

EE 341 - Homework 8

Due Oct. 26, 2018

1. For problem P 5.25 in textbook,
 - (a) Obtain the impulse response of the circuit, and plot it using matlab.
 - (b) Obtain the poles and zeros of the circuit, and use matlab to plot them
 - (c) Use matlab to plot the output current for the same train of pulses, with the only difference that they should be very thin (impulses like), (e.g., $\tau = 0.1\mu s$, and amplitude to make the area equal to 1).
 - (d) Comment on the difference between the impulse response obtained theoretically and the one obtained when you applied the train of thin pulses.
2. For Example 5-15 of textbook,
 - (a) show that:

$$H(w) = \frac{I_c(\omega)}{V_s(\omega)} = \frac{\frac{j\omega}{R_1}}{\frac{R_1+R_2}{R_1R_2C} + j\omega}$$

- (b) Obtain the output ($i_c(t)$) for the input given by

$$v_s(t) = 10 + 5 \cos(4t)$$