

Signal Analysis – Homework 10
(Diagramas de Bode)

1) – Find the **transfer function $G(j\omega)$** below in terms of its **basic factors of the Bode diagram**.

$$\text{a) - } G(j\omega) = \frac{(j\omega+1)}{(j\omega+10)}$$

$$\text{i) - } G(j\omega) = \frac{(j\omega+10)}{(j\omega+1)}$$

$$\text{b) - } G(j\omega) = \frac{1}{(j\omega)(j\omega+2)}$$

$$\text{j) - } G(j\omega) = \frac{(j\omega+10)}{(j\omega-1)}$$

$$\text{c) - } G(j\omega) = \frac{10(j\omega)^2}{(j\omega+0,1)(j\omega+100)}$$

$$\text{k) - } G(j\omega) = \frac{(j\omega-10)}{(j\omega+1)}$$

$$\text{d) - } G(j\omega) = \frac{2(j\omega)^2 + 3(j\omega) + 2}{(j\omega+10)(j\omega+60)}$$

$$\text{l) - } G(j\omega) = \frac{(j\omega-10)}{(j\omega-1)}$$

$$\text{e) - } G(j\omega) = \frac{10(j\omega+20)}{(j\omega)\left(j\omega+\frac{1}{2}\right) \cdot [(j\omega)^2 + (j\omega) + 2]}$$

$$\text{f) - } G(j\omega) = \frac{0,2(j\omega+0,1)^2}{(j\omega+1)^2(j\omega+100)^3}$$

$$\text{g) - } G(j\omega) = \frac{10^5(j\omega)}{(j\omega+10)^2 \cdot [(j\omega)^2 + 10^2(j\omega) + 10^4]}$$

$$\text{h) - } G(j\omega) = \frac{10^5(j\omega)^2}{(j\omega+20)^2 \cdot (j\omega+1000)^2}$$

2) – Sketch the **Bode diagram** of absolute value $|G(j\omega)|$ and phase $\angle G(j\omega)$ of each of the **transfer functions $G(j\omega)$** of exercise 1 above.