Question #277
Key: A

The maximum likelihood estimate is $\hat{\theta} = \bar{x} = 1000$. The quantity to be estimated is $S(\theta) = \exp(-1500/\theta)$ and $S'(\theta) = 1500\theta^{-2}\exp(-1500/\theta)$. For the delta method,

$$\begin{aligned} Var[S(\hat{\theta})] &\cong [S'(\hat{\theta})]^2 Var(\hat{\theta}) \\ &= [1500(1000)^{-2}\exp(-1500/1000)]^2(1000^2/6) \\ &= 0.01867. \end{aligned}$$

This is based on $Var(\hat{\theta}) = Var(\bar{X}) = Var(X)/n = \theta^2/n$.