Model Question Paper

Analytical Geometry - Part I

12th Standard

Business Maths

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

I.Answer all the questions.
II.Use Blue pen only.
III.Question No 13 is compulsory.

Time : 01:00:00 Hrs

Total Marks : 65

Section-A

5 x 1 = 5

1) The eccentricity of a parabola is

   (a) 1 (b) 0 (c) 2 (d) -1

2) The eccentricity of a conic is $\frac{1}{\sqrt{2}}$. The conic is

   (a) a parabola (b) an ellipse (c) a circle (d) a hyperbola

3) Latus rectum of $y^2 = 4ax$ is

   (a) 2a (b) 3a (c) 4a (d) a

4) Focus of $y^2 = -4ax$ is

   (a) (a,0) (b) (0,a) (c) (0,- a) (d) (- a,0)

5) Equation of the directrix of $x^2 = 4ay$ is

   (a) x+a=0 (b) x-a=0 (c) y+a = 0 (d) y-a = 0

Section-B

5 x 6 = 30

6) Identify the conics represented by the following equations: $x^2 - 6xy + 9y^2 + 26x - 38y + 49 = 0$

7) Identify the conics represented by the following equations: $7x^2 + 12xy - 2y^2 + 22x + 16y - 7 = 0$

8) Identify the conics represented by the following equations: $7x^2 + 2xy + 7y^2 - 60x - 4y + 44 = 0$

9) Find the equation of the hyperbola with focus (2, 2), eccentricity $\frac{3}{2}$ and directrix 3 x - 4y = 1.

10) Find the foci, latus recta, vertices and directrices of the parabola : $y^2+4x-2y+3=0$.

Section-C

3 x 10 = 30

11) The average variable cost of a monthly output of x tonnes of a firm producing a valuable metal is Rs. $\frac{1}{10}x^2 - 3x + 62.5$ Show that the average variable cost curve is a parabola . Find also the ouput and the average cost at the vertex of the parabola.

12) Find the equation to the asymptotes of the hyperbola $3x^2-5xy-2y^2+17x+y+14=0$.

13) a) Find the equation to the hyperbola which has 3x − 4 y + 7 = 0 and 4x + 3y + 1 = 0 for asymptotes and which passes through the origin.

(OR)

b) Find the centre, vertices, eccentricity, foci and latus rectum and directrices of the ellipse $9x^2 +16y^2+36x-32y-92=0$.

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