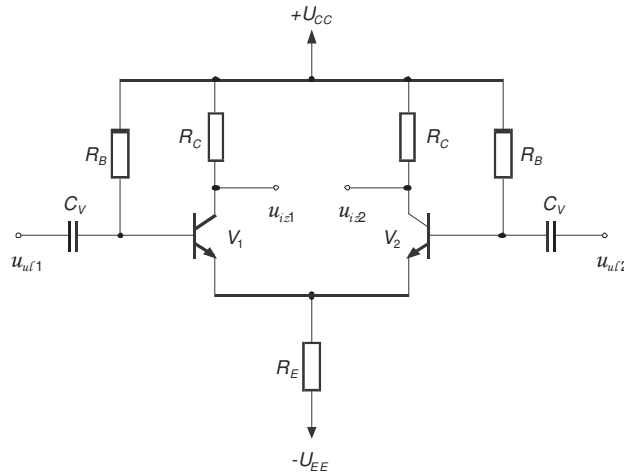


## 9. domaća zadaća iz Analognih sklopova i Elektroničkih sklopova

1. U pojačalu sa slike poznato je:  $U_{CC} = U_{EE} = 12 \text{ V}$ ,  $R_E = 1 \text{ k}\Omega$ ,  $|A_d| = 100$ ,  $\beta = h_{fe} = 200$ ,  $I_{RE} = 8 \text{ mA}$ ,  $U_{BEQ} = 0,7 \text{ V}$ . Izračunajte statičku radnu točku te  $R_B$ ,  $R_C$ ,  $A_z$  i  $F_p$ .

**Rješenje:**

$$I_{E1} = I_{E2} = I_{EQ} = \frac{I_{RE}}{2} = 4 \text{ mA}$$

$$I_{C1} = I_{C2} = I_{CQ} = I_{EQ}$$

$$I_{B1} = I_{B2} = I_{BQ} = \frac{I_{CQ}}{\beta} = 20 \mu\text{A}$$

$$U_{CC} - U_{EE} = R_B \cdot I_{BQ} + U_{BEQ} + R_E \cdot I_{RE}$$

$$R_B = \frac{U_{CC} + U_{EE} - U_{BEQ} - R_E \cdot I_{RE}}{I_{BQ}} = 765 \text{ k}\Omega$$

$$h_{ie} = \frac{mU_T}{I_{BQ}} = \frac{0,025}{I_{BQ}} = 1,25 \text{ k}\Omega$$

$$|A_d| = \frac{h_{fe} \cdot R_C}{2h_{ie}}$$

$$R_C = \frac{2h_{ie} \cdot |A_d|}{h_{fe}} = 1,25 \text{ k}\Omega$$

$$U_{CC} - U_{EE} = R_C \cdot I_{CQ} + U_{CEQ} + R_E \cdot I_{RE}$$

$$U_{CEQ} = U_{CC} + U_{EE} - R_C \cdot I_{CQ} - R_E \cdot I_{RE} = 11 \text{ V}$$

$$A_z = -\frac{h_{fe} \cdot R_C}{h_{ie} + 2(1 + h_{fe}) \cdot R_E} = -0,6200$$

$$F_p = \frac{|A_d|}{|A_z|} = 161,3$$