A dynamical CTLTI system is characterized by $A = \begin{bmatrix} 1 & 3 \\ 3 & 1 \end{bmatrix}, C = \begin{bmatrix} 0.5 & 1 \end{bmatrix}$.

1. Find a linear state-observer gain $L = [l_1 \; l_2]^\top$ such that the poles of the estimation error are -5 and -7.

2. Can you place both poles at -6? If yes, what is the corresponding observer gain?