CHAPTER-10

STRAIGHT LINES

One mark questions

1. Write the slope of the x – axis . (K)
2. If a line makes an inclination of $\frac{\pi}{3}$ with the positive direction of x–axis , find the slope of the line. (U)
3. Find the slope of the line which makes angle $\frac{\pi}{4}$ with positive direction of y-axis. (A)
4. Find the slope of the line passing through the points (2, 3) and (-5, 8). (K)
5. Find the slope of the line parallel to the line passing through the points (-2, 5) and (4,9). (K)
6. Find the slope of the line perpendicular to the line passing through the points (6,3) and (4,8). (U)
7. Check whether the point (5,-3) lies on the line 2x+3y+5=0 or not? (U)
8. Check whether the point (1, 7) lies on the line 5x-9y+2=0 or not? (U)
9. Acute angle between two lines is 40° . Find the obtuse angle between the same lines. (U)
10. Find the equation of the horizontal line passing through the point (3,5). (K)
11. Find the equation of the vertical line passing through the point (-4,8). (K)
12. Find the equation of the horizontal line intercepting the y- axis 3 units above the origin. (K)
13. Find the equation of the horizontal line intercepting the y- axis 6 units below the origin. (K)
14. Find the equation of the vertical line intercepting the x- axis 1units right of the origin. (K)
15. Find the equation of the vertical line intercepting the x- axis 5 units left of the origin. (K)
16. Write the equation of x axis. (K)
17. Write the equation of y axis. (K)
18. Find the slope of the line 2x+7y+9 = 0 . (K)
19. Find the x-intercept of the line 5x – 3y = 6. (K)
20. Find the y-intercept of the line 8x-y+6 = 0. (K)

Two mark questions

21. Find the slope of a line, which passes through origin, and the midpoint of the line segment joining the points (0, -4) and (8, 0). (U)
22. Line through the points (-2, 6) and (4, 8) is perpendicular to the line through the points (8, 12) and (x, 24).Find the value of x. (U)
23. The line through the points (h, 3) and (4, 1) is perpendicular to the line 7x + 9y + 19 = 0. Find the value of h. (U)
24. Line through the points (5, -6) and (7,-3) is parallel to the line through the points (x, 8) and (5, 24). Find the value of x. (U)
25. Find the value of x for which the points (x, -1), (2, 1) and (4, 5) are collinear. (K)
26. Show that the points (1, 5), (3, 1) and (4, -1) are collinear. (K)
27. Find the angle between the x- axis and the line joining the points (3, -1) and (4, -2). (A)
28. Find the angle between the lines x - $\sqrt{3}$y + 5 = 0 and $\sqrt{3}x - y + 7 = 0$. (K)
29. Find the angle between the lines x – y + 9 = 0 and $x + y + 7 = 0$. (K)
30. Find the angle between the lines $\sqrt{3}$x + y =1 and $x + \sqrt{3}y$ =1. (K)
31. Find the tangent of the angle between the lines 2x+3y-8 = 0 and 5x-y+7 = 0. (K)

32. Find the equation of the line passing through the point (-2, 3) with slope -4. (K)

33. Find the equation of the line passing through the point (-4, 3) with slope $\frac{1}{2}$. (K)
34. Find the equation of the line passing through the point (0,0) with slope 8. (K)
35. Find the equation of the line passing through the point (-2, -9) and inclined with x axis at an angle 45°. (U)
36. Find the equation of the line passing through the point (2, $2\sqrt{3}$) and inclined with x axis at an angle 75°. (U)
37. Find the equation of the line intersecting x axis at distance 3 units to the left of origin with slope -2. (U)
38. Find the equation of the line intersecting y axis at a distance 2 units above the origin and making an angle 30° with positive direction of x axis. (U)
39. Find the equation of the line passing through the points (1, -1) and (3, 5). (K)
40. Find the equation of the line passing through the points (-1, 1) and (2, -4). (K)
41. Find the equation of the line with slope 2 and y- intercept 3. (K)
42. Find the equation of the line for which $\tan\theta = \frac{1}{2}$, where θ is the inclination of the line and y- intercept $\frac{-3}{2}$. (K)
43. Find the equation of the line with slope $\frac{-1}{3}$ and x- intercept -3. (U)
44. Find the equation of the line, which makes intercepts -3 and 2 on the x and y axes respectively. (K)
45. Find the equation of the line whose perpendicular distance from the origin is 5 units and the angle made by the perpendicular with the positive x axis is 30°. (K)
46. Find the equation of the median of the triangle PQR through the vertex R whose vertices are given by P(2,1), Q(-2,3), R(4,5). (U)
47. Find the equation of the line passing through (-3, 5) and perpendicular to the line through the points (2,5) and (-3,6). (U)
48. Find the equation of the line which cuts off equal intercepts on the coordinate axes and passes through the point (2,3). (U)
49. The perpendicular from the origin to a line meets it at the point (-2, 9), find the equation of the line. (A)
50. Show that the points (3,0), (-2, -2) and (8,2) are collinear. (U)
51. If P(2,4) is the midpoint of line segment between the axes, find the equation of the line. (A)
52. Find the equation of the line parallel to the line 3x-4y+2 = 0 and passing through the point (-2,3) (U)
53. Find the equation of the line perpendicular to the line 6x+5y+2 = 0 and passing through the point (5, 2). (U)
54. Find the equation of the line perpendicular to the line 3x-5y+9 = 0 and passing through the point (-1,8). (U)
55. Find the equation of the line perpendicular to the line x-7y+5 = 0 and having x-intercept 3. (U)
56. Find the equation of the line parallel to the line 5x+3y+1 = 0 and having y-intercept 8. (U)
57. Reduce the equation 6x+3y-5=0 into slope–intercept form and find the slope and y-intercept of the line. (U)

58. Reduce the equation 3x-4y-5=0 into slope–intercept form and find the slope and y-intercept of the line. (U)

59. Reduce the equation x+7y =0 into slope–intercept form and find the slope and y-intercept of the line. (U)

60. Reduce the equation 3x+2y-12=0 into intercept form and find the values of x and y intercepts.(U)

61. Reduce the equations $x - \sqrt{3}y + 8 = 0, y - 2 = 0$ and $x - y = 4$ in to normal form . Find their perpendicular distances from the oigin and angle between perpendicular and the positive $x -$ axis. (U)

62. Reduce the equation 4x-3y=6 into intercept form and find the values of x and y intercepts. (U)

63. Find the distance of the point (-1,1) from the line 12x-5y+82=0. (K)

64. Find the distance of the point (3, -5) from the line 3x-4y-26=0. (K)

65. Find the distance between the parallel lines 3x-4y+7=0 and 3x-4y+5=0. (K)

66. Find the distance between the parallel lines 15x+8y-34=0 and 15x+8y+30 = 0. (K)

67. Find the equation of right bisector(perpendicular bisector) of the line segment joining the points(3,4) and (-1,2). (A)

68. In the triangle ABC with vertices A(2,3), B(4,-1) and C(1,2), find the equation of the altitude from the vertex A. (A)

69. Find the point of intersection of the lines 2x+3y-7 = 0 and x-4y+7 = 0. (U)

Five mark questions

70. Derive an expression for the acute angle between two lines having slopes m_1 and m_2 and hence find the acute angle between the lines x+y-6=0 and x-y -5=0. (U)

71. Derive the equation of the line having slope 'm' and passing through the point (x_0, y_0) and hence find the equation of the line having slope 3 and passing through the point (3,-1). (U)

72. Derive the equation of the line passing through the points (x_1, y_1) and (x_2, y_2) hence find the equation of the line passing through the points (4,7) and (-3, 8). (U)

73. Derive the equation of the line having slope 'm' and y- intercept 'c' and hence find the equation of the line having slope -2 and y- intercept 4. (U)

74. Derive the equation of the line having x and y- intercept values as 'a' and 'b' respectively and hence find the equation of the line having x and y- intercept values as 2 and 6 respectively. (U)

75. Derive the equation of the line in normal form. (U)

76. Derive an expression for the perpendicular distance between a point and a line. (U)

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