

### Quiz Problem 6

**Problem.**

Let  $X_n \stackrel{iid}{\sim} f$  where

$$f(x) = \frac{\lambda^k x^{k-1} \exp(-\lambda x)}{(k-1)!}$$

where  $\lambda > 0$  is unknown and  $k$  is some known integer. What is the UMVUE for  $\tau(\lambda) = \frac{1}{\lambda^2}$ ? Hint:  $E[X_n] = k/\lambda$  and  $Var(X_n) = k/\lambda^2$ .

□