Model Question Paper 1

ANALYTICAL GEOMETRY 1

11th Standard

Maths

Reg.No. : | | | | | | |

Answer all the Questions

Time : 02:00:00 Hrs

Total Marks : 50

Part A

10 x 1 = 10

1) If the straight lines $a_1x + b_1y + c_1 = 0, \quad a_2x + b_2y + c_2 = 0$ are perpendicular, then.....

(a) $\frac{a_1}{a_2} = -\frac{b_1}{b_2}$ (b) $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ (c) $a_1a_2 = -b_1b_2$ (d) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

2) If the equation of teh straight line is $y = \sqrt{3}x + 4$, then the angle made by the straight line with the positive direction of X-axis

(a) 45° (b) 30° (c) 60° (d) 90°

3) Which of the following has the greatest y intercept in magnitude?

(a) $2x + 3y = 4$ (b) $x + 2y = 3$ (c) $3x + 4y = 5$ (d) $4x + 5y = 6$

4) The y intercept of the straight line $3x + 2y - 1 = 0$ is.....

(a) 2 (b) 3 (c) $\frac{1}{2}$ (d) $\frac{-1}{2}$

5) The slope of the straight line $2x - 3y + 1 = 0$ is.....

(a) $\frac{-2}{3}$ (b) $\frac{-3}{2}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$

6) The equation of X-axis is.....

(a) $x = 0$ (b) $x = 0, y = 0$ (c) $y = 0$ (d) $x = 4$

7) Which of the following is a parallel line to $3x + 4y + 5 = 0$?

(a) $4x + 3y + 6 = 0$ (b) $3x - 4y + 6 = 0$ (c) $4x - 3y + 9 = 0$ (d) $3x + 4y + 6 = 0$

8) Which of the following is the equation of a straight line that is neither parallel nor perpendicular to the straight line given by $x + y = 0$.....

(a) y=x (b) $y - x + 2 = 0$ (c) $2y = 4x + 1$ (d) $y + x + 2 = 0$

9) The equation of the straight line containing the point (-2,1) and parallel to $4x - 2y = 3$ is

(a) $y = 2x + 5$ (b) $y - x + 2 = 0$ (c) $y = x - 2$ (d) $y = \frac{1}{2}x$

10) Equation of two parallel straight lines differ by.....

(a) x term (b) y term (c) constant term (d) xy term

Part B

11 x 2 = 22

11) A point moves so that it is always at a distance of 6 units from the point (1, -4). Find its locus.

12) Find the equation of the locus of the point which are equidistant from (1,4) and (-2,3).

13) If the point P(5t-4, t+1) lies on the line 7x-4y+1=0, find (i) the value of t (ii) the co-ordinates of P.

14) The distance of a point from the origin is five times its distance from the y-axis. Find the equation of the locus.

15) Show that the equation of the locus of a point which moves such that its distance from the points (1, 2) and (0, -1) are in the ratio 2 : 1 is $3x^2 + 3y^2 + 2x + 12y - 1 = 0$

16) A point P moves such that P and the points (2,3), (1,5) are always collinear. Show that the equation of the locus of P is 2x+y-7=0.

17) A and B are two points (1, 0) and (-2, 3). Find the equation of the locus of a point such that

(i) $PA^2 + PB^2 = 10$

(ii) PA = 4PB.

18) If the equation $ax^2+3xy-2y^2-5x+5y+c=0$ represents a pair of perpendicular straight lines, find a and c.

19) Find the angle between the pair of straight lines given by $(a^2-3b^2)x^2+8ab\ xy+(b^2-3a^2)y^2=0$

20) Show that if one of the angles between pair of straight lines $ax^2+2hxy+by^2=0$ is 60^0 then $(a+3b)(3a+b)=4h^2$

21) Show that $9x^2+24xy+16y^2+21x+28y+6=0$ represents a pair of parallel straight lines and find the distance between them.

Part C

6 x 3 = 18

22) Determine the equation of the straight line passing through the point (-1, -2) and having slope $\frac{4}{7}$

23) Determine the equation of the line with slope 3 and y-intercept 4.

24) A straight line makes an angle 45° with x-axis and passes through the point (3, -3). Find its equation.

25) Find the equation of the straight line joining the points (3, 6) and (2, -5)

26) Find the equation of the straight line passing through the point (2, 2) and having intercepts whose sum is 9.

27) Find the equation of the straight line whose intercept on the x-axis is 3 times its intercept on the y-axis and which passes through the point (-1, 3).

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