

Sèrie 6

PAAU-LOGSE 1999-2000

Tecnologia Industrial

Primera part**Exercici 1**

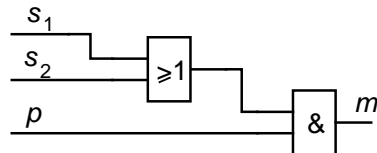
Q1 d Q2 a Q3 a Q4 c Q5 d

Exercici 2

s_1	s_2	p	m
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1

$$b) \quad m = \bar{s}_1 \cdot s_2 \cdot p + s_1 \cdot \bar{s}_2 \cdot p + s_1 \cdot s_2 \cdot p = (\bar{s}_1 + s_1) \cdot s_2 \cdot p + s_1 \cdot \bar{s}_2 \cdot p = s_2 \cdot p + s_1 \cdot \bar{s}_2 \cdot p = (s_2 + s_1 \cdot \bar{s}_2) \cdot p = (s_1 + s_2) \cdot p$$

c)

**Segona part****OPCIÓ A****Exercici 3**

$$a) \quad c = P_e / (p_c \eta) = 100 \cdot 10^6 / (32 \cdot 10^6 \cdot 0,36) = 8,681 \text{ kg / s}$$

$$b) \quad I = \frac{P_e}{\sqrt{3} U \cos \varphi} = \frac{100 \cdot 10^6}{\sqrt{3} \cdot 110 \cdot 10^3 \cdot 0,9} = 583,2 \text{ A}$$

$$c) \quad c_t = 8,681 \cdot 8 \cdot 3600 = 250000 \text{ kg} = 250 \text{ t}$$

$$E_e = 100 \cdot 8 \cdot 3600 = 2,88 \cdot 10^{12} \text{ J} = 2,88 \text{ TJ} = 800 \text{ MW h}$$

$$E_p = 250 \cdot 10^3 \cdot 32 \cdot 10^6 (1 - 0,36) = 5,12 \cdot 10^{12} \text{ J} = 5,12 \text{ TJ} = 1422 \text{ MW h}$$

Exercici 4

$$a) \quad \Delta l = l \alpha \Delta t = 500 \cdot 18,7 \cdot 10^{-6} \cdot 40 = 0,374 \text{ mm}$$

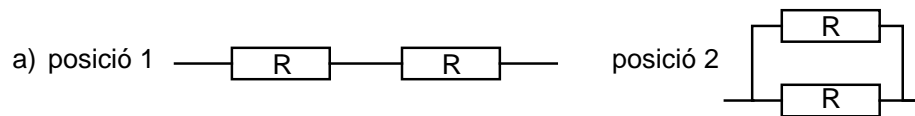
$$b) \quad F = s E \Delta l / l = \pi \cdot (10 \cdot 10^{-3})^2 \cdot 207 \cdot 10^9 \cdot 0,374 \cdot 10^{-3} / 0,5 = 48,64 \text{ kN}$$

OPCIÓ B

Exercici 3

- a) $n_{\text{tambor}} = \tau n_{\text{motor}} = 0,02 \cdot 1450 = 29 \text{ min}^{-1}$
 $v = \omega_{\text{tambor}} r_{\text{tambor}} = 29 \cdot 2 \cdot \pi \cdot 0,2 / 60 = 0,6074 \text{ m/s}$
- b) $P_{\text{reductor}} = \eta P_{\text{motor}} = 0,85 \cdot 2 = 1,7 \text{ kW}$
- c) $P_{\text{reductor}} = m g v$; $m = P / g v = 279,9 \text{ kg}$

Exercici 4



- b) posició 1: $I_R = U / 2R = 2,5 \text{ A}$; $I_t = I_R$
posició 2: $I_R = U / R = 5 \text{ A}$; $I_t = 2 I_R = 10 \text{ A}$
- c) posició 1: $P = UI = 550 \text{ W}$
posició 2: $P = UI = 2200 \text{ W}$