



ИСПИТ ИЗ ОСНОВА ЕЛЕКТРОТЕХНИКЕ 1

15. 05. 2013. - Рјешења

1.

$$r_{23} = 1,67 \text{ cm.}$$

$$Q_2 = -4,4 \text{ pC.}$$

2.

$$C = \frac{\pi \varepsilon_0 (1 + \varepsilon_r)}{\left(\frac{1}{a} + \frac{1}{d-a} \right)}.$$

3.

a) $C \approx 70,8 \text{ pF}, \quad U \approx 141,2 \text{ V}, \quad E \approx 28,24 \text{ kV/m}, \quad W_e \approx 706 \text{ nJ}.$

б) $U' \approx 84,7 \text{ V}, \quad C' \approx 118,06 \text{ pF}, \quad W_e' \approx 423 \text{ nJ}.$

4.

a) $I_1 = 60 \text{ mA}, \quad I_2 = 100 \text{ mA}, \quad I_3 = 0, \quad I_4 = -40 \text{ mA}.$

б) $U_g = 17,2 \text{ V}.$

в) $P_{E1} = 720 \text{ mW}, \quad P_{E3} = 0, \quad P_{Iq} = 1,72 \text{ W}.$

5.

$$R_{AB} = \frac{3}{2} R.$$

6.

$$\Delta U_{AB} = -10 \text{ V}.$$