I: Deriven la modificación de la distribución $Po(n|\lambda)$ en la que

$$Q(N_t = 0) = 0$$

$$Q(N_t = 1) = \frac{1}{3}$$

$$Q(N_t = n) = \begin{cases} 0 & n = 0 \\ \frac{1}{3} & n = 1 \\ \dfrac{\left(\frac{2}{3}\right) \dfrac{e^{-\lambda} \lambda^{n}}{n!}}{\sum_{k=2}^{\infty} \dfrac{e^{-\lambda} \lambda^{k}}{k!}} & n = 2, 3, \ldots \end{cases}$$

Scanned by CamScanner

Tarea 4

2: Deriven la modificación en la que

$N_t \mid N_t \leq 15 \sim Poisson(n \mid 30)$

$N_t \mid N_t > 15 \sim Bin(n \mid 100, \frac{1}{3})$

$$Q(N_t = n) \begin{cases} \frac{e^{-30} 30^n}{n!} \mathbb{1}(n \leq 15) \\ \frac{\sum_{k=16}^{\infty} \frac{e^{-30} 30^k}{k!} \binom{100}{n} \left(\frac{1}{3}\right)^n \left(1-\frac{1}{3}\right)^{100-n}}{\sum_{k=16}^{100} \binom{100}{k} \left(\frac{1}{3}\right)^k \left(1-\frac{1}{3}\right)^{100-k}} \mathbb{1}(n > 15) \end{cases}$$