

Klausur GE2 vom 13.07.2007

1) a. $\Delta I = 3.9mA$
 $\frac{\Delta I}{I} = 0.325\%$

b. $\Delta R_g = 150\Omega$
 $\frac{\Delta R_g}{R_g} = 2.5\%$

c. $P = 1.44W$
 $\Delta P = 0.144W$

d. $I_2 = 0.5A$
 $\frac{\Delta I_2}{I_2} = 140\%$

e. $\rho = 0.0196 \frac{\Omega mm^2}{m}$
 $\Delta \rho = 6 \cdot 10^{-3} \frac{\Omega mm^2}{m}$

2) $f = 35.71kHz$
 $\bar{u} = 2.43V$
 $U_{eff} = 3.05V$
 $\bar{u} = 2.43V$
 $W = 1.86Wh = 6.7kJ$

3) a. $\underline{I} = 5\text{mA}$

$$\underline{U}_L = 3.14\text{V} \cdot e^{j90^\circ}$$

$$\underline{U} = 5.9\text{V} \cdot e^{j32.14^\circ}$$

b. $\underline{I}_R = 6.23\text{mA} \cdot e^{-j51.5^\circ}$

$$\underline{U} = 12.45\text{V} \cdot e^{-j51.5^\circ}$$

$$\underline{I}_C = 7.83\text{mA} \cdot e^{j38.5^\circ}$$

4) a. $\underline{Z}(f \rightarrow 0) = 15\text{k}\Omega$

$$\underline{Z}(f \rightarrow \infty) = 10\text{k}\Omega$$

b. $\underline{Z}(f = 5\text{kHz}) = 11.66\text{k}\Omega \cdot e^{-j11.2^\circ}$

c. $\underline{I}_1 = 1.02\text{mA} \cdot e^{j11.8^\circ}$

d. $\underline{H}(j\omega) = 0.23 \cdot e^{-j46.3^\circ}$

5) a. $U_2 = -4\text{V}$

b. $\underline{H}(j\omega) = -\frac{R_2 + j\omega L}{R_1}$ Hochpass

c. $f_g = 63.7\text{kHz}$

Probeklausur GE2 vom 13.06.2008

1) a. $\Delta U_M = 90mV$

$$\frac{\Delta U_M}{U_M} = 0.7\%$$

b. $R_i = 5.25\Omega$

$$\frac{\Delta R_i}{R_i} = 11.9\%$$

c. $r = 39.1mm$

$$\Delta r = 1.0mm$$

2) $f = 47.62kHz$

$$\bar{u} = 1.714V$$

$$U_{eff} = 2.39V$$

$$\bar{u} = 1.714V$$

$$W = 1.37kJ$$

3) a. $\underline{Z}(f = 1kHz) = 29.3\Omega \cdot e^{-j25^\circ}$

b. $\underline{I} = 341mA \cdot e^{j25^\circ}$

$$\underline{U}_1 = 6.82V \cdot e^{j25^\circ}$$

$$\underline{U}_2 = 4.79V \cdot e^{-j37^\circ}$$

4)
$$\underline{H}(j\omega) = -\frac{j\omega R_3 C_2}{(1 + j\omega R_1 C_1)(1 + j\omega R_2 C_2)}$$

5) $U_a = U_2 - 3U_1$