Conic Sections

Q.No.1:
The circle passing through (1, −2) and touching the axis of x at (3, 0) also passes through the point :

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A. (−5, 2)
B. (2, −5)
C. (5, −2)
D. (−2, 5)

Q.No.2:

The equation of the circle passing through the foci of the ellipse $\frac{x^2}{16}+\frac{y^2}{9}=1,$ and having centre at (0, 3) is :

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A. $x^2 + y^2 - 6y - 7 = 0$
B. $x^2 + y^2 - 6y + 7 = 0$
C. $x^2 + y^2 - 6y - 5 = 0$
D. $x^2 + y^2 - 6y + 5 = 0$

Q.No.3:
Given : A circle, $2x^2 + 2y^2 = 5$ and a parabola, $y^2=4\sqrt{5}x.$
Statement – I : An equation of a common tangent to these curves is $y=x+\sqrt{5}.$
Statement – II : If the line, $y=mx+\frac{\sqrt{5}}{m}(m\neq 0)$ is their common tangent, then m satisfies $m^4 - 3m^2 + 2 = 0$.

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A. Statement – I is true; Statement – II is true; Statement – II is a **correct** explanation for Statement – I.
B. Statement – I is true; Statement – II is true; Statement – II is **not** a

correct explanation for Statement – I.

C. Statement – I is true; Statement – II is false.

D. Statement – I is false; Statement – II is true.

Q.No.4: The area (in sq. units) of the quadrilateral formed by the tangents at the end points of the latera recta to the ellipse $\frac{x^2}{9} + \frac{y^2}{5} = 1$, is : **JEE 2015**

A. $\frac{27}{4}$

B. 18

C. $\frac{27}{2}$

D. 27

Q.No.5:

Let O be the vertex and Q be any point on the parabola, $x^2 = 8y$. If the point P divides the line segment OQ internally in the ratio 1 : 3, then the locus of P is: **JEE 2015**

A. $x^2 = y$

B. $y^2 = x$

C. $y^2 = 2x$

D. $x^2 = 2y$

Q.No.6: The number of common tangents to the circles $x^2 + y^2 - 4x - 6y - 12 = 0$ and $x^2 + y^2 + 6x + 18y + 26 = 0$, is: **JEE 2015**

A. 1

B. 2

C. 3

D. 4

Q.No.7: Let *P* be the point on the parabola, $y^2 = 8x$ which is at a minimum distance from the centre *C* of the circle, $x^2 + (y + 6)^2 = 1$. Then the equation of the circle, passing through *C* and having its centre at *P* is: **JEE 2016**

A. $x^2 + y^2 - x + 4y - 12 = 0$

B. $x^2 + y^2 - \frac{x}{4} + 2y - 24 = 0$

C. $x^2 + y^2 - 4x + 9y + 18 = 0$

D. $x^2 + y^2 - 4x + 8y + 12 = 0$

Q.No.8: The eccentricity of the hyperbola whose length of the latus rectum is equal to 8 and the length of its conjugate axis is equal to half of the distance between its foci, is : **JEE 2016**

A. $\frac{4}{\sqrt{3}}$

B. $\frac{2}{\sqrt{3}}$

C. $\sqrt{3}$

D. $\frac{4}{3}$

Q.No.9: The centres of those circles which touch the circle, $x^2 + y^2 - 8x - 8y - 4 = 0$, externally and also touch the x-axis, lie on : **JEE 2016**

A. an ellipse which is not a circle.

B. a hyperbola

C. a parabola

D. a circle

Q.No.10: If one of the diameters of the circle, given by the equation, $x^2 + y^2 - 4x + 6y - 12 = 0$ is a chord of a circle S, whose centre is at (–3, 2), then the radius of S is : **JEE 2016**

A. $5\sqrt{3}$

B. 5

C. 10

D. $5\sqrt{2}$