

**SÈRIE 5****Primera part****Exercici 1**

**Q1** d      **Q2** d      **Q3** a      **Q4** b      **Q5** b

**Exercici 2**

$$a) I(R_1) = I_1 = \frac{U_1}{R_1} = \frac{20}{10} = 2 \text{ A}; \quad I(R_2) = I_2 = \frac{U_1}{R_2} = \frac{20}{10} = 2 \text{ A}; \quad I(R_3) = I_3 = 0 \text{ A}$$

$$b) P(U_1) = U_1 \cdot (I_1 + I_2) = 20 \cdot (2 + 2) = 80 \text{ W}; \quad P(U_2) = 0 \text{ W}$$

$$c) I(U_1) = I_1 + I_2 = 2 + 2 = 4 \text{ A}$$

$$d) P(R_3) = \frac{U_2^2}{R_3} = \frac{30^2}{2} = 450 \text{ W}$$

**OPCIÓ A****Exercici 3**

$$a) A_3 = \sqrt{A_1^2 + A_2^2} = \sqrt{4^2 + 3^2} = 5 \text{ A}$$

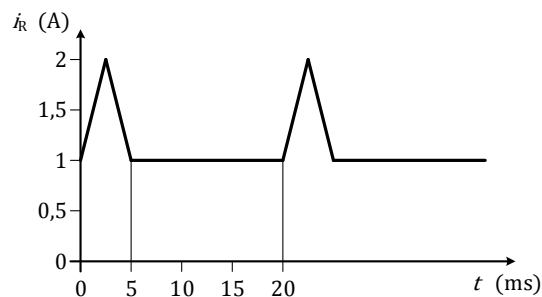
$$b) V_1 = R \cdot A_1 = \frac{W_1}{A_1} \cdot A_1 = \frac{600}{4} = 150 \text{ V}$$

$$c) V_2 = \sqrt{3} V_1 = \sqrt{3} \cdot 150 = 259,8 \text{ V}$$

$$d) S = \sqrt{3} \cdot V_2 \cdot A_3 = \sqrt{3} \cdot 259,8 \cdot 5 = 2250 \text{ VA}$$

**Exercici 4**

a)



$$b) U_{R \text{ mitja}} = 10 + \frac{5 \cdot 10}{20} = 11,25 \text{ V}$$

## OPCIÓ B

## Exercici 3

$$a) \eta(\%) = 100 \frac{P}{\sqrt{3}UI \cos \varphi} = 100 \frac{110 \cdot 10^3}{\sqrt{3} \cdot 690 \cdot 120 \cdot 0,84} = 91,31 \%$$

$$b) \Gamma = \frac{P}{\omega} = \frac{110 \cdot 10^3}{1450 \frac{2\pi}{60}} = 724,4 \text{ N m}$$

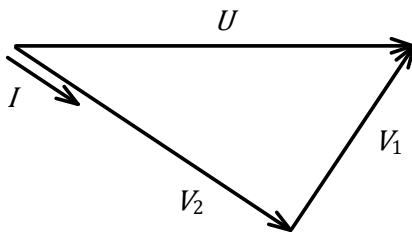
$$c) P = \sqrt{3}UI \cos \varphi = \sqrt{3} \cdot 690 \cdot 120 \cdot 0,84 = 120,5 \text{ kW}$$

$$d) 400 \text{ V}$$

$$e) S = \sqrt{3}UI = \sqrt{3} \cdot 400 \cdot 90 = 62,35 \text{ kVA}$$

## Exercici 4

a)



$$b) X_L = \frac{V_1}{A_1} = \frac{127,5}{5,1} = 25 \Omega$$

$$c) V_2 = \sqrt{U^2 - V_1^2} = \sqrt{230^2 - 127,5^2} = 191,43 \text{ V}$$

$$d) P = V_2 \cdot A_1 = 191,43 \cdot 5,1 = 976,3 \text{ W}$$