

ΛΥΣΕΙΣ Β γενικών ΠΑΡΑΓΡΑΦΩΝ 2015

Θέμα Α. $A_1 - \gamma, A_2 - \gamma, A_3 - \delta, A_4 - \delta.$
 $A_5 - \alpha\lambda, \beta\epsilon, \gamma\zeta, \delta\lambda, \epsilon\sigma.$

Θέμα Β

$B_1.$ Α) σωστό το γ.

Β). Διοχ. $V = k_{\kappa\upsilon} \frac{Q}{r}.$

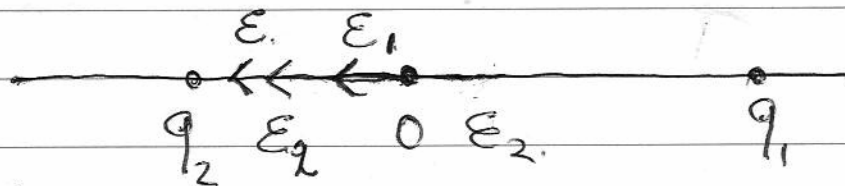
$B_2.$ Α) σωστό το β.

$$R_1 = \frac{R}{3}, \quad R_2 = \frac{2R \cdot R}{2R + R} = \frac{2}{3}R, \quad R_3 = \frac{R}{2} + R = \frac{3}{2}R.$$

Θέμα Γ.

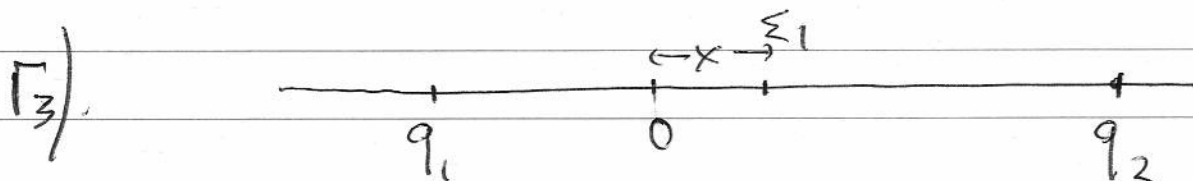
$\Gamma_1.$ $V_0 = k_{\kappa\upsilon} \frac{q_1}{r_1} + k_{\kappa\upsilon} \frac{q_2}{r_2} = -\frac{3}{2} \cdot 10^3 \text{ V}.$

$\Gamma_2.$



$$E = k_{\kappa\upsilon} \frac{|Q|}{r^2}, \quad E_1 = 2 \cdot 10^3 \frac{\text{N}}{\text{C}}, \quad E_2 = 9,75 \cdot 10^3 \frac{\text{N}}{\text{C}}$$

$$\text{Άρα } E = E_1 + E_2 = 11,75 \cdot 10^3 \frac{\text{N}}{\text{C}}.$$



$$V_{\xi_1} = 0 \Rightarrow k \frac{q_1}{x_1 + x} + k \frac{q_2}{x_2 - x} = 0 \Rightarrow$$

$$k \frac{q_1}{x_1 + x} = -k \frac{q_2}{x_2 - x} \Rightarrow x = 0,6 \text{ m.}$$

$$\Gamma 4) \cdot W_{0 \rightarrow \xi_1} = q (V_0 - V_{\xi_1}) = 10^{-6} \cdot \left(-\frac{3}{2} \cdot 10^3 \right) = -\frac{3}{2} \cdot 10^{-3} \text{ J.}$$

Θεωρα Δ

$$\Delta 1) \cdot V_{\Pi} = E - I r.$$

$$\Gamma 1\alpha \quad I = 0 \text{ και } V_{\Pi} = 12,5 \cdot 16 \times 10^{-3} \text{ V} = 12,5 = E$$

$$\Gamma 1\alpha \quad V_{\Pi} = 0 \text{ και } I = 6,25 \cdot 16 \times 10^{-3} \text{ A} = 0 = 12,5 - 6,25 r \Rightarrow r = 2 \Omega.$$

$$\Delta 2) \quad I = \frac{E}{R_{\text{ολ}}} = \frac{12,5}{50} = 0,25 \text{ A}, \quad V_2 = I R_2 = 3 \text{ V.}$$

$$\Delta 3) \cdot \frac{P_{\xi}}{P_{\Pi}} = \frac{I^2 (R_1 + R_2)}{I \cdot E} = \frac{0,25 \cdot 48}{12,5} = 0,96.$$

$$\Delta 4) \cdot R_{\Lambda, 2} = \frac{R_{\Lambda} R_2}{R_{\Lambda} + R_2} \left. \begin{array}{l} \\ \\ \end{array} \right\} R_{\Lambda, 2} = 4 \Omega.$$

$$P_k = \frac{V_k^2}{R_{\Lambda}} \Rightarrow R_{\Lambda} = 6 \Omega$$

$$V_{\Lambda, 2} = I' R_{\Lambda, 2} = \frac{E}{R_1 + R_{\Lambda, 2} + r} \cdot R_{\Lambda, 2} = \frac{12,5}{42} \cdot 4 = \frac{50}{42}$$

$\Lambda_{1,2} < V_k$. Αρα το λαμπάκι υπολειπόσεται