2006. 1ª S. Ges_Sist. A 12

Simplificar: $\overline{\overline{cd}+a} + a + cd + ab = \bar{a}cd + a + cd + ab$

$\overline{\bar{c}+\bar{d}+a} \Rightarrow cd\bar{a}$

$a(1+b) = a$

$cd(1+\bar{a}) = cd$

$\rightarrow a + cd$

$\Downarrow$

b

2006. 1ª S. G-S. A 14

$f(a,b,c,d) = a\bar{b}c + \bar{a}\bar{b} + ab\bar{c}d \rightarrow$ expresar en minterms

Como no es canónica se aplica teorema de Shanon

$f(a,b,c,d) = a\bar{b}c(\bar{d}+d) + \bar{a}\bar{b}(\bar{c}\bar{d} + \bar{c}d + c\bar{d} + cd) + ab\bar{c}d =$

$f(a,b,c,d) = \underbrace{a\bar{b}c\bar{d}}_{10} + \underbrace{a\bar{b}cd}_{11} + \underbrace{\bar{a}\bar{b}\bar{c}\bar{d}}_{0} + \underbrace{\bar{a}\bar{b}\bar{c}d}_{1} + \underbrace{\bar{a}\bar{b}c\bar{d}}_{2} + \underbrace{\bar{a}\bar{b}cd}_{3} + \underbrace{ab\bar{c}d}_{13}$

$f(a,b,c,d) = m_0 + m_1 + m_2 + m_3 + m_{10} + m_{11} + m_{13} \Rightarrow \subseteq$

2006. 1ª S. G-S. A 16

$f(a,b) = \overline{(\bar{a} + a\bar{b})} \rightarrow$ 2ª forma canónica

$f(a,b) = a \cdot \overline{a\bar{b}} = a(\bar{a}+b) = \underbrace{a\bar{a}}_{1} + ab = ab = m_3$

$\overline{f(a,b)} = m_0 + m_1 + m_2 \Rightarrow f(a,b) = \overline{m_0 + m_1 + m_2} = \overline{m_0} \cdot \overline{m_1} \cdot \overline{m_2} = M_0 \cdot M_2 \cdot M_1$

$\Downarrow$

a

2006. 1ª S. G-S. A 18

La expresión de salida para un circuito AND-OR-Inversor consta de una puerta AND con entradas A, B, C y D y otra AND con entradas E y F:

Inver → $\overline{abcd\,ef}$ ← OR

AND

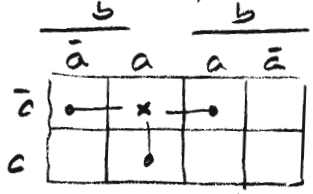
$= \overline{abcd} \cdot \overline{ef} = (\bar{a} + \bar{b} + \bar{c} + \bar{d})(\bar{e} + \bar{f}) \Rightarrow \underline{d}$

2006. 2ª S. G-S. A. 1

$S = f(\ldots, c, b, a) = \overline{\ldots cba} \Rightarrow NAND \Rightarrow \underline{a}$

2006. 2ª S. G-S. A. 4

Nº cuadros adyacentes a un cuadro en Karnaugh de 3 variables



⇒ 3 ⇒ d

2006. 2ª S. G-S. A 12

$f(a,b,c) = M_1 M_2 M_3 M_4 M_7$ ⟶ Maxterm

$\overline{f(a,b,c)} = M_0 \cdot M_5 \cdot M_6 \Rightarrow f(a,b,c) = \overline{M_0 M_5 M_6} = \overline{M_0} + \overline{M_5} + \overline{M_6} = m_7 + m_2 + m_1$

b

2006. Sep. G-S. A. 6

S - $f(\ldots c,b,a) = \ldots c \oplus b \oplus a \Rightarrow \times OR \Rightarrow$ b

2006. Sep G-S. A 13

Simplificar $f = \overline{(\bar{a}+b)\bar{c} + a + b + c + \bar{d}} \cdot \overline{\bar{c}\bar{b}} = \overline{\bar{a}\bar{c} + b\bar{c} + a + b + c + \bar{d}} \cdot (c+b) =$

$b(1+\bar{c}) = b$

$f = \overline{\bar{a}\bar{c}} \cdot \bar{a}\bar{b}\bar{c}d\,(c+b) = (a+c)\bar{a}\bar{b}\bar{c}d\,(c+b) =$

$f = (\underbrace{a\bar{a}\bar{b}\bar{c}d}_{0} + \underbrace{\bar{a}\bar{b}\bar{c}cd}_{0})(c+b) = \emptyset \Rightarrow$ a

0

2006 Sep G-S. A 15

$f = m_0 + m_1 + m_2 + m_4 + m_8 + m_{10}$ ⟶ Maxterms

$\bar{f} = m_3 + m_5 + m_6 + m_7 + m_9 + m_{11} + m_{12} + m_{13} + m_{14} + m_{15}$

$f = \overline{m_3 + m_5 + m_6 + m_7 + m_9 + m_{11} + m_{12} + m_{13} + m_{14} + m_{15}}$

$f = \overline{m_3} \cdot \overline{m_5} \cdot \overline{m_6} \cdot \overline{m_7} \cdot \overline{m_9} \cdot \overline{m_{11}} \cdot \overline{m_{12}} \cdot \overline{m_{13}} \cdot \overline{m_{14}} \cdot \overline{m_{15}}$

$f = M_{12} \cdot M_{10} \cdot M_9 \cdot M_8 \cdot M_6 \cdot M_4 \cdot M_3 \cdot M_2 \cdot M_1 \cdot M_0 \Rightarrow$ C

2006-Sep-Res-G-S.12

$f(a,b,c) = \overline{\overline{a+b}\,(b+c)}$ → minterm

$f = \overline{\overline{a+b}} + \overline{(b+c)} = a+b+(\bar{b}\cdot\bar{c}) = a+b+\bar{b}\bar{c}$ → Shanon

$a\bar{b}\bar{c} + a\bar{b}c + ab\bar{c} + abc\ \bar{a}b\bar{c} + \bar{a}bc + ab\bar{c} + abc\ \bar{a}\bar{b}\bar{c} + a$

4 5 6 7 2 3 6 7 0 4

$f(a,b,c) = \Sigma m(0,2,3,4,5,6,7) \Rightarrow a$

2006-Sep-Res-G-S.16

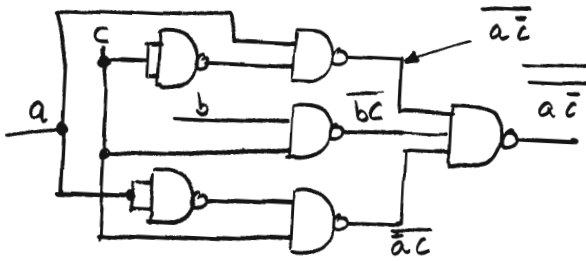
$f = \Sigma m(0,1,2,3,8,9,10,11) = f(a,b,c,d)$

		$\bar{b}\bar{d}$	$\bar{b}d$	bd	$b\bar{d}$
$\bar{a}$	$\bar{c}$	0	1	5	4
	c	2	3	7	6
a	c	10	11	15	14
	$\bar{c}$	8	9	13	12

		$\bar{b}\bar{d}$	$\bar{b}d$	bd	$b\bar{d}$
$\bar{a}$	$\bar{c}$	1	1	0	0
	c	1	1	0	0
a	c	0	1	0	0
	$\bar{c}$	1	1	0	0

$f = \bar{b} \Rightarrow b$

2006-Sep-Res-G-S.17



$\overline{a\bar{c}\cdot bc\cdot\overline{\bar{a}c}} = a\bar{c} + bc + \bar{a}c \Rightarrow c$

2006-Jun-1ºS-00.A2

$f = m_1 + m_4 + m_7$ → 2ª F. canónica

$\bar{f} = m_0 + m_2 + m_3 + m_5 + m_6$ → $f = \overline{m_0 + m_2 + m_3 + m_5 + m_6} = \overline{m_0}\cdot\overline{m_2}\cdot\overline{m_3}\cdot\overline{m_5}\cdot\overline{m_6} =$

$f = M_2 \cdot M_5 \cdot M_4 \cdot M_2 \cdot M_1 \Rightarrow d$

2006-Jun-2ªS-AO.C.4

$f = M_2 \cdot M_3 \cdot M_5 \cdot M_7 \rightarrow$ 1ª F. Canónica

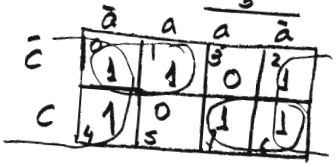
$\bar{f} = M_0 \cdot M_1 \cdot M_4 \cdot M_6 \rightarrow f = \overline{M_0 \cdot M_1 \cdot M_4 \cdot M_6} = \bar{M}_0 + \bar{M}_1 + \bar{M}_4 + \bar{M}_6 = m_7 + m_6 + m_3 +$

b

c

2006-Sep.AO.A.2

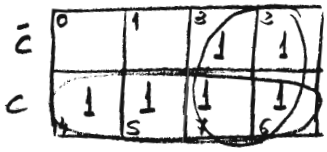
$f(c,b,a) = \sum_b (0,1,2,4,6,7)$



$f(c,b,a) = \bar{a} + \bar{b}\bar{c} + bc \Rightarrow a$

2006-Sep.AO.C.3 Reserva

$f(c,b,a) = \Sigma(2,3,4,5,6,7)$



$f(c,b,a) = c + b \Rightarrow a$

2006-Sep.Res-AO.C.15

$f = m_1 + m_7 + m_4 + m_6 + m_7 + m_8 + m_9 + m_{12} + m_{15}$

$\bar{f} = \overline{m_0 + m_3 + m_5 + m_{10} + m_{11} + m_{13} + m_{14}}$

$f = \overline{m_0} \cdot \overline{m_3} \cdot \overline{m_5} \cdot \overline{m_{10}} \cdot \overline{m_{11}} \cdot \overline{m_{13}} \cdot \overline{m_{14}} = M_{15} \cdot M_{12} \cdot M_{10} \cdot M_5 \cdot M_4 \cdot M_2 \cdot M_1$

$\Downarrow$

a