Sajjad Saheer Ali

NA20B305c

10 50 55

Assignment 11

Q3) $f(y;\theta) = \frac{3y^2}{\theta^3}$

$\theta \in (0,\alpha) \quad y \in [0, \theta]$

$$L(\theta) = \prod_{i=1}^{n} f(y_i;\theta)$$

$$= \prod_{i=1}^{n} \frac{3y_i^2}{\theta^3}$$

$$= 3^n \theta^{-3n} \prod_{i=1}^{n} y_i^2$$

$$\ln(L(\theta)) = n\ln(3) - 3n\ln(\theta) + 2\sum_{i=1}^{n} \ln(y_i)$$

$$\frac{\partial \ln(L(\theta))}{\partial \theta} = \frac{-3n}{\theta} = 0$$

$\Rightarrow \quad \theta = \text{infinity}.$