

## ΑΠΑΝΤΗΣΕΙΣ ΣΤΟ ΜΑΘΗΜΑ ΤΩΝ ΗΛΕΚΤΡΙΚΩΝ ΜΗΧΑΝΩΝ

### ΘΕΜΑ Α

A1. α. Λ

β. Σ

γ. Σ

δ. Σ

ε. Λ

A2. 1. γ

2. δ

3. β

4. ε

5. στ

### ΘΕΜΑ Β

B1. σελ. 288 α),β),γ)

B2. σελ. 210 α),β)

B3. σελ. 175 α),β),γ),δ)



### ΘΕΜΑ Γ

$$\Gamma 1. \varepsilon\% = \frac{U_o - U_N}{U_N} * 100\% \rightarrow$$

$$5\% = \frac{420 - U_N}{U_N} * 100\% \rightarrow 5 = \frac{420 - U_N}{U_N} * 100 \rightarrow 5 * U_N = (420 - U_N) * 100 \rightarrow$$

$$5 * U_N = 42000 - 100 * U_N \rightarrow 105 * U_N = 42000 \rightarrow U_N = \frac{42000}{105} = 400V$$

$$\Gamma 2. P = U * I = 400 * 50 = 20000W = 20KW$$

$$\eta = \frac{P}{P_{\varepsilon\sigma}} \rightarrow P_{\varepsilon\sigma} = \frac{P}{\eta} = \frac{20}{0,8} = 25KW$$

### ΘΕΜΑ Δ

$$\Delta 1. n_s = \frac{60 * f}{p} = \frac{60 * 50}{1} = 3000rpm$$

$$s = \frac{n_s - n}{n_s} = \frac{3000 - 2865}{3000} = \frac{135}{3000} = 0,045 = 4,5\%$$

$$\Delta 2. P = \frac{T * n}{9,55} = \frac{30 * 2865}{9,55} = 9000W$$

$$\Delta 3. P_1 = \sqrt{3} * U_{\Pi} * I_{\Pi} * \sigma \nu \varphi \rightarrow I_{\Pi} = \frac{P_1}{\sqrt{3} * U_{\Pi} * \sigma \nu \varphi} = \frac{11040}{\sqrt{3} * 230 * \sqrt{3} * 0,8} = \frac{11040}{552} = 20A$$

$$\Delta 4. P_{\alpha\pi} = P_1 - P = 11040 - 9000 = 2040W$$

