

EL2450 HOMEWORK 1

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Q 1: A gain named Tap exists in the Tank 1 model, what is its function?

A: The gain Tap models the openable tap on the upper tank. The value 0 means that it is currently closed. A value of 1 means fully opened.

Q 2: Place the poles to give a following step response:

- Rise time less than 6s
- Overshoot less than 35%
- Settling-time less than 30s

A: With the parameters set to $\chi = 0.5$, $\omega_0 = 0.2$ and $\xi = 0.7$ yields a system with risetime of 3.31 s and a settling time 18.8 s and an overshoot of 22.6%.

Q 3: What does the reference signal look like?

A: The signal starts at 40 and receives a step by 10 at 100 s which sets it to 50.