SOR

II

Transformada de pulso $\frac{Gp(s)}{(s)}$

$$\cdot \frac{Gp(s)}{(s)} = \frac{19.42}{(0.0577S+1)(0.0053S+1)(S)}$$

$$A(0.0053S+1)(S) + B(0.0577S+1)(S) + C(0.0577S+1)(0.0053S+1) = 19.42$$

$\hookrightarrow S = -188.67925$ $\quad$ $S = -17.33102$

- Si $S = -188.67925$

$(1865.43254)B = 19.42$

$B = 0.01041$

- Si $S = -17.33102$

$(-16.73909)A = 19.42$

$A = -1.23387$

- Si $S = 0$

$C = 19.42$

Nota:

$$\frac{1}{S+a} \longrightarrow \frac{1}{1-e^{-aT}z^{-1}} \Big/ \frac{1}{1-z^{-1}} = \frac{z}{z-1}$$

$$\mathcal{T}\left\{\frac{Gp(s)}{s}\right\} = \mathcal{T}\left\{\left[\frac{-1.23387}{(0.0577S+1)}\right] + \left[\frac{0.01041}{(0.0053S+1)}\right] + \left[\frac{19.42}{S}\right]\right\}$$

$$\mathcal{T}\left\{\frac{Gp(s)}{s}\right\} = \left(\frac{-1.23387}{0.0577}\right)\mathcal{T}\left\{\frac{1}{(S+1/0.0577)}\right\} + \left(\frac{0.01041}{0.0053}\right)\cdot\mathcal{T}\left\{\frac{1}{(S+1/0.0053)}\right\} + (19.42)\cdot\mathcal{T}\left\{\frac{1}{S}\right\}$$

$$\mathcal{T}\left\{\frac{Gp(s)}{s}\right\} = \left(\frac{-1.23387}{0.0577}\right)\left[\frac{1}{1-e^{-(1/0.0577)(0.001)}z^{-1}}\right]$$

$$+\left(\frac{0.01041}{0.0053}\right)\left[\frac{1}{1-e^{-(1/0.0053)(0.001)}z^{-1}}\right]$$

$$+(19.42)\left[\frac{1}{1-z^{-1}}\right]$$

SOR

$$T\left\{\frac{G_p(s)}{s}\right\} = \left[\frac{-21.38423}{1-0.98282z^{-1}}\right] + \left[\frac{1.96415}{1-0.82805z^{-1}}\right] + \left[\frac{19.42}{1-z^{-1}}\right]$$

$$T\left\{\frac{G_p(s)}{s}\right\} = \left(\frac{-21.38423}{0.98282}\right)\cdot\left[\frac{1}{\frac{1}{0.98282}-\frac{1}{z}}\right] \quad \left(\frac{1.96415}{0.82805}\right)\left[\frac{1}{\frac{1}{0.82805}-\frac{1}{z}}\right]$$

$$\frac{z-0.98282}{0.98282z} \qquad \frac{z-0.82805}{0.82805z}$$

$$T\left\{\frac{G_p(s)}{s}\right\} = \left(\frac{-21.38423}{0.98282}\cdot\frac{0.98282z}{z-0.98282}\right) + \left(\frac{1.96415}{0.82805}\cdot\frac{0.82805z}{z-0.82805}\right) + \left(\frac{19.42z}{z-1}\right)$$

$$T\left\{\frac{G_p(s)}{s}\right\} = \left(\frac{-21.38423z}{z-0.98282}\right) + \left(\frac{1.96415z}{z-0.82805}\right) + \left(\frac{19.42z}{z-1}\right)$$

$$T\left\{\frac{G_p(s)}{s}\right\} = \frac{\left[-21.38423z(z-0.82805)(z-1)\right] + \left[1.96415z(z-0.98282)(z-1)\right]}{(z^2-0.82805z-0.98282z+0.81382)(z-1)}$$

$$\left[19.42z(z-0.98282)(z-0.82805)\right]$$

$$T\left\{\frac{G_p(s)}{s}\right\} = \frac{\left[(-21.38423z^2+17.70721z)(z-1)\right] + \left[(1.96415z^2-1.93041z)(z-1)\right]}{z^3-0.82805z^2-0.98282z^2+0.81382z-z^2+0.82805z+0.98282z-0.8138}$$

$$\left[(19.42z^2-19.08636z)(z-1)\right]$$

$$T\left\{\frac{G_p(s)}{s}\right\} = \frac{\left[-21.38423z^3+17.70721z^2+21.38423z^2-17.70721z\right]}{z^3-2.81087z^2+2.62469z-0.81382}$$

$$\left[1.96415z^3-1.93041z^2-1.96415z^2+1.93041z\right]$$

$$\left[19.42z^3-19.08636z^2-19.42z^2+19.08636z\right]$$

SOR

IV

$$\mathcal{T}\left\{\frac{Gp(s)}{s}\right\} = \frac{-21.38423\,z^3 + 39.09144\,z^2 - 17.70721\,z}{z^3 - 2.81087\,z^2 + 2.62469\,z - 0.81382}$$

$$1.96415\,z^3 - 3.89456\,z^2 + 1.93041\,z$$

$$19.42\,z^3 - 38.50635\,z^2 + 19.08636\,z$$

$$\mathcal{T}\left\{\frac{Gp(s)}{s}\right\} = \frac{-0.00008\,z^3 - 3.30948\,z^2 + 3.30956\,z}{z^3 - 2.81087\,z^2 + 2.62469\,z - 0.81382}$$

- $Hg(z) = \left[\left(\frac{z-1}{z}\right) z^{-1}\right] \cdot \mathcal{T}\left\{\frac{Gp(s)}{s}\right\}$ Transferencia do polso.

$$Hg(z) = \frac{-0.00008\,z^4 - 3.30948\,z^3 + 3.30956\,z^2 + 0.00008\,z^3 + 3.30948\,z^2 - 3.30956\,z}{z^5 - 2.81087\,z^4 + 2.62469\,z^3 - 0.81382\,z^2}$$

$$Hg(z) = \frac{-0.00008\,z^4 - 3.30940\,z^3 + 6.61904\,z^2 - 3.30956\,z}{z^5 - 2.81087\,z^4 + 2.62469\,z^3 - 0.81382\,z^2}$$

$$Hg(z) \times \frac{z^{-4}}{z^{-4}}$$

$$Hg(z) = \frac{-0.00008\,z^{-5} - 3.30940\,z^{-6} + 6.61904\,z^{-7} - 3.30956\,z^{-8}}{z^{-4} - 2.81087\,z^{-5} + 2.62469\,z^{-6} - 0.81382\,z^{-7}}$$

$$Hg(z) = \left(\frac{z^{-4}}{z^{-4}}\right) \cdot \frac{(-0.00008\,z^{-1} - 3.30940\,z^{-2} + 6.61904\,z^{-3} - 3.30956\,z^{-4}}{(1 - 2.81087\,z^{-1} + 2.62469\,z^{-2} - 0.81382\,z^{-3}}$$

$$Hg(z) = \frac{-0.00008\,z^{-1} - 3.30940\,z^{-2} + 6.61904\,z^{-3} - 3.30956\,z^{-4}}{1 - 2.81087\,z^{-1} + 2.62469\,z^{-2} - 0.81382\,z^{-3}} \quad \frac{B}{A}$$

$\sum bi = \phi$ $\cap$