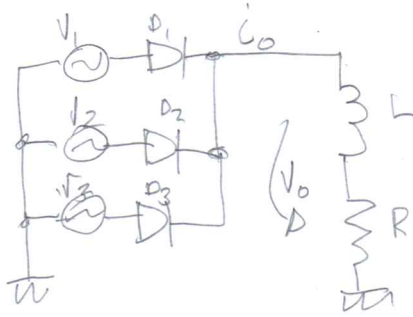


Exercício

CA/CC

ex2) P3

230/400, 50 Hz



i) admissa $L=0$ e $R=100 \Omega$

b) Puramente Resistivo:

$$I_{\text{máx}} = \frac{\sqrt{2} \cdot 230}{100} = 3,25 \text{ A [V]}$$

$$V_{\text{máx}} = \sqrt{2} \cdot 230 = 325,27 \text{ [V]}$$

$$\left\{ \begin{aligned} V_{\text{médio}} &= 3 \times \frac{1}{2\pi} \int_{\frac{\pi}{6}}^{\frac{5\pi}{6}} \sqrt{2} \cdot 230 \sin(\theta) d(\theta) \\ &= 268,99 \text{ [V]} \\ V_{\text{rms}} &= \sqrt{3 \times \frac{1}{2\pi} \int_{\frac{\pi}{6}}^{\frac{5\pi}{6}} (\sqrt{2} \cdot 230 \sin(\theta))^2 d\theta} \\ &= 273,45 \text{ [V]} \end{aligned} \right. \rightarrow \frac{V_{\text{rms}}}{R}$$

$$\left\{ \begin{aligned} I_{\text{médio}} &= 3 \times \frac{1}{2\pi} \int_{\frac{\pi}{6}}^{\frac{5\pi}{6}} 3,25 \sin(\theta) d(\theta) = 2,6899 \text{ [A]} \\ I_{\text{rms}} &= \sqrt{3 \times \frac{1}{2\pi} \int_{\frac{\pi}{6}}^{\frac{5\pi}{6}} (3,25 \sin(\theta))^2 d\theta} = 2,7344 \text{ [A]} \end{aligned} \right.$$

$$\begin{aligned} P &= \frac{1}{2\pi} \int_0^{2\pi} V(\theta) \cdot I(\theta) d(\theta) \\ &= 100 \times \\ &= 3 \times \frac{1}{2\pi} \int_{\frac{\pi}{6}}^{\frac{5\pi}{6}} \sqrt{2} \cdot 230 \sin(\theta) \cdot \frac{\sqrt{2} \cdot 230}{100} \cdot \sin(\theta) d\theta \\ &= 747,739 \end{aligned}$$

$$S = 273,4 \times 2,73 = 746,382$$

FP = 1 pf circuito resistivo.