Exercise: Seasonal LG-SSM model in standard form

Consider a seasonal time series model with $S = 4$ seasons, in which the latent state at time t has value

$$c_t = -\sum_{s=1}^{S-1} c_{t-s} + \epsilon_t^c, \ \epsilon_t^c \sim \mathcal{N}(0, Q_c) \tag{1}$$

and the observed state is $x_t = c_t + \epsilon_t$, where $\epsilon_t \sim \mathcal{N}(0, \sigma_x^2)$. Write this as an LG-SSM, by defining appropriate matrices $\mathbf{A}$, $\mathbf{C}$, $\mathbf{Q}$ and $\mathbf{R}$. (You may ignore the local trend part of the model.)