

Equation of the common tangent to the ellipses,  $\frac{x^2}{a^2+b^2} + \frac{y^2}{b^2} = 1$  and  $\frac{x^2}{a^2+b^2} + \frac{y^2}{a^2+b^2} = 1$  is -

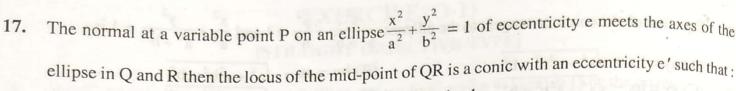
(B) by =  $ax - \sqrt{a^4 + a^2b^2 + b^4}$ 

(D) by =  $ax + \sqrt{a^4 - a^2b^2 + b^4}$ 

(A)  $ay = bx + \sqrt{a^4 - a^2b^2 + b^4}$ 

(C)  $ay = bx - \sqrt{a^4 + a^2b^2 + b^4}$ 

11.



(A) e' is independent of e

(B) e' = 1

(C) e' = e

(D) e' = 1/e

The area of the rectangle formed by the perpendiculars from the centre of the standard ellipse to the 18. tangent and normal at its point whose eccentric angle is  $\pi/4$ , is:

(A)  $\frac{\left(a^2 - b^2\right)ab}{a^2 + b^2}$  (B)  $\frac{\left(a^2 - b^2\right)}{\left(a^2 + b^2\right)ab}$  (C)  $\frac{\left(a^2 - b^2\right)}{ab\left(a^2 + b^2\right)}$  (D)  $\frac{a^2 + b^2}{\left(a^2 - b^2\right)ab}$ 

If P is any point on ellipse with foci  $S_1 \& S_2$  and eccentricity is  $\frac{1}{2}$  such that 19.

 $\angle PS_1S_2 = \alpha$ ,  $\angle PS_2S_1 = \beta$ ,  $\angle S_1PS_2 = \gamma$ , then  $\cot \frac{\alpha}{2}$ ,  $\cot \frac{\gamma}{2}$ ,  $\cot \frac{\beta}{2}$  are in

(A) A.P.

(B) G.P.

(C) H.P.

(D) NOT A.P., G.P. & H.P.