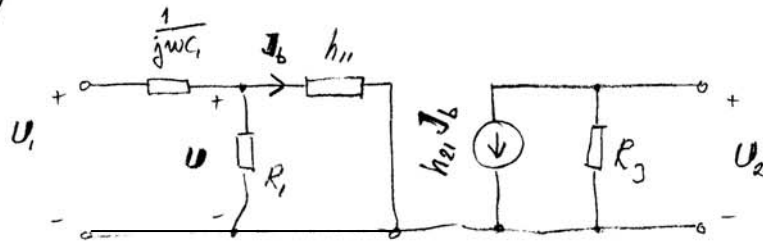


E18

a)



b)

$$U = U_1 \cdot \frac{\frac{R_1 h_{11}}{R_1 + h_{11}}}{\frac{1}{j\omega C_1} + \frac{R_1 h_{11}}{R_1 + h_{11}}} \dots (1)$$

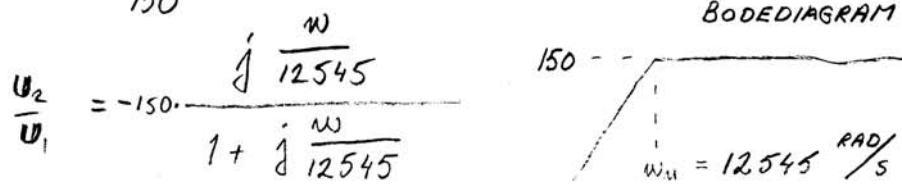
$$I_b = \frac{U}{h_{11}} \dots (2)$$

$$U_2 = -h_{21} \cdot I_b \cdot R_3 \dots (3)$$

(1), (2) & (3) →

$$U_2 = -\frac{h_{21}}{h_{11}} \cdot U_1 \cdot \frac{\frac{R_1 h_{11}}{R_1 + h_{11}}}{\frac{1}{j\omega C_1} + \frac{R_1 h_{11}}{R_1 + h_{11}}} \cdot R_3$$

$$\frac{U_2}{U_1} = - \underbrace{\frac{h_{21} R_3}{h_{11}}}_{150} \cdot \frac{j\omega C_1 \cdot \frac{R_1 h_{11}}{R_1 + h_{11}}}{1 + j\omega C_1 \cdot \frac{R_1 h_{11}}{R_1 + h_{11}}} \rightarrow 79.7 \cdot 10^{-6}$$



c) $\omega_n = 2\pi f_n \Rightarrow f_n = \underline{\underline{1997 \text{ Hz}}}$