

CURS 7 PS QUIZ

a)

$$N = \frac{2k\pi}{\omega} \Rightarrow T = \frac{2\pi}{\omega}$$

It ca semnalul discrit sa fie periodic, pulsatia semnalului
(ω) trebuie sa fie multiplu de $\tilde{\omega}$, iar raportul $\frac{2k\pi}{\omega} \in \mathbb{N}$.

$$T_D = kT$$

$\hookrightarrow m$ de perioade ale semnalului sinusoidal continuu

$$k = \frac{P}{g} \Rightarrow N = \frac{2 \frac{P}{g} \pi}{\omega} = \frac{2P\pi}{g\omega}$$

$$\omega (= \text{multiplu de } \tilde{\omega}) = m\tilde{\omega} \quad \left. \vphantom{\omega} \right\} \Rightarrow$$

$$\Rightarrow N = \frac{2P}{mg} (*)$$

N cel mai mic posibil poate fi minim \Rightarrow Distingem 2 cazuri

$$1) N = 2 : \quad 2 = \frac{2P}{mg} \Rightarrow 1 = \frac{P}{mg} \Rightarrow m = \frac{P}{g} \Rightarrow \omega = \frac{P}{g}$$

$$2) N \geq 2 : \quad \frac{2P}{mg} > 2 \Rightarrow \frac{P}{mg} > 1 \Rightarrow \frac{P}{g} > m \Rightarrow \frac{P}{g} > \frac{\omega}{\pi}$$

$$b) \quad T_D = 1,2T \Rightarrow k_1 = 1,2 = \frac{12}{10} = \frac{6}{5}$$

$$\Rightarrow (*) \quad N_1 = \frac{2 \cdot 6}{m \cdot 5} = \frac{12}{5m}$$

$$T_D = 0,65T \Rightarrow k_2 = 0,65 = \frac{65}{100}$$

$$\Rightarrow (*) \quad N_2 = \frac{2 \cdot 65}{m \cdot 100} = \frac{65}{50m} = \frac{13}{10m}$$

$$T_D = 0,3T \Rightarrow k_3 = 0,3 = \frac{3}{10}$$

$$\Rightarrow (*) \quad N_3 = \frac{2 \cdot 3}{10m} = \frac{3}{5m}$$

$$T_D = 0,04T \Rightarrow k_4 = 0,04 = \frac{4}{100}$$

$$\Rightarrow (*) \quad N_4 = \frac{2 \cdot 4}{100m} = \frac{4}{50m} \quad -1-$$