Question # 36
Answer: E

The confidence interval is $(\hat{S}(t_0)^{1/\theta}, \hat{S}(t_0)^{\theta})$.
Taking logarithms of both endpoints gives the two equations

$$\ln .695 = -.36384 = \frac{1}{\theta} \ln \hat{S}(t_0)$$

$$\ln .843 = -.17079 = \theta \ln \hat{S}(t_0).$$

Multiplying the two equations gives

$$.06214 = [\ln \hat{S}(t_0)]^2$$

$$\ln \hat{S}(t_0) = -.24928$$

$$\hat{S}(t_0) = .77936.$$

The negative square root is required in order to make the answer fall in the interval (0,1).