 0$ and $\sqrt{3}y - x + b = 0$?
(A) 30° (B) 45°
(C) 60° (D) 75°

26. What will be the equation of the line passes through the point (3, 2) and the sum of its intercepts on the axes is 12 ?
(i) $2x + y = 8$
(ii) $x + 3y = 9$
(A) (B)
(C) (D)

27. Find the equation of the line joining the points (3, – 1) and (2, 3). Also, find the equation of another line perpendicular this line and passing through the point (5, 2).
(A) $4x + y - 11 = 0$, $x - 4y + 3 = 0$
(B) $4x + y + 11 = 0$, $x - 4y + 3 = 0$
(C) $x + 4y - 11 = 0$, $4x - y + 3 = 0$
(D) $x - 4y + 11 = 0$, $4x - y + 3 = 0$

28. Find the equation of the line which passes through the point of intersection of the lines $x - 2y + 3 = 0$ and $2x + y - 4 = 0$
(i) Has slope
(A) $x + y + 2 = 0$ (B) $2x - y = 0$
(C) $2x + y = 0$ (D) $x + 2y + 2 = 0$
(ii) is parallel to the line $3x + 5y - 1 = 0$
(A) $3x + 5y + 1 = 0$ (B) $3x + y + 13 = 0$
(C) $3x + 5y + 13 = 0$ (D) None of these