**Solutions to Problem 1.**

Arrival rates:

$$\lambda_i = \begin{cases} 20\left(1 - \frac{i}{5}\right) & \text{for } i = 0, 1, \ldots, 5 \\ 0 & \text{for } i = 6, 7, \ldots \end{cases}$$

Service rates:

$$\mu_i = 10 \qquad \text{for } i = 1, 2, \ldots$$

Note that the service rates for $i = 6, 7, \ldots$ are not relevant, since those states will never be reached.