Nr. 10)

geg.: $E = 160\,\mu J$ $\quad \Delta t = 3{,}8\,ms$

$I = 245\,mA$

a)

ges.: C

$\Delta t = \frac{1}{4} T$

$\Rightarrow T = \underline{15{,}2\,ms}$

$W = \frac{1}{2} L \cdot I^2$

$L = \frac{2W}{I^2} = \underline{0{,}0053\,H}$

$T = 2\pi \cdot \sqrt{L \cdot C}$

$T^2 = 4\pi^2 \cdot L \cdot C$

$C = \frac{T^2}{4\pi^2 \cdot L} = 0{,}001\,F = \underline{\underline{1\,mF}}$

b) $\hat{I} = \hat{Q} \cdot \omega$

$\hat{Q} = \frac{\hat{I}}{\omega}$ $\qquad \omega = 2\pi \cdot f$

$f = \frac{1}{2\pi \cdot \sqrt{L \cdot C}} = \underline{69{,}13\,Hz}$ $\quad \Rightarrow \omega = \underline{434{,}37\,Hz}$

$\hat{Q} = \frac{\hat{I}}{\omega} = \underline{\underline{0{,}00056\,C}}$

$\hat{U} = \frac{\hat{Q}}{C} = \underline{\underline{0{,}564\,V}}$