

Std : XII

SLIP TEST

Marks : 40

Date : 19.08.2019

MATHS

Time : 1 hr

(10 x 1 = 10)

1. Choose the correct answer:

- The circle $x^2 + y^2 = 4x + 8y + 5$ intersects the line $3x - 4y = m$ at two distinct points if
 1) $15 < m < 65$ 2) $35 < m < 85$ 3) $-85 < m < -35$ 4) $-35 < m < 15$
- The centre of the circle inscribed in a square formed by the lines $x^2 - 8x - 12 = 0$ and $y^2 - 14y + 45 = 0$ is
 1) (4,7) 2) (7,4) 3) (9,4) 4) (4,9)
- If P(x, y) be any point on $16x^2 + 25y^2 = 400$ with foci $F_1(3,0)$ and $F_2(-3,0)$ then $PF_1 + PF_2$ is
 1) 8 2) 6 3) 10 4) 12
- If $x + y = k$ is a normal to the parabola $y^2 = 12x$, then the value of k is
 1) 3 2) -1 3) 1 4) 9
- Area of the greatest rectangle inscribed in the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is
 1) $2ab$ 2) ab 3) \sqrt{ab} 4) $\frac{a}{b}$
- The eccentricity of the ellipse $(x - 3)^2 + (y - 4)^2 = \frac{y^2}{9}$ is
 1) $\frac{\sqrt{3}}{2}$ 2) $\frac{1}{3}$ 3) $\frac{1}{3\sqrt{2}}$ 4) $\frac{1}{\sqrt{3}}$
- The locus of a point whose distance from $(-2, 0)$ is $\frac{2}{3}$ times its distance from the line $x = \frac{-9}{2}$ is
 1) a parabola 2) a hyperbola 3) an ellipse 4) a circle
- If the coordinates at one end of a diameter of the circle $x^2 + y^2 - 8x - 4y + c = 0$ are (11, 2), The coordinates of the other end are
 1) (-5,2) 2) (2, -5) 3) (5, -2) 4) (-2, 5)

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9. The eccentricity of an ellipse, with its centre of the origin is $\frac{1}{2}$. If one of the directrices is $x=4$, then The equation of the ellipse is
 1) $x^2+4y^2=1$ 2) $3x^2+4y^2=12$ 3) $4x^2+3y^2=12$ 4) $4x^2+3y^2=1$
10. The radius of the auxiliary circle of the conic $9x^2+16y^2=144$ is.
 1) $\sqrt{7}$ 2) 4 3) 3 4) 5

II. Answer the following questions:

(3 x 2 = 6)

11. Find the equation of the parabola vertex is $(5, -2)$ and focus $(2, -2)$.
 12. Find the vertices, foci for the hyperbola $9x^2 - 16y^2 = 144$.
 13. Find the equation of the parabola with end points of latus rectum $(4, -8)$ & $(4, 8)$

III. Answer the following questions:

(3 x 3 = 9)

14. Find the equation of the ellipse, foci $(\pm 3, 0)$, $e = \frac{1}{2}$.
 15. Prove that the length of the latus rectum of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is $\frac{2b^2}{a}$.
 16. Find the vertex, focus, equation of directrix and length of latus rectum of $y^2 - 4y - 8x + 12 = 0$.

IV. Answer the following questions:

(3 x 5 = 15)

17. Prove that the sum of the focal distances of any point on the ellipse is equal to length of the major axis.
 18. The orbit of Halley's Comet is an ellipse 36.18 astronomical units long and by 9.12 astronomical units wide, find its eccentricity.
 19. Identify the type of conic and find centre, foci, vertices and directrices of the conic is $9x^2 - y^2 - 36x - 6y + 18 = 0$.

