(1) a) $C_{23} = \frac{C_2 C_3}{C_2 + C_3} = \frac{5}{6}\,\mu F$ $\quad C_{45} = \frac{C_4 C_5}{C_4 + C_5} = \frac{6}{5}\,\mu F$

$C_{2345} = C_{23} + C_{45} = \frac{61}{30}\,\mu F$ $\quad C_e = \frac{C_1 \cdot C_{2345}}{C_1 + C_{2234}} = \frac{244}{181}\,\mu F \approx 1{,}348\,\mu F$

b) $Q = U \cdot C_e = 269{,}61\,\mu C$ $\quad U_{2345} = \frac{Q}{C_{2345}} = 132{,}295\,V$

$Q_4 = Q_5 = Q_{45} = U_{2345} \cdot C_{45} = 158{,}75\,\mu C \Rightarrow$

$U_4 = \frac{Q_4}{C_4} = 79{,}377\,V$

c) $Q_2 = Q_3 = Q_{23} = U_{2345} \cdot C_{23} = 110{,}24\,\mu C$

d) $U_1 = \frac{Q}{C_1} = 67{,}403\,V$; $U_2 = \frac{Q_2}{C_2} = 110{,}246\,V$

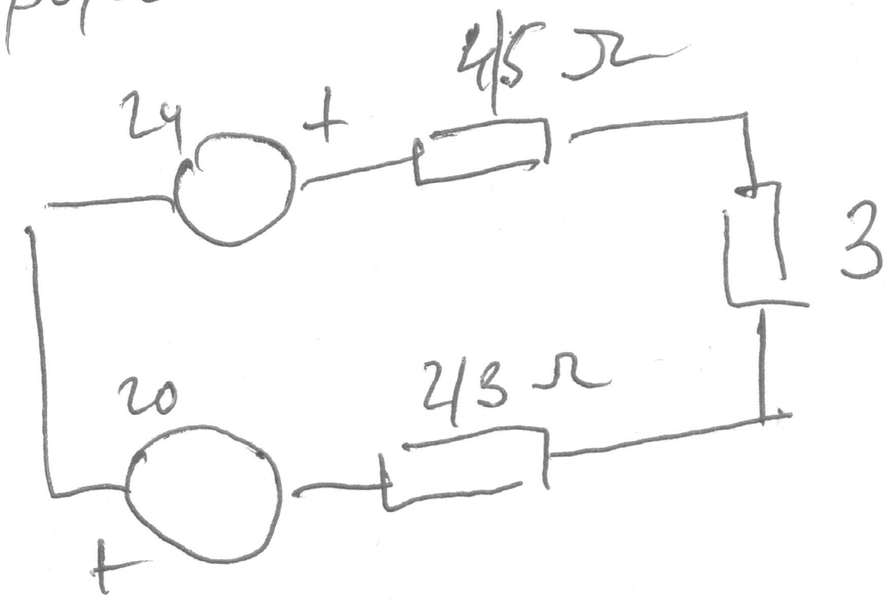
$U_3 = \frac{Q_3}{C_3} = 22{,}049\,V$ $\quad U_4 = \frac{Q_4}{C_4} = 79{,}377\,V$

$U_5 = \frac{Q_5}{C_5} = 52{,}918\,V$

Do proboja bi došlo na C_e

(2) $I_{R5} = 9{,}85\,A$ $\quad P_{Rp} = 3 \cdot (9{,}85)^2\,W$

(pojednostavit šemu



$I = \frac{44}{3 + 4{,}5 + 2{,}3} \approx 9{,}85\,A$

(3) Videti materijale sa predavanja.

(4) $\varphi = -\frac{3\pi}{4} - \left(-\frac{\pi}{2}\right) = -\frac{\pi}{4}$

$P = UI\cos\varphi = 8 \cdot \frac{0{,}25}{\sqrt{2}} \cos\left(-\frac{\pi}{4}\right)$
$= 8 \cdot \frac{0{,}25}{\sqrt{2}} \cdot \frac{\sqrt{2}}{2} = 1\,W$

$Q = UI\sin\varphi = -1\,VAr$

$\bar{S} = (1 - j1)\,VA$

$S = \sqrt{2}\,VA$