104. Prove the following theorem. Sufficiency for Exponential Families. Let $X_1, X_2, ...., X_n$ be iid observations from a PDF or PMF $f(x|\boldsymbol{\theta})$ that belongs to an exponential family given by

$$f(x|\boldsymbol{\theta}) = h(x)c(\boldsymbol{\theta}) \exp\left\{\sum_{i=1}^{k} \omega_i(\boldsymbol{\theta})t_i(x)\right\},$$

where $\boldsymbol{\theta} = (\theta_1, \theta_2, ..., \theta_k), d \leq k$. Then

$$T(\mathbf{X}) = \left(\sum_{j=1}^{n} t_1(X_j), ..., \sum_{j=1}^{n} t_k(X_j)\right)$$

is a sufficient statistic for $\boldsymbol{\theta}$.