

Problema 1

Problema 1.

CF/BT

SOLUCIÓN

	00	01	11	10	00	01	11	10
q ₀	q ₁				1X			
q ₁	q ₀	q ₂		q ₃	00	0X		01
q ₂	q ₀	q ₂			0X	0X		
q ₃	q ₃	q ₂		q ₃	01	0X		01

q ₁	X		
q ₂	X	X	
q ₃	X	X	X
	q ₀	q ₁	q ₂

→ Es mínimo

CF	q ₁ q ₀	00	01	11	10	00	01	11	10
00		01				1X			
01		01	11		10	00	0X		01
11		00	11			0X	0X		
10		10	11		10	01	0X		01

D₁:

CF	q ₁ q ₀	0	1	1	1
0		X	X	X	X
1		1	X	X	1
0		1	X	X	
1		1	X	1	

$D_1 = F + C + q_1 \bar{q}_0$

D₀:

CF	q ₁ q ₀	1	1	1	1
1					
0					
0					
0					

$D_0 = F + \bar{q}_1 \bar{C}$

B:

CF	q ₁ q ₀	1	1	1	1
0					
0					
0					
0					

$B = \bar{q}_1 \bar{q}_0$

T:

CF	q ₁ q ₀	X	X	X	X
0					
0					
1					
1					

$T = C + q_1$

C = q₁q₀

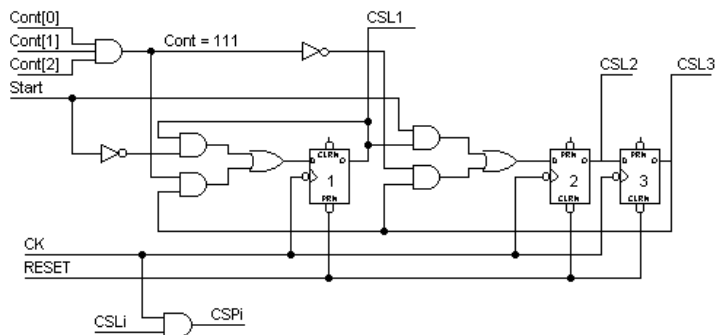
Problema 2

MODULE: EXAMEN
INPUTS: Test[8]
OUTPUTS: Dout
MEMORY: Test_uno[8], Test_cero[8], Cont[3]

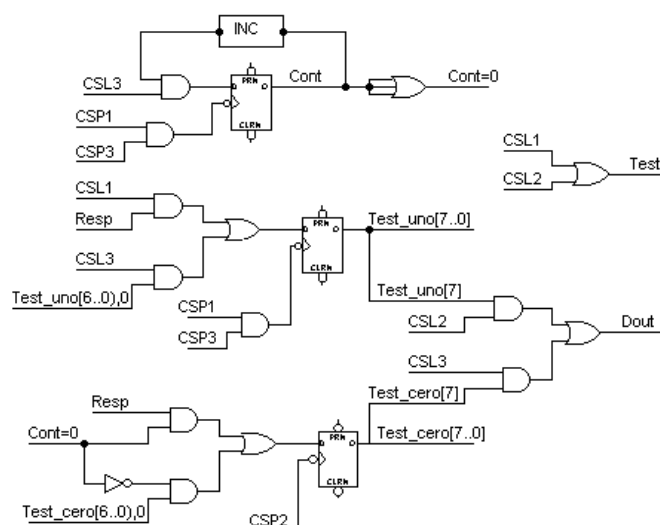
Dout = !Start
Test = 1
Test_uno \leftarrow Resp
Cont \leftarrow 0
 \rightarrow (Start, !Start)/(2,1)
Test = 0
Test_cero \leftarrow Resp.(Cont = 0) + (Test_cero[6..1],0) . (Cont \neq 0)
Dout = Test_uno[7]
Test_uno \leftarrow (Test_uno[6..1],0)
Cont \leftarrow Inc(Cont)
Dout = Test_cero[7]
 \rightarrow (Cont=111, Cont \neq 111)/(1,2)

END SEQUENCE
CONTROLRESET(1)
END

BLOQUE DE CONTROL



BLOQUE DE DATOS



a)

183,7

183,7

182 91 2

1 90 45 2

1 44 22 2

1 22 11 2

1 10 5 2

1 4 2 2

1 2 1 2

1 0 0 0

183d = 101010101b

0,7 x 2 = 1,4 → 1

0,4 x 2 = 0,8 → 0

0,8 x 2 = 1,6 → 1

0,6 x 2 = 1,2 → 1

0,2 x 2 = 0,4 → 0

0,7d = 0,10110

010110101,10110011

error = |0,7 - 2⁻¹ - 2⁻³ - 2⁻⁴ - 2⁻⁷ - 2⁻⁸|

= 7,8125 x 10⁻⁴ = 0,2 x 2⁻⁸

1,011010110110011 x 2⁷

1s, 10m, 5exp

S = 0

m = 0110101101

exp = 10110

exp - 15 = 7 ⇒ exp = 22d = 10110

error = 0,6 x 2⁻³

= 0,7 - 2⁻⁴ - 2⁻³ = 0,075

$183_d = 10110101_b$

$$0,7d = 0,1\underline{0110}$$

010110101, 1011 0011

$$\begin{aligned} \text{error} &= |0,7 - 2^{-1} - 2^{-3} - 2^{-4} - 2^{-7} - 2^{-8}| \\ &= 7,8125 \times 10^{-4} = 0,2 \times 2^{-8} \end{aligned}$$

$$1, \underbrace{011010110110011}_m \times 2^7$$

1s, 10m, 5exp

$S = 0$
 $M = 0110101101$
 $EXP = 10110$

$$\text{exp}-15 = 7 \Rightarrow \text{exp} = 22_{\text{d}} = 10110$$

$$\begin{aligned} \text{error} &= 0,6 \times 2^{-3} \\ &= 0,7 - 2^{-4} - 2^{-3} = 0,075 \end{aligned}$$

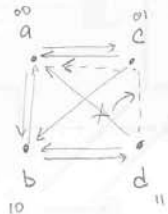
Ejercicio 2

Ejercicio 2

	00	01	11	10		00	01	11	10
a	(a)	b	-	c		0			
b	a	(b)	(b)	d		0	1		
c	a	(c)	b	(c)		0		0	
d	a	b	(d)	(d)			0	1	

a) $(a, b, c, d) \mid (b, a, d)(c) \mid (b, c); (d) \mid (c, a)(d, b)$

\uparrow \uparrow
 No lo No lo
 considero considero



b)

	00	01	11	10		00	01	11	10
00 a	(a)	b	ab	c		0	0	1/x	0
01 c	a	(c)	ac	(c)		0	0	x/0	0
11 d	ca	b	(d)	(d)		x	0	0	1
10 b	a	(b)	(b)	d		0	0	1	1



	00	01	11	10		00	01	11	10
00	00	10	10	01		0	0	1/x	0
01	00	01	00	01		0	0	x/0	0
11	01	10	11	11		x	0	0	1
10	00	10	10	11		0	0	1	1

c)

Y_1 :

	00	01	11	10
00	0	1	0	0
01	0	0	0	0
11	0	0	0	0
10	0	0	0	1

$$Y_1 = Y_0 X_0 + Y_1 X_0 + Y_1 X_1$$

Y_0 :

	00	01	11	10
00	0	0	0	0
01	0	1	0	1
11	0	0	0	0
10	0	0	0	1

$$Y_0 = X_1 \bar{X}_0 + X_1 Y_1 Y_0 + \bar{X}_0 Y_1 Y_0 + \bar{X}_1 X_0 \bar{Y}_1 Y_0$$

Z :

	00	01	11	10
00	0	0	1/x	0
01	0	0	x/0	0
11	1	0	0	0
10	0	0	1	1

$$Z = X_1 \bar{X}_0 Y_1 + X_1 Y_1 \bar{Y}_0$$

