



15.

$A_{u0} = 5 \cdot 10^4$   
 $f_c = 10 \text{ kHz}$   
 $r_{ei} = 50 \Omega$   
 $A_{ue} = 450$   
 $C_1 = C_2 = 4 \mu\text{F}$   
 $R_L = 2 \text{ k}$

a.)  $3 \text{ dB} \Downarrow$

$$r_{be} = R_1 = \frac{1}{2\pi \cdot f_c \cdot C_1} = \frac{1}{2\pi \cdot 10 \text{ kHz} \cdot 4 \cdot 10^{-6}} \approx \underline{\underline{4 \text{ k}\Omega}}$$

$$|A_{u1}| = |A_{u2}| = \sqrt{A_{ue}} = \sqrt{450} = \underline{\underline{21,2}} \Rightarrow R_2 = A_{u1} \cdot R_1 = 21,2 \cdot 4 \text{ k}$$

$$R_3 = R_2 = \underline{\underline{84,8 \text{ k}\Omega}}$$

b.)  $r_{be} = \text{ct.} \Downarrow$

$$R_2' = R_1 \cdot \sqrt{A_{ue}} = 4 \text{ k} \cdot \sqrt{500} \approx \underline{\underline{89,4 \text{ k}\Omega}}$$

c.)  $r_{be} = R_1 = \underline{\underline{4 \text{ k}\Omega}}$

$$r_{eiw} = r_{ei} \cdot \frac{A_{u1}}{A_{u0}} = 50 \Omega \cdot \frac{21,2}{5 \cdot 10^4} \approx \underline{\underline{21,2 \mu\Omega}}$$

d.)  $f_a' = 0,9 \text{ kHz}$

$$\Downarrow$$

$$C_3 = \frac{1}{2\pi \cdot f_a' \cdot R_L} = \frac{1}{2\pi \cdot 0,9 \text{ kHz} \cdot 2 \text{ k}} \approx \frac{1}{11,3 \cdot 10^3} \approx \underline{\underline{88,4 \mu\text{F}}}$$