S T Q Q S S D

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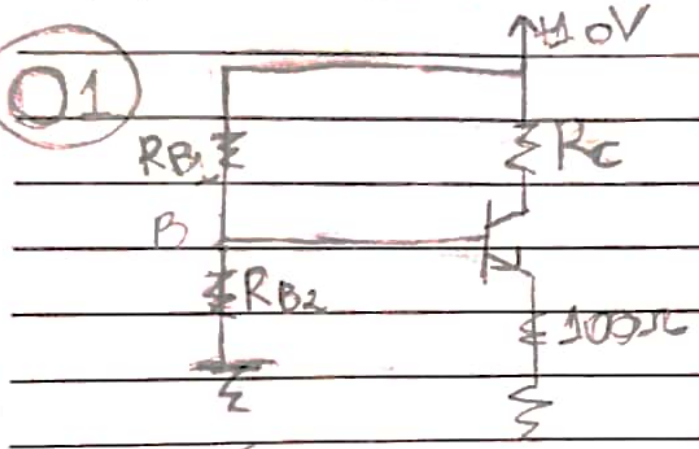
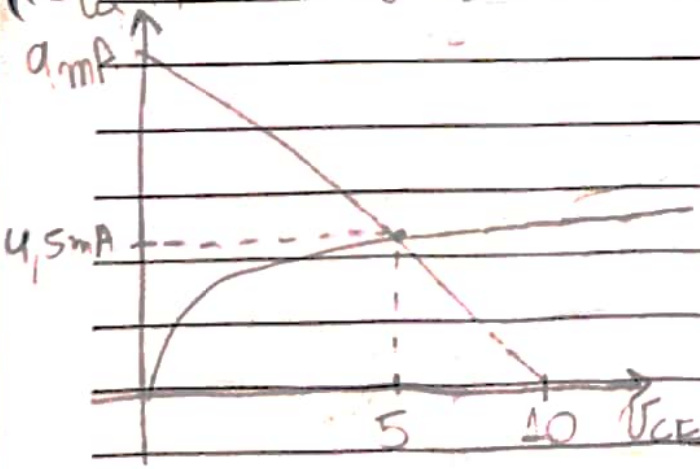
RODRIGO ALVES DE ALMEIDA

COMP-22 ELE 52 P2

Q1



análise DC



$10 = I_C R_C + V_{EC} + 100 I_E$

$I_E = 1,01\, I_C$

$I_C = \frac{10 - V_{EC}}{101 + R_C}$

$\frac{10}{101 + K_C} = 9\,mA$

$R_C = 1010\,\Omega$

$U_B = 0{,}6 + 101 \cdot I_C = 1{,}0545\,V$

$I_{RB2} = 9 \cdot I_C / 10 = 405\,\mu A$

$R_{B2} = U_B / I_{RB2} = 2{,}6\,k\Omega$

$I_{RB1} = I_{RB2} + I_B = 10 \cdot I_B = 450\,\mu A$

$R_{B1} = \frac{10 - U_B}{I_{RB1}} = 19{,}9\,k\Omega$

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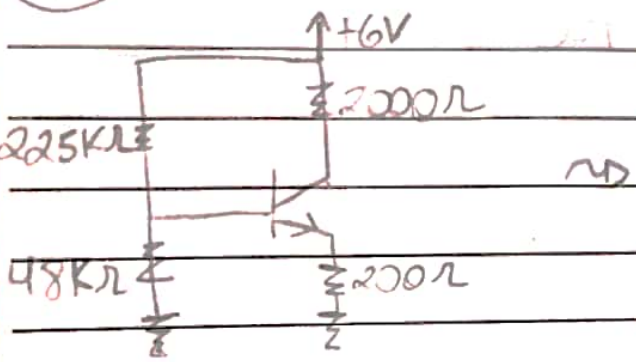
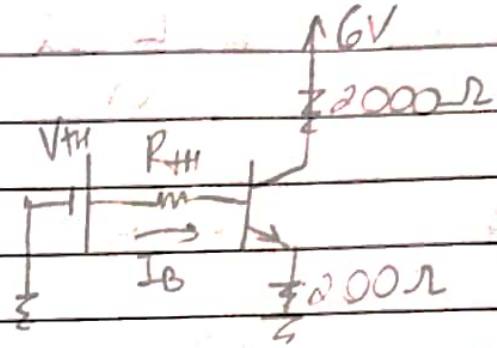
S T Q Q S S D

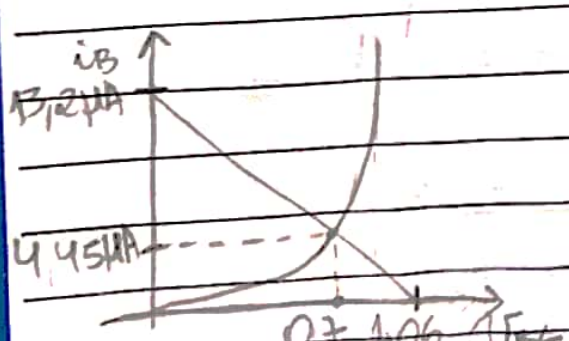
Q2 Modelo DC:



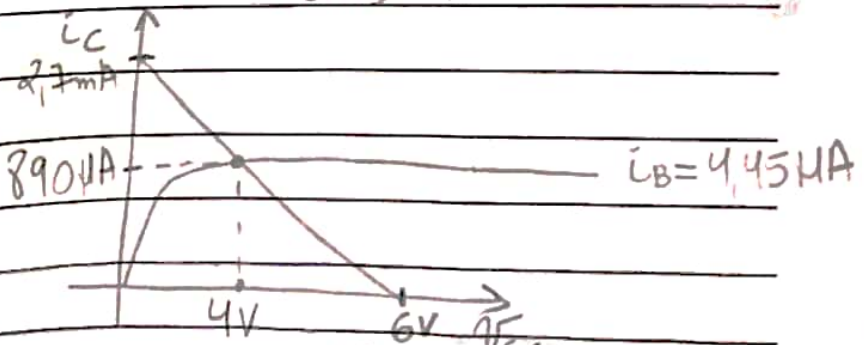


$R_{TH} = 225K\Omega // 48K\Omega = 39,6K\Omega$

$V_{TH} = 6 \cdot \frac{48}{225+48} = 1,055V$

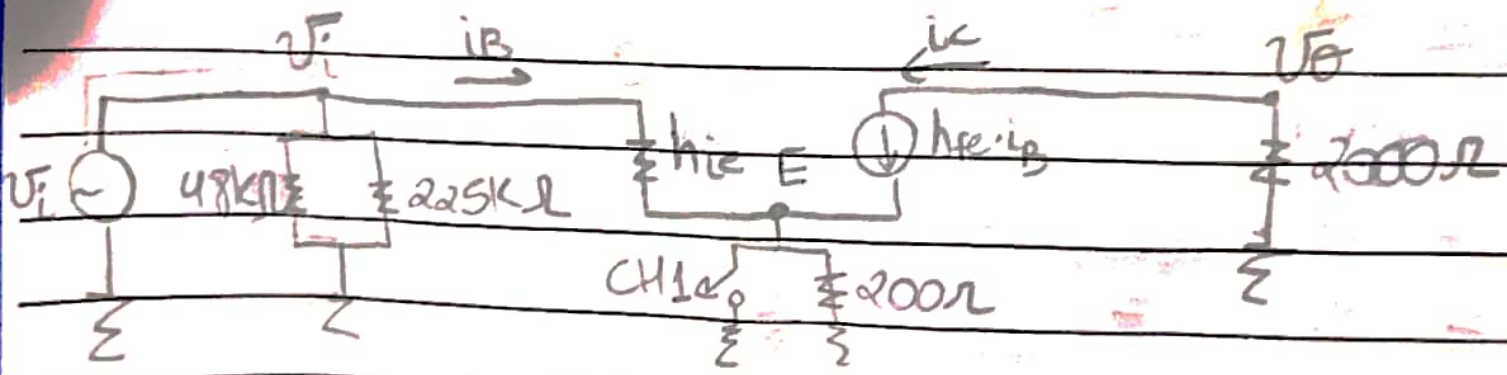


$I_B = \frac{V_{TH} - V_{BE}}{R_{TH} + R_E(\beta+1)}$



$I_C = \frac{V_{CC} - V_{CE}}{R_C + R_E}$

Modelo AC:



$$h_{ie} = \frac{25\,mV}{4,45\mu A} = 5,6\,K\Omega$$

$h_{FE} = 200$

chave CH1 aberta:

$$Gv = -\frac{2000 \cdot 200}{5600 + 200 \cdot 201} = -8,7$$

$Gi = h_{fe} = 200$

$Ri = R_{B1} // R_{B2} // h_{ie} = 4,9K\Omega$

$Ro = 2K\Omega$

chave CH1 fechada:

$$Gv = -\frac{2000 \cdot 200}{5600} = -71,4$$

$Gi = 200$

$Ri = 4,9K\Omega$

$Ro = 2K\Omega$