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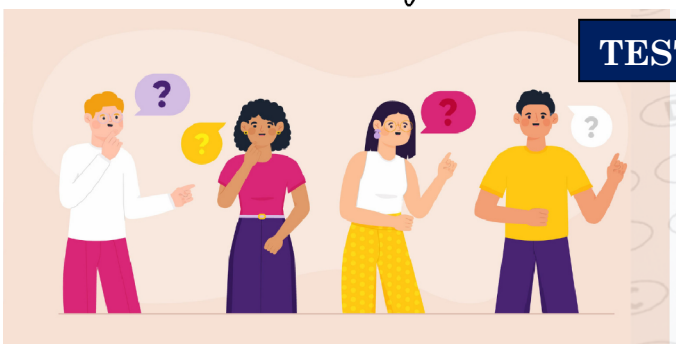

TEST-10

MULTIPLE CHOICE TYPE QUESTIONS

For 2025 Exams - Mathematics (041) - Class 11

☑ ***Select the correct option in the followings. Each question carries 1 mark.***

01. Which one of the following statement is **incorrect**?
(a) The eccentricity of parabola is always 1
(b) The eccentricity of an ellipse is always less than 1
(c) The eccentricity of a hyperbola is always more than 1
(d) The eccentricity of a circle is always a positive real number

02. The centre of circle $2x^2+2y^2+3y+10=0$ is located at
(a) $\left(0,-\frac{3}{2}\right)$ (b) $\left(0,-\frac{3}{4}\right)$ (c) $\left(0,\frac{3}{4}\right)$ (d) $\left(0,\frac{3}{2}\right)$

03. The area (in Sq. units) of circle centered at (1, 2) and passing through (4, 6), is
(a) 5π (b) 25 (c) 10π (d) 25π

04. The radius of $3x^2+3y^2=5$ is
(a) $\frac{5}{3}$ (b) $\sqrt{\frac{5}{3}}$ (c) $\sqrt{5}$ (d) 5

05. Coordinates of one end point of the diameter of a circle $2x^2+2y^2=5$ are (2, –3), then the coordinates of other end are
(a) (0, 0) (b) (–2, 0) (c) (–2, 3) (d) (2, –3)

06. The equation of circle whose centre is at (–1, 3) and with radius 5 units, is
(a) $x^2+y^2+2x-6y-15=0$ (b) $(x-1)^2+(y+3)^2=5^2$
(c) $(x+1)^2+(y+3)^2=5^2$ (d) $x^2+y^2-2x+6y-15=0$

07. For the parabola $y^2=12x$, the focus is at
(a) (0, 3) (b) (3, 0) (c) (–3, 0) (d) (0, –3)

08. The equation of parabola whose vertex is at the origin and focus is at (0, 3), is given by
(a) $x^2=12y$ (b) $y^2=12x$ (c) $y^2=-12x$ (d) $x^2=-12y$

09. Axis of a parabola is along y-axis, the vertex is at the origin and it passes through (–2, 5). Then the equation of parabola is
(a) $4x^2=5y$ (b) $5x^2=4y$ (c) $4x^2=-5y$ (d) None of these

10. The length of latus rectum for $y=8x^2$, is
(a) $\frac{1}{8}$ units (b) 4 units (c) 8 units (d) None of these

11. The length (in units) of minor axis of the ellipse $x^2+4y^2=1$, is
(a) 2 (b) 3 (c) 4 (d) 1

12. The length of latus rectum for $16x^2+y^2=16$, is
(a) $\frac{1}{2}$ units (b) 4 units (c) $\frac{1}{4}$ units (d) 32 units

13. The foci of $9x^2 + 4y^2 = 36$ are located
(a) at the origin (0, 0) (b) at the points on the x-axis
(c) at the points on the y-axis (d) at the points in the first quadrant in xy-plane

14. The length of semi-major axis of $4x^2 + y^2 = 1$ is
(a) 2 units (b) 1 unit (c) $\frac{1}{2}$ units (d) 4 units

15. End-points of one of the diameter of a circle are located at the points (0, 4) and (–6, 2). Then the circle is given by
(a) $x^2 + y^2 + 6x - 6y - 8 = 0$ (b) $x^2 + y^2 - 6x - 6y + 8 = 0$
(c) $x^2 + y^2 + 8x - 8y + 6 = 0$ (d) $x^2 + y^2 + 6x - 6y + 8 = 0$

16. For the hyperbola $\frac{x^2}{16} - \frac{y^2}{25} = 1$, the distance between foci is
(a) $\sqrt{41}$ (b) $2\sqrt{41}$ (c) $3\sqrt{41}$ (d) $4\sqrt{41}$

17. For the hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$, the length of latus rectum is
(a) $\frac{9}{8}$ (b) $\frac{9}{4}$ (c) $\frac{9}{2}$ (d) $\frac{8}{9}$

18. The eccentricity of $\frac{x^2}{16} + \frac{y^2}{9} = 1$, is
(a) $\sqrt{\frac{7}{16}}$ (b) $\sqrt{\frac{7}{4}}$ (c) $\frac{7}{16}$ (d) $\frac{7}{4}$

19. The centre of the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ is (a, b), then $(2a + 3b)$ is
(a) 0 (b) 2 (c) 3 (d) 5

20. At what point on the parabola $x^2 = 9y$ is the abscissa three times that of ordinate?
(a) (1, 1) (b) (–3, 1) (c) (3, 1) (d) (–6, –3)

21. The distance (in units) between both the directrices of the ellipse $\frac{x^2}{36} + \frac{y^2}{20} = 1$ is
(a) 9 (b) 1 (c) 18 (d) 81

*Question numbers **22** and **25** are Assertion and Reason based questions. Two statements are given, one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer from the codes (a), (b), (c) and (d) as given below.*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is **not** the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

22. **Assertion (A) :** The parabola $y^2 = kx$ passes through the point (2, –3). Then $\frac{9}{2}$ units is the length of latus-rectum for the parabola.

Reason (R) : Centre of the circle $x^2 + y^2 = 81$ is at the origin.

23. **Assertion (A) :** For the equilateral hyperbola $x^2 - y^2 = a^2$, the eccentricity is given by $e = \sqrt{2}$.

Reason (R) : The eccentricity of $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is given by $e = \frac{\sqrt{a^2 + b^2}}{a}$.

24. **Assertion (A) :** $x^2 + y^2 = 196$ has a radius of 14 units and centre at (0, 0).

Reason (R) : The length of latus-rectum for $x^2 + 4ay = 0$ is '4a' units.

25. **Assertion (A) :** The distance between foci of ellipse $4x^2 + 36y^2 = 144$ is $8\sqrt{2}$ units.

Reason (R) : The eccentricity of a hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$, whose foci are at $(\pm c, 0)$ is given by the expression $e = \frac{a}{c}$.

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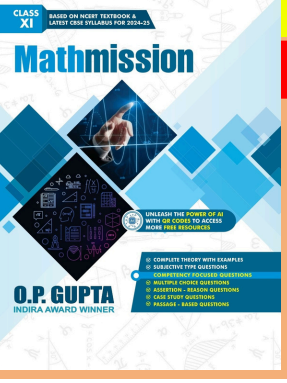

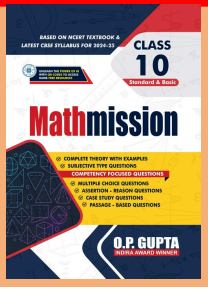

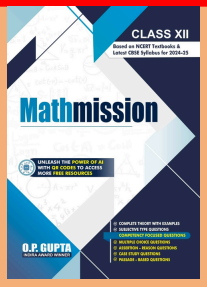

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