

ΑΠΑΡΧΙΚΕΣ ΦΥΣΙΚΗ ΚΑΤΩΣΤΡΟΦΗ

B' ΛΥΚΕΙΟΥ 2014

Θέμα 1^ο 1-β, 2-γ, 3-β, 4-γ, 5-γ

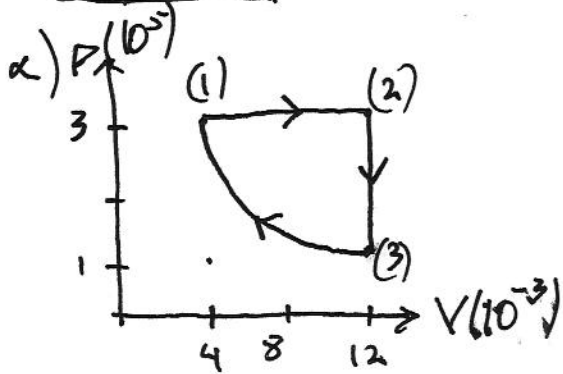
Θέμα 2^ο

1) Σωστό α. $P_A V_A = P_B V_B \Rightarrow P_B = P_A \frac{V_A}{V_B} = P_A \frac{V_A}{\frac{V_A}{2}} = 2P_A$

2) Σωστό γ. $P_{\mu} = v_{\text{eff}} \cdot I_{\text{eff}} = \frac{v_{\text{eff}}^2}{R} = \frac{(N \omega B A)^2}{R} \Rightarrow$

$P_{\mu} = \frac{N^2 B^2 A^2 4\omega^2}{R} \Rightarrow P_{\mu} = \frac{4 v_{\text{eff}}^2}{R} \Rightarrow P_{\mu} = 4P_{\mu}'$

Θέμα 3^ο



$P_1 V_1 = n R T_1 \Rightarrow T_1 = 400 \text{ K}$

$\frac{V_1}{T_1} = \frac{V_2}{T_2} \Rightarrow T_2 = 1200 \text{ K}$

$\frac{P_2}{T_2} = \frac{P_3}{T_3} \Rightarrow P_3 = 10^5 \text{ N/m}^2$

ε) $\frac{\Delta U_{12}}{\Delta U_{23}} = \frac{n C_V (T_2 - T_1)}{n C_V (T_3 - T_2)} = -1$

δ) $e_c = 1 - \frac{T_c}{T_h} = 1 - \frac{400}{1200} = \frac{2}{3}$

ζ) $Q_{05} = W_{05} = 3 \cdot 10^5 (12 - 4) \cdot 10^{-3} - 1318 = 1082 \text{ J}$

Θέμα 4^ο

α) $\Sigma F = 0 \Rightarrow 3 - B I l - 1 = 0 \Rightarrow \frac{B^2 U_{0p} l^2}{R_{05}} = 2 \Rightarrow U_{0p} = 6 \text{ V/s}$

β) $V_{kA} = I' R_1 = \frac{B U' R}{R_{05}} R_1 = 2 \text{ V}$

γ) $\frac{\Delta K}{\Delta t} = \Sigma F \cdot v = (F - F_L - T) v = \left(2 - \frac{B^2 U'' l^2}{R_{05}} \right) U'' = \left(2 - \frac{4,5}{3} \right) 4,5 = 2,25 \text{ J/s}$