Electronics II
Problem sheet 5

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MIEET 3º ano

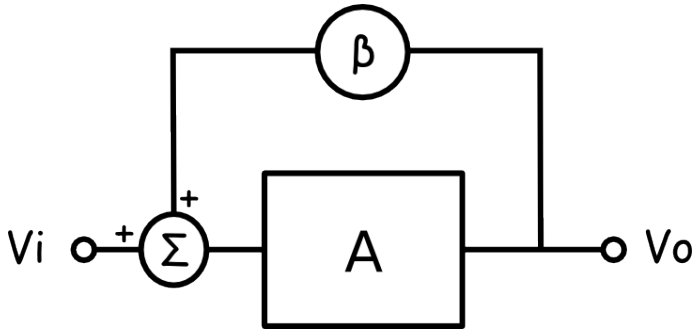

Figure 1: *System with feedback.* A *is the open-loop gain (without feedback), β is the feedback factor.*

- For the (positive) feedback system of Figure 1, determine the relation between V_i and V_o.
- Fill out the table below with gain values $A_f \equiv V_o/V_i$ for combinations A-β.

β \ A	∞	10^5	10^4	1000	100	10	1
−1							
−0.1							
−0.01							
-10^{-3}							
-10^{-4}							
0							
+0.1							
+1							

- For an open-loop gain, $A = 10^5$ with a variation (tolerance) of 5%. Calculate the variation of closed-loop gain for the following betas:

β = 0	β = −0.001	β = −0.01	β = −0.1	β = −1

- The amplifier A ($A = 10^5$) has a single pole at 10 Hz. Determine the bandwidth of the circuit with feedback of $\beta = -10^{-3}$.