Assignment 7

The task for this assignment is to determine the frequency response of the system shown in the diagram. The system is a passive RLC circuit.

1. Consider the system shown below. For which values of $L$ is the system causal and BIBO stable?

- $H(j\omega) = \frac{V_2(j\omega)}{V_1(j\omega)} = \frac{1}{1 + j\frac{2\pi f}{f_c}}$

2. Let $\omega_0 = \sqrt{2}$. For which values of $L$ is the system causal and BIBO stable?

- $H(j\omega) = \frac{V_2(j\omega)}{V_1(j\omega)} = \frac{1}{1 + j\frac{2\pi f}{f_c}}$

3. Let $\omega_0 = \sqrt{3}$. For which values of $L$ is the system causal and BIBO stable?

- $H(j\omega) = \frac{V_2(j\omega)}{V_1(j\omega)} = \frac{1}{1 + j\frac{2\pi f}{f_c}}$

4. Let $\omega_0 = \sqrt{4}$. For which values of $L$ is the system causal and BIBO stable?

- $H(j\omega) = \frac{V_2(j\omega)}{V_1(j\omega)} = \frac{1}{1 + j\frac{2\pi f}{f_c}}$

5. Let $\omega_0 = \sqrt{6}$. For which values of $L$ is the system causal and BIBO stable?

- $H(j\omega) = \frac{V_2(j\omega)}{V_1(j\omega)} = \frac{1}{1 + j\frac{2\pi f}{f_c}}$