

Problems From Chapter 4 -- 17, 19 and 20

For all of the following problems, you are not responsible for calculating T_r (rise time) at this point in the class.

17

a) $\zeta=0.548$, $\omega_n=10.95$, $T_s=0.667$, $T_p=0.343$, $\%OS=12.79$

b) $\zeta=0.01$, $\omega_n=0.1$, $T_s=4000$, $T_p=31.42$, $\%OS=96.9$

c) $\zeta=0.099$, $\omega_n=31623$, $T_s=0.00127$, $T_p=9.9 \times 10^{-5}$, $\%OS=73.09$

19

a) $\zeta=0.5912$, $\omega_n=13.533$, poles at $-8 \pm j 10.915$

b) $\zeta=0.5169$, $\omega_n=14.68$, poles at $-7.6 \pm j 12.566$

c) $\zeta=0.4540$, $\omega_n=1.7621$, poles at $-0.8 \pm j 1.57$

20)

$\zeta=0.358$, $\omega_n=223.553$ from the specifications therefore poles are at $-80 \pm j 208.748$