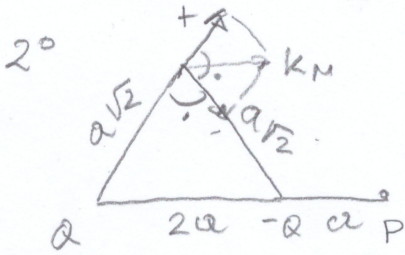


РЕШЕЊА ЗАДАТАКА ПОПРАВИТОГ  
КОЛОКВИЈУМА 06.12.2023

1<sup>o</sup>  $C = \epsilon \frac{S}{d} \Rightarrow \epsilon = \frac{Cd}{S} = \frac{10^{-9} \cdot 10^{-3}}{10^{-2}} = 10^{-10} \left[ \frac{F}{m} \right]$

$U = \frac{Q}{C} = \frac{10 \cdot 10^{-9}}{10^{-9}} = 10V$  ;  $K = \frac{U}{d} = \frac{10}{10^{-3}} = 10^4 \left[ \frac{V}{m} \right]$

$W = \frac{1}{2} QU = \frac{1}{2} 10 \cdot 10^{-9} \cdot 10 = 50 \cdot 10^{-9} [J]$

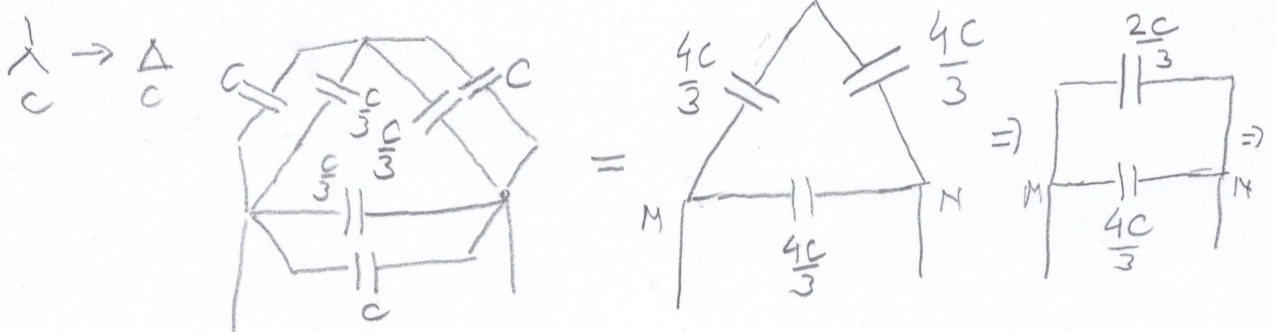


$K_1 = \frac{1}{4\pi\epsilon} \frac{Q}{2a^2}$     $K_2 = \frac{1}{4\pi\epsilon} \frac{Q}{2a^2}$     $K = \sqrt{K_1^2 + K_2^2} = \frac{1}{4\pi\epsilon} \frac{Q}{2a^2} \sqrt{2}$

$K = \frac{1}{4\pi\epsilon} \frac{Q}{\sqrt{2}a^2} \left[ \frac{V}{m} \right]$

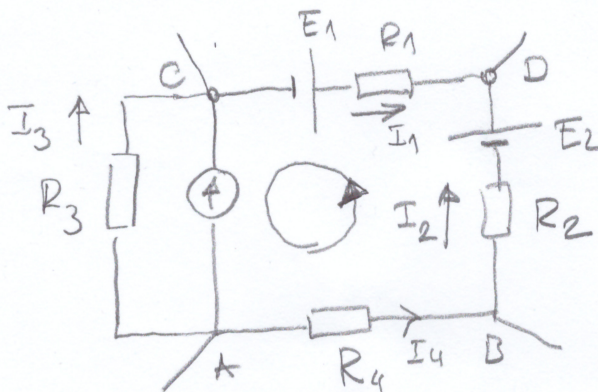
$V_P = \frac{Q}{4\pi\epsilon} \left( \frac{1}{3a} - \frac{1}{a} \right) = -\frac{Q}{4\pi\epsilon a} \frac{2}{3} = -\frac{Q}{6\pi\epsilon a}$

3



$C_e = \frac{6C}{3} = 2C$

4



$U_{AB} = R_4 I_4$

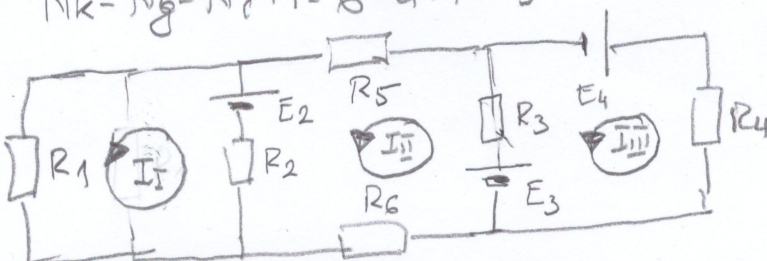
$\text{IIK3} \rightarrow R_4 I_4 + R_2 I_2 - R_1 I_1 - R_3 I_3 = E_2 - E_1$

$R_3 I_3 = R_4 I_4 + R_2 I_2 - R_1 I_1 + E_1 - E_2$

$I_3 = \frac{U_{AB} + R_2 I_2 - R_1 I_1 + E_1 - E_2}{R_3}$

5

$N_k = N_g - N_\gamma + 1 = 6 - 4 + 1 = 3$



ЗА ОВАКО ОДЛАСРАНЕ К.О. СИСТЕМЕ

$(R_1 + R_2) I_I - R_2 I_{II} + 0 \cdot I_{III} = E_2$

$-R_2 I_I + (R_2 + R_3 + R_5 + R_6) I_{II} - R_3 I_{III} = E_3 - E_2$

$0 I_I - R_3 I_{II} + (R_3 + R_4) I_{III} = -E_4 - E_3$