Problem 1 (10 Points) Draw the approximate Bode plot (decibel magnitude, and phase) for the following transfer function.

$$H(s) = \frac{10}{s(s+10)(s+100)}$$

Show on the plots how to find gain and phase margins.

Problem 2 (10 Points) Draw the approximate Bode plot in the w-domain for the following discrete transfer function, by using the bi-linear transformation.

$$H(z) = \frac{z+1}{z(z+10)}$$

Problem 3 (10 Points) For the closed loop transfer function

$$\frac{C}{R}(\omega) = \frac{G(\omega)}{1+GH(\omega)}$$

find the approximate transfer function when $|GH(\omega)| >> 1$ and when $|GH(\omega)| << 1$.

Problem 4 (10 Points) Problem 19.4 page 470 in Schaum.

Problem 5 (10 Points) Example 20.1 page 481 in Schaum.

Problem 6 (10 Points) Section 20.3 page $481-2$ in Schaum.