



## SÈRIE 2

### Exercici 1

Q1 d

Q2 b

Q3 a

Q4 c

Q5 a

### Exercici 2

a)

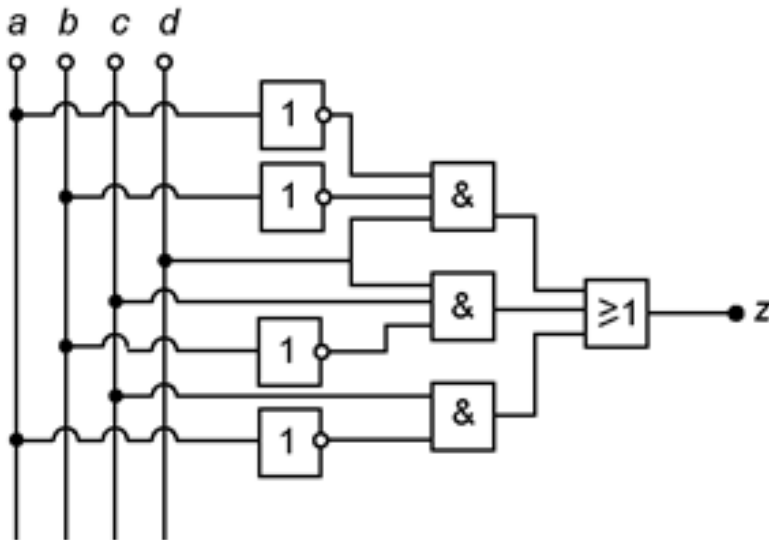
| a | b | c | d | z |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 1 | 0 | 1 |
| 0 | 0 | 1 | 1 | 1 |
| 0 | 1 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 | 0 |
| 0 | 1 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 0 |
| 1 | 0 | 1 | 1 | 1 |
| 1 | 1 | 0 | 0 | 0 |
| 1 | 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 | 0 |

b)

$$z = (\bar{a}\bar{b}\bar{c}d) + (\bar{a}\bar{b}c\bar{d}) + (\bar{a}b\bar{c}d) + (\bar{a}bc\bar{d}) + (\bar{a}bcd) + (a\bar{b}\bar{c}d)$$

simplificant:  $z = \bar{a}\bar{b}d + \bar{b}cd + \bar{a}c$

c)



### Exercici 3

a)

$$E_{\text{cons}} = P_1 t_1 + P_2 (t - t_1) = 1250 \text{ Wh} = 4500 \text{ kJ}$$

b)

$$c_r = \frac{P_1 t_1}{E_{\text{cons}}} \cdot 100 = 80 \%$$

c)

$$c_{\text{punta}} = E_{\text{cons}} p_{\text{punta}} = 0,4287 \text{ €}$$

$$c_{\text{vall}} = E_{\text{cons}} p_{\text{vall}} = 0,2712 \text{ €}$$

d)

$$e_q = (c_{\text{punta}} - c_{\text{vall}}) n_{12} = 18,90 \text{ €}$$

### Exercici 4

a)

$$\alpha = \frac{\omega_f - \omega_0}{t} = \frac{-n_0 \frac{2\pi}{60}}{t} = -8,727 \text{ rad/s}^2$$

b)

$$\varphi = \varphi_0 + \omega_0 t + \frac{1}{2} \alpha t^2 = 15,71 \times 10^3 \text{ rad}$$

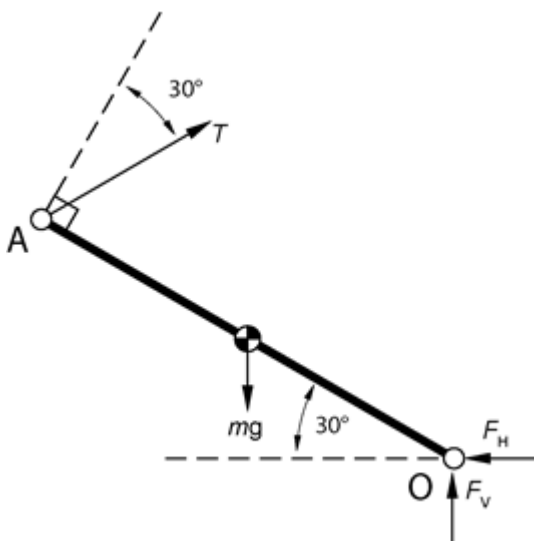
$$n = \frac{\varphi}{2\pi} = 2500 \text{ voltes}$$

c)

$$E_{\text{diss}} = \frac{1}{2} I (\omega_0^2 - \omega_f^2) = 123,4 \text{ kJ}$$

### Exercici 5

a)



b)

$$\sum M(O) = 0 \rightarrow T \cos(30) 2L - mg \cos(30)L = 0 \rightarrow T = \frac{mg}{2} = 245,2 \text{ N}$$

Proves d'accés a la Universitat 2022, convocatòria ordinària. Criteri específic d'avaluació

c)

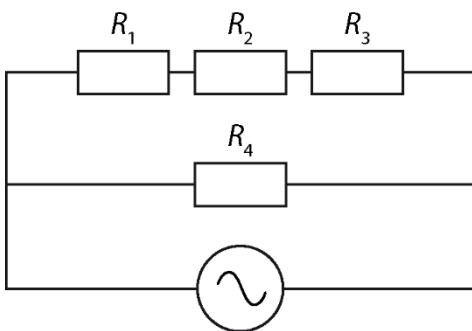
$$\left. \begin{array}{l} \sum F_{\text{horizontals}} = 0 \rightarrow T \cos(30) - F_H = 0 \\ \sum F_{\text{verticals}} = 0 \rightarrow T \sin(30) - mg + F_V = 0 \end{array} \right\} \begin{array}{l} F_H = T\sqrt{3}/2 = 212,3 \text{ N} \\ F_V = 3mg/4 = 367,8 \text{ N} \end{array}$$

d)

$$\Gamma = T \frac{d}{2} = 55,16 \text{ Nm}$$

Exercici 6

a)



b)

$$R_{\text{eq}} = \frac{1}{\frac{1}{R_1 + R_2 + R_3} + \frac{1}{R_4}} = 37,5 \Omega$$

c)

$$I = \frac{U}{R_{\text{eq}}} = 6,133 \text{ A}; \quad P = \frac{U^2}{R_{\text{eq}}} = 1,411 \text{ kW}$$