Answers

a)

Of the 4 graphs of Θ_k and U_k, the case that produces the best result is case (b). The set-point weighting helps control the overall system and further improves the system response.

b) The recommended method is pole placement. This is because it is the most accurate method. The pole placement can easily determine the values for PO% and Wn. From this, the values will be much more precise compared to the approximation values from Zeighla Nidols approximation. The pros of pole placement is we can make use of the system, initial parameters are calculated making them more exact. The pros of Zeigha nichols is that knowledge of the system is not required, but the initial values contain more variance making the overall system more off, but can be adjusted.