

$$\mu = 2500$$

$$\lambda = \frac{1}{\mu} = \frac{1}{2500}$$

CZB
Pg 16

$$X \sim E_x\left(\frac{1}{2500}\right)$$

$$\Rightarrow \mu = 2500 ; \lambda = \frac{1}{2500} ; \sigma^2 = \frac{1}{2500^2} ; \sigma = \mu$$

$$\begin{aligned} a) \quad P(X > 2500) &= 1 - P(X \leq 2500) \\ &= 1 - F(2500) \end{aligned}$$

$$\begin{aligned} c.a) \quad F(2500) &= 1 - e^{-\frac{1}{2500} \cdot 2500} \\ &= 1 - e^{-1} \approx 0,6321 \end{aligned}$$

$$\therefore P(X > 2500) \approx 1 - 0,6321 = 0,3678$$

$$\begin{aligned} b) \quad P(2500 < X < 3000) &= P(X < 3000) - P(X \leq 2500) \\ &= F(3000) - F(2500) \\ &= 1 - e^{-\frac{3000}{2500}} - (1 - e^{-1}) \\ &= e^{-1} - e^{-\frac{30}{25}} \approx 0,0667 \end{aligned}$$

$$c) \quad \text{Det } K : P(X > K) = 0,1$$

$$1 - P(X \leq K) = 0,1$$

$$P(X \leq K) = 0,9$$

$$1 - e^{-\frac{1}{2500}K} = 0,9$$

$$e^{-\frac{K}{2500}} = 0,1$$

$$\begin{aligned} -\frac{K}{2500} &= \ln(0,1) \Rightarrow K = -2500 \ln(0,1) \\ &= 5756 \text{ hence} \end{aligned}$$