PROBLEMS

1. Estimate from the plots shown in Figure 1: the log decrements $\delta$, the damping ratios $\zeta$, the damped frequencies $\omega_d$, and the natural frequencies $\omega_n$ for the systems that have the two responses shown below (refer to the two systems as system Y and system Z).

![Figure 1](image1.png)

2. Estimate the damping ratio $\zeta$ for the system that has the frequency response shown in Figure 2. Estimate the amplitude of the response if the same excitation was applied at a very low excitation frequency (close to zero).

3. Determine the steady-state response of the system shown in Figure 3 for $y(t) = Y_0 \sin(\omega t)$.

![Figure 2](image2.png)

![Figure 3](image3.png)