40)

$T=\sum X_i$是充分完全统计量

$\therefore \overline{X}$是UMVUE，方差为θ^2/n

$I(\theta)=E(\frac{\partial -x/\theta-log\theta}{\partial\theta})^2=E(x/\theta^2+1/\theta)^2=5/\theta^2$

$\therefore D\geq\theta^2/5n$

44)

$E(\hat{\sigma})=\sigma$

由$\sum(X_i-0)^2$是σ^2的充分完全统计量

立得$\hat{\sigma}$是UMVUE

$D\geq 2\sigma^4/n$

$Var(\hat{\sigma})=Var(\frac{1}{\sqrt{n}}(\sum X_i)^{1/2})=4\sigma^4/n$

$\therefore e=1/2$