

Lab 4

EEET-332-01: Signals, Systems, and Transforms Lab

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1 Section 1

$$\begin{aligned}
 Z_p &= \frac{RLs}{R + Ls} = \frac{10s}{2 + 5s} \\
 Z_t &= \frac{R + Ls + RLCs^2}{Cs(R + Ls)} = \frac{20s^2 + 5s + 2}{2s(5s + 2)} \\
 \frac{V_o}{V_i} &= \frac{Z_p}{Z_t} = \frac{\frac{RLs}{R + Ls}}{\frac{R + Ls + RLCs^2}{Cs(R + Ls)}} = \frac{RLs}{\cancel{R + Ls}} \times \frac{Cs(\cancel{R + Ls})}{RLCs^2 + Ls + R} \\
 \frac{V_o}{V_i} &= \frac{RLCs^2}{RLCs^2 + Ls + R} = \frac{20s^2}{20s^2 + 5s + 2}
 \end{aligned} \tag{1}$$

2 Section 2

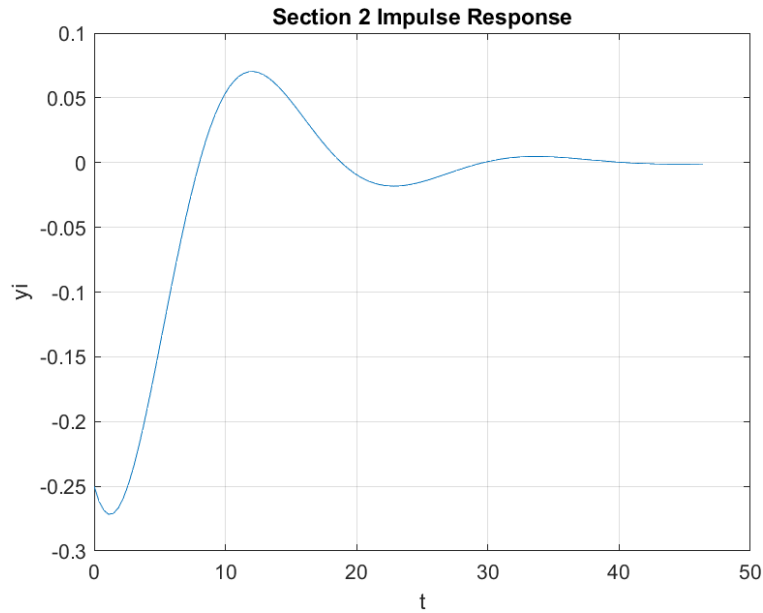


Figure 1: Impulse Response

Roots: $-0.125 \pm 0.2905i$
 All roots are positive.