$$\rho = \frac{\lambda}{cM}$$

and

$$\rho < 1$$

$0 < m \leq c$

$$P_0 \lambda = P_1 \mu \rightarrow P_1 = \left(\frac{\lambda}{\mu}\right) P_0$$

$$P_1 \lambda = P_2 2\mu \rightarrow P_2 = \left(\frac{\lambda}{\mu}\right)^2 \frac{1}{2} P_0$$

$$P_2 \lambda = P_3 3\mu \rightarrow P_3 = \left(\frac{\lambda}{\mu}\right)^3 \frac{1}{3} \cdot \frac{1}{2} \cdot P_0$$

$$\vdots \qquad \vdots$$

$$P_{m-1} \lambda = P_m \mu \rightarrow P_m = \left(\frac{\lambda}{\mu}\right)^m \frac{1}{m!} P_0$$

$$\boxed{P_m = \frac{(c\rho)^m}{m!} P_0}$$

$m \geq c$

$$P_c \lambda = P_{c+1} c\mu \rightarrow P_{c+1} = \left(\frac{\lambda}{\mu}\right)^{c+1} \frac{1}{c!} \cdot \frac{1}{c} P_0$$

$$P_{c+1} \lambda = P_{c+2} c\mu \rightarrow P_{c+2} = \left(\frac{\lambda}{\mu}\right)^{c+2} \frac{1}{c!} \left(\frac{1}{c}\right)^2 P_0$$

$$P_{c+2} \lambda = P_{c+3} c\mu \rightarrow P_{c+3} = \left(\frac{\lambda}{\mu}\right)^{c+3} \frac{1}{c!} \left(\frac{1}{c}\right)^3 P_0$$

$$\boxed{P_m = \frac{(c\rho)^m}{c!} \left(\frac{1}{c}\right)^{m-c} P_0}$$