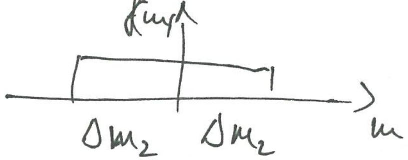
B II.) $\hat{m} = \bar{m} = 11{,}625\,g$ $\quad \Delta m_1 = \frac{s}{\sqrt{N_1}} \cdot \underbrace{z_{0,025}}_{1,96} = 0{,}014\,g$



$\sigma \cong s$

$\mu \cong \bar{m}$

$P\left[\hat{m} - \Delta m_1 < m < \hat{m} + \Delta m_1\right] = 1-b$

$P\left[11{,}611\,g < m < 11{,}639\,g\right] = 95\%$ 2

$\Delta m_2 = \sqrt{3}\,\sigma = 0{,}1862\,g$ 2

$m_1 \in \left[11{,}439\,g\,;\,11{,}811\,g\right]$

~~Δm_3~~ $\Delta m_3 = \frac{s}{\sqrt{N_3}} \cdot z_{0,025} \Rightarrow N_3 = \left(\frac{s \cdot z_{0,025}}{\Delta m_3}\right)^2 \cong 111$ 1

$\boxed{5}$

B II.) $\varphi = 2\pi \frac{\tau}{T} = 1{,}4923$ $(85{,}5°)$ 1 $\quad P = U \cdot I \cdot \cos\varphi = 0{,}7218\,W$ 1 $\quad |Y| = \frac{I}{U} = 1{,}739 \cdot 10^{-4}\,S$ $(5750\,\Omega)$

$Y = |Y|\left[\cos\varphi + j\sin\varphi\right] = \frac{1}{R} + j\omega C \Rightarrow R = \frac{1}{|Y|\cos\varphi} = 73{,}33\,k\Omega$, $C = \frac{|Y|\sin\varphi}{\omega} = 551{,}9\,nF$ 1

$P = U \cdot I \cdot \cos\varphi \Rightarrow \frac{\Delta P}{P}_{w.c.} = \frac{\Delta U}{U} + \frac{\Delta I}{I} + \frac{\Delta\cos\varphi}{\cos\varphi} = \frac{\Delta U}{U} + \frac{\Delta I}{I} + \underbrace{\mathrm{tg}\,\varphi\,\Delta\varphi}_{\approx 0{,}099} \cong 11{,}9\%$ 1

$\Delta\varphi = \varphi\left(\frac{1}{\tau \cdot f_0} + \frac{1}{T \cdot f_0}\right) = 7{,}775\,mrad$ 1

(ha hibák mind rendszeres hiba!)

$\boxed{5}$