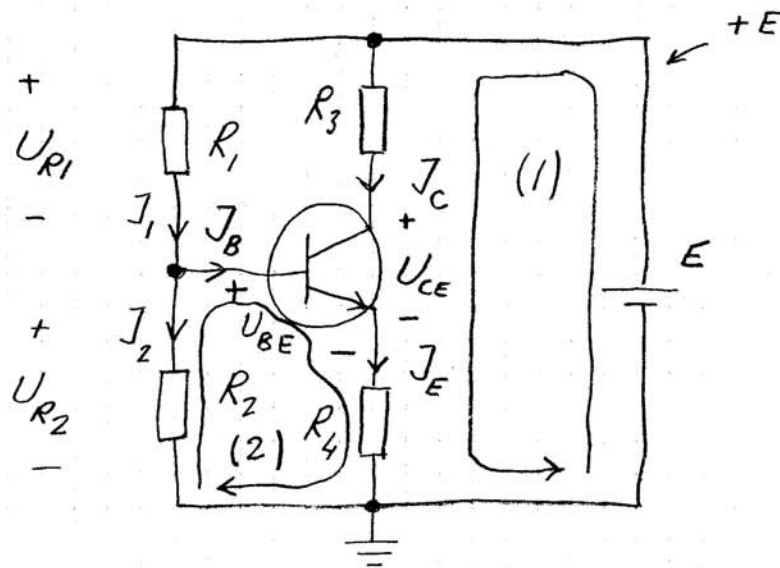


E11

"  
LIKSTRÖMSSCHEMA



$$+E - R_3 J_C - U_{CE} - R_4 J_E = 0 \dots (1)$$

$$+U_{R2} - U_{BE} - R_4 J_E = 0 \dots (2)$$

$$J_E = J_B + J_C = \frac{J_C}{h_{FE}} + J_C = J_C \left( \frac{1}{h_{FE}} + 1 \right)$$

INS 1 (1)  $\Rightarrow$

$$+15 - R_3 \cdot 0,010 - 5 - 400 \cdot 0,010 \left( \frac{1}{200} + 1 \right) = 0$$

$$\Rightarrow \underline{R_3 \approx 0,6 \text{ k}\Omega \text{ (598 } \Omega)}$$

(2)  $\Rightarrow$

$$+U_{R2} - 0,6 - 400 \cdot 0,010 \left( \frac{1}{200} + 1 \right) = 0$$

$$\Rightarrow U_{R2} = 4,62 \text{ V}$$

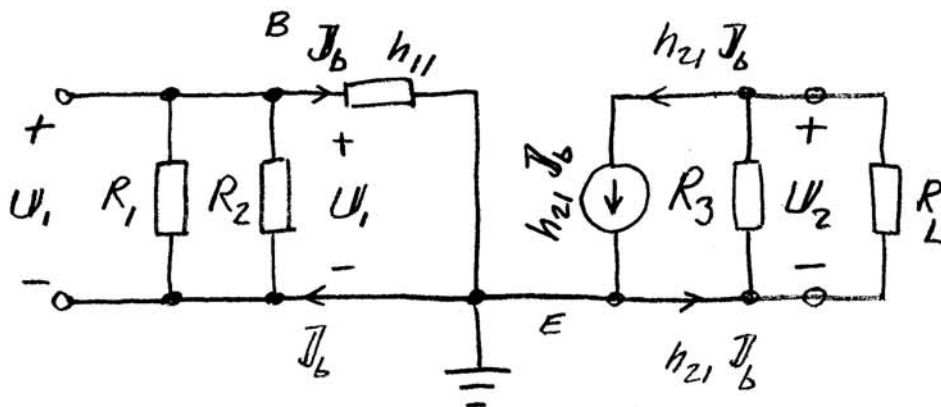
$$U_{R1} = E - U_{R2} \Rightarrow U_{R1} = 10,38 \text{ V}$$

$$J_1 = J_B + J_2 = \frac{J_c}{h_{FE}} + \frac{U_{R2}}{R_2}$$

$$\Rightarrow J_1 = \frac{0.010}{200} + \frac{4.62}{30000} = 204 \mu A$$

$$R_1 = \frac{U_{R1}}{J_1} \rightarrow \underline{R_1 \approx 51 \text{ k}\Omega} \quad (50882 \Omega)$$

EKVIVALENT SIGNALSCHEMA



$$F = \frac{U_2}{U_1} = \frac{-h_{21} J_b \cdot \frac{R_3 \cdot R_L}{R_3 + R_L}}{h_{11} J_b}$$

$$\Rightarrow F = -42.8 \quad F_u = |F|$$

$$\Rightarrow F_u = 42.8 \quad \text{SPÄNNINGS - FÖRSTÄRKNINGEN}$$

$$F_p = \frac{P_{ut}}{P_{in}} \quad \text{EFFEKT - FÖRSTÄRKNINGEN}$$

$$P_{\text{out}} = \frac{U_2^2}{R_L}$$

$$P_{\text{in}} = \frac{U_1^2}{R_1 \parallel R_2 \parallel h_{11}}$$

⇒

$$F_P = \left( \frac{U_2}{U_1} \right)^2 \cdot \frac{R_1 \parallel R_2 \parallel h_{11}}{R_L} \rightarrow$$

$$F_P = F_u^2 \cdot \frac{R_1 \parallel R_2 \parallel h_{11}}{R_L} \rightarrow$$

$$\underline{F_P} = 42,8^2 \cdot \frac{950}{800} \approx \underline{\underline{2,2 \cdot 10^3}} \\ (2171)$$