Presse de découpage de cartons : Corrigé

1.1 Premier ordre $H_m(p) = \dfrac{K_m}{1+T_m p}$

$K_m = \dfrac{4,1}{1} = 4,1 \text{ rad.s}^{-1}.\text{V}^{-1}$

$63\% \times 4,1 = 2,583 \Rightarrow T = 2,7 \text{ s}$

$$H_m(p) = \frac{4,1}{1+2,7p}$$

1.2 $$K_R = \frac{\omega_8}{\omega_m} = \frac{-z_9}{z_8} = -0,1 =$$

$$\overrightarrow{V_{AE817}} = \overrightarrow{V_{AE810}} + \overrightarrow{V_{AE017}} = \frac{P_V}{2\pi}\left(\overrightarrow{\Omega_{810}} + \overrightarrow{\Omega_{017}}\right)$$

or $\overrightarrow{V_{AE810}} = \vec{0}$ et $\overrightarrow{\Omega_{017}} = \vec{0}$ et $\overrightarrow{V_{AE017}} = -\overrightarrow{V_{AE710}}$

$$\Rightarrow \overrightarrow{V_{AE710}} = -\frac{P_V}{2\pi}\overrightarrow{\Omega_{810}} = \overrightarrow{V_{BE710}}$$

$$\Rightarrow V_7 = -\frac{P_V}{2\pi}\omega_8 \Rightarrow K_{VE} = \frac{-P_V}{2\pi}$$

1.3 $$\overrightarrow{V_{BE617}} = \overrightarrow{V_{BE610}} + \overrightarrow{V_{BE017}} = \overrightarrow{V_{BE610}} - \overrightarrow{V_{BE710}}$$

$$= V_6 \vec{y}_0 - V_7 \vec{z}_0 = V_g \vec{z}_7 = -V_g \sin\alpha \vec{y}_0 + V_g \cos\alpha \vec{z}_0$$

$$\Rightarrow V_6 = -V_g \sin\alpha \qquad -V_7 = +V_g \cos\alpha$$

$$\Rightarrow \frac{V_6}{V_7} = \tan\alpha$$

$$\Rightarrow K_{pi} = \tan\alpha$$

$$K_{ad} = \frac{K_{cap}}{K_R K_{VE} K_{pi}} = \frac{66/2\pi}{0,1 \times \frac{P_V}{2\pi}\tan\alpha} = 3045 \text{ inc.mm}^{-1}$$