Sèrie 2

Primera part

Exercici 1

Q1 c **Q2** a **Q3** a **Q4** c **Q5** a

Exercici 2

a) $I_2 = \dfrac{U_2 - V_3}{R_2} = 10\ \text{A}$

b) $I_1 = \dfrac{U_1 - V_3}{R_1} = 10\ \text{A}$

c) $R_3 = \dfrac{V_3}{I_1 + I_2} = 2\,\Omega$

Segona part

OPCIÓ A

Exercici 3

a) $I_\text{R} = \dfrac{U}{R} = 29{,}23\ \text{A}$; $I_\text{X} = \dfrac{U}{X} = 12{,}67\ \text{A}$; $I_\text{AB} = \sqrt{I_\text{R}^2 + I_\text{X}^2} = 31{,}86\ \text{A}$

b) $I_\text{A} = I_\text{AB}\sqrt{3} = 55{,}18\ \text{A}$

c) $P = 3\dfrac{U^2}{R} = 33{,}32\ \text{kW}$; $Q = 3\dfrac{U^2}{X} = 14{,}44\ \text{kVAr}$; $S = \sqrt{P^2 + Q^2} = 36{,}32\ \text{kVA}$

Exercici 4

a) $\Re = \dfrac{e}{\mu_0 S} = 4{,}775\ \text{MA / Wb}$

b) $\Phi_\text{màx} = \dfrac{N\sqrt{2}I_\text{ef}}{\Re} = 0{,}1481\ \text{mWb}$; $B_\text{màx} = \dfrac{\Phi_\text{màx}}{S} = 0{,}2962\ \text{T}$

OPCIÓ B

Exercici 3

a) $C_{12} = C_1 + C_2 = 20\,\mu\text{F}$

b) $\dfrac{1}{C_{\text{eq}}} = \dfrac{1}{C_{12}} + \dfrac{1}{C_3} \Rightarrow C_{\text{eq}} = 10\,\mu\text{F}$

c) $I = 0$ A

d) $E = \dfrac{1}{2} C_{\text{eq}} U^2 = 12{,}5$ mJ

e) $\tau = RC_{\text{eq}} = 0{,}1$ ms

Exercici 4

a) $I = 10$ A

b) $p = 2$

c) $S = \sqrt{3}\,U I = 6{,}582$ kVA; $P_{\text{e}} = S\cos\varphi = 5{,}397$ kW

d) $\eta = \dfrac{P}{P_{\text{e}}} = 0{,}9264$; $\eta(\%) = 92{,}64\%$

e) $\omega_{\text{nom}} = 1450\dfrac{2\pi}{60} = 151{,}8$ rad; $\Gamma = \dfrac{P}{\omega_{\text{nom}}} = 32{,}93$ Nm