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## MATHS

## BOOKS - JEE MAINS PREVIOUS YEAR

## PARABOLA

## Others

1. The equation of a tangent to the parabola
$y^{2}=8 x$ is $y=x+2$. The point on this line
from which the other tangent to the parabola is perpendicular to the given tangent is
A. $(-1,1)$
B. $(0,2)$
C. $(2,4)$
D. $(-2,0)$

Answer: D
2. If two tangents drawn from a point $P$ to the parabola $y^{2}=4 x$ are at right angles, then the locus of P is $(a) 2 \mathrm{x}+1=0(b) \mathrm{x}=-1(c) 2 \mathrm{x}-1=0(d) \mathrm{x}=1^{\prime}$

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3. Statement 1: An equation of a common tangent to the parabola $y^{2}=16 \sqrt{3} x$ and the ellipse $\quad 2 x^{2}+y^{2}=4 i s y=2 x+2 \sqrt{3}$

> Statement $\quad 2: \quad$ If $\quad$ the line $y=m x+\frac{4 \sqrt{3}}{m},(m \neq 0)$ is a common
tangent to the parabola $y^{2}=16 \sqrt{3} x$ and the ellipse $2 x^{2}+y^{2}=4$, then $m$ satisfies $m^{4}+2 m^{2}=24$.
(1) Statement 1 is false, statement 2 is true
(2) Statement 1 is true, statement 2 is true; statement 2 is a correct explanation for statement 1
(3) Statement 1 is true, statement 2 is true; statement 2 is not a correct explanation for statement 1
(4) Statement 1 is true, statement 2 is false
4. The equation to the line touching both the parabolas $y^{2}=4 x$ and $x^{2}=-32 y$ is

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5. Let $O$ be the vertex and $Q$ be any point on
the parabola, $x^{2}=8 y$. It the point P divides
the line segment $O Q$ internally in the ratio 1 :
3, then the locus of P is : (1) $x^{2}=y(2) y^{2}=x$
(3) $y^{2}=2 x$ (4) $x^{2}=2 y$
6. The centres of those circles which touch the
circle, $x^{2}+y^{2}-8 x-8 y-4=0$, externally and also touch the $x$-axis, lie on : (1) a circle. (2) an ellipse which is not a circle. (3) a hyperbola. (4) a parabola.

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7. Let P be the point on the parabola, $y^{2}=8 x$ 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 : (1)
$x^{2}+y^{2}-4 x+8 y+12=0$
$x^{2}+y^{2}-x+4 y-12=0$
$x^{2}+y^{2}-\frac{x}{4}+2 y-24=0$
$x^{2}+y^{2}-4 x+9 y+18=0$

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