CC/CC E2

Exercicio 2)

a) $\langle V_o \rangle = D V_i$; $\langle i_o \rangle = \frac{\langle V_o \rangle - E}{R}$

$D = \frac{20}{50} = 0,4$

b) $\langle i_o \rangle = \frac{20 - 10}{20} = \frac{10}{20} = 0,5$ [A]

c) $I_{min} = \frac{V_i}{R} \times \frac{e^{\frac{t_{on}}{\tau}} - 1}{e^{\frac{T}{\tau}} - 1} - \frac{E}{R}$. $t_{on} = 0,4 \times T$

$t = 0,04$ ms

$\tau = \frac{L}{R}$

$= 25,1$ sec

$= \frac{50}{20} \times \frac{e^{\frac{0,04 \cdot 10^{-3}}{25 \cdot 10^{-6}}} - 1}{e^{\frac{0,1 \cdot 10^{-3}}{25 \cdot 10^{-6}}} - 1} - \frac{10}{20}$

$= -0,3156$ [A]

$I_{max} = \frac{V_i}{R} \times \frac{1 - e^{-\frac{t_{on}}{\tau}}}{1 - e^{-\frac{T}{\tau}}} - \frac{E}{R}$

$= \frac{50}{20} \times \frac{1 - e^{-\frac{0,04 \cdot 10^{-3}}{25 \cdot 10^{-6}}}}{1 - e^{-\frac{0,1 \cdot 10^{-3}}{0,04 \cdot 10^{-3}}}} - \frac{10}{20}$

$= 1,532484$