

Problems 02-2

ZERO AND POLE OF TRANSFER FUNCTION

Problems

1. Calculate the zeros and poles of the following transfer functions $H(z)$, $I(z)$, $J(z)$, $K(z)$.
2. Plot the position of zeros and poles in z-plane for each function.
3. Show the schematic drawings of Bode diagram for each function.

$$H(z) = z^{-1} \quad (\text{Delay element})$$

$$I(z) = 1 - z^{-1} \quad (\text{Differentiator})$$

$$J(z) = \frac{1}{1 - z^{-1}} \quad (\text{Integrator})$$

$$K(z) = \frac{1}{1 - 1.9z^{-1} + 0.95z^{-2}} \quad (\text{Resonator})$$