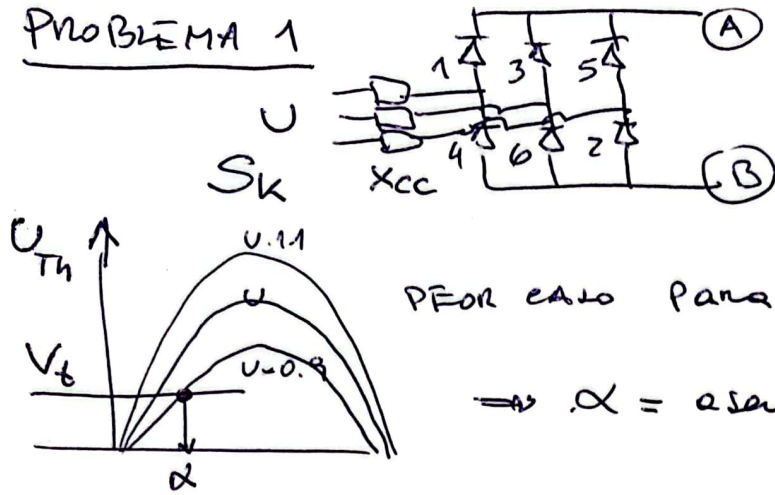


PROBLEMA 1



a) Tensión en un TIRISTOR antes de disparar $U_{Th} = U\sqrt{2} \cos \alpha$

PFOR caso para $U = 220 \times 0.9 = 198V$

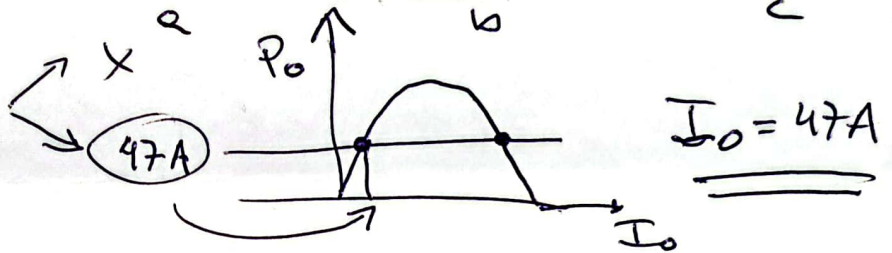
$$\Rightarrow \alpha = \arcsin\left(\frac{U_{Th}}{U\sqrt{2}}\right) = \underline{\underline{10.3^\circ}}$$

b) $P_o = U_o \times I_o = \left(\frac{3}{\pi} U\sqrt{2} \cos \alpha - \frac{3}{\pi} X_{cc} \cdot I_o\right) I_o \Rightarrow$

$$X_{cc} = \frac{U^2}{S_k} = 0.35 \Omega$$

$$\frac{3}{\pi} X_{cc} I_o^2 - \frac{3}{\pi} U\sqrt{2} \cos \alpha I_o + P_o = 0$$

$$I_o = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



luego $U_o = \frac{P_o}{I_o} = 276.8V$

c) Ver dibujo $\alpha + 2\pi/3$

d) $\Delta V_{FALLA} = \frac{1}{2\pi} \int_{\alpha}^{\alpha+2\pi/3} U\sqrt{2} \cos \theta d\theta = \frac{U\sqrt{2}}{2\pi} (-\cos \theta) \Big|_{\alpha}^{\alpha+2\pi/3} = \frac{U\sqrt{2}}{2\pi} [\cos \alpha - \cos(\alpha+2\pi/3)]$

$\Delta V_{FALLA} = 80.7V$

