2005. 1ªS. Sistem. (40). A. 13

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

$f(a,b) = \overline{\bar{a} + a\bar{b}} = \bar{\bar{a}} \cdot \overline{a\bar{b}} = a \cdot (\bar{a} + b) = \underbrace{a \cdot \bar{a}}_{0} + ab = ab = m_3$

$f(a,b) = m_3 \Rightarrow \overline{f(a,b)} = m_0 + m_1 + m_2 \Rightarrow f(a,b) = \overline{m_0 + m_1 + m_2} = \bar{m}_0 \cdot \bar{m}_1 \cdot \bar{m}_2$

$= M_3 \cdot M_2 \cdot M_1 \Rightarrow \underline{a}$

otra forma

M	m	a	b	f(a,b)
3	0	0	0	0
2	1	0	1	0
1	2	1	0	0
0	3	1	1	(1) → m_3

⇓

Los "0" corresponden con $M_3 \cdot M_2 \cdot M_1$

2005. 2ªS. Sistem (40). B. 12

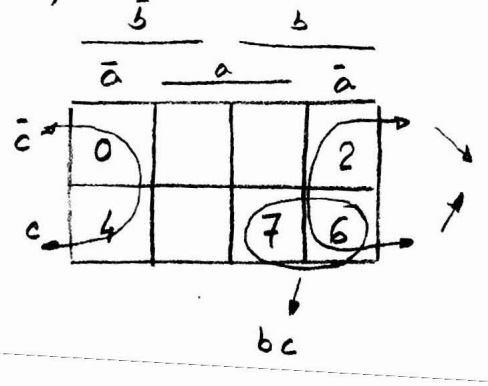
Simplificar $\overline{\underbrace{(a + a\bar{b})}_{a(1+\bar{b})}\underbrace{(b + ac(b+ac) + \bar{b})}_{abc + ac} = \overline{a(\underbrace{b + ac(b+ac)}_{ac(1+b)} + \bar{b})}}$

$= \overline{a(\underbrace{b + ac + \bar{b}}_{b \cdot \bar{b} = 1 \Rightarrow 1 + ac = 1})} = \overline{a \cdot 1} = \bar{a} \Rightarrow \underline{\underline{c}}$

2005. Sep. Sistemas (53) A. 1

Simplificar $f(c,b,a) = \Sigma(0,2,4,6,7) = m_0 + m_2 + m_4 + m_6 + m_7 =$

$= \bar{c}\bar{b}\bar{a} + \bar{c}b\bar{a} + c\bar{b}\bar{a} + cb\bar{a} + cba$



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

2005. Sep. sistemas (53). A. 4

2ª función canónica de $f = m_1 + m_2 + m_4 + m_6 + m_7 + m_8 + m_a + m_{12} + m_{15}$

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

$\Rightarrow f = \bar{m}_0 \cdot \bar{m}_3 \cdot \bar{m}_5 \cdot \bar{m}_{10} \cdot \bar{m}_{11} \cdot \bar{m}_{13} \cdot \bar{m}_{14} = M_{15} \cdot M_{12} \cdot M_{10} \cdot M_5 \cdot M_4 \cdot M_2 \cdot M_1$

$\Downarrow$

a

2005. Sep. Reserva. Sistem (53). D. 10

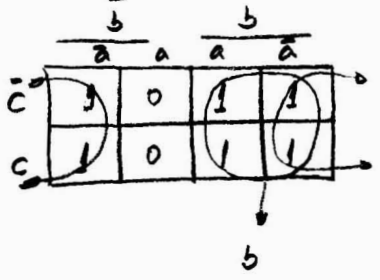
2ª función canónica de $f(a,b,c) = m_0 + m_2 + m_4 + m_5$

$\overline{f(a,b,c)} = m_1 + m_3 + m_6 + m_7 \Rightarrow f(a,b,c) = \overline{m_1 + m_3 + m_6 + m_7} = \bar{m}_1 \cdot \bar{m}_3 \cdot \bar{m}_6 \cdot \bar{m}_7 =$

$f(a,b,c) = M_6 \cdot M_4 \cdot M_1 \cdot M_0 \Rightarrow$ b

2005. Sep. A.O. A. 7

$f(c,b,a) = \sum_3 (0,2,3,4,6,7) = \underset{0}{\bar{c}\bar{b}\bar{a}} + \underset{2}{\bar{c}b\bar{a}} + \underset{3}{\bar{c}ba} + \underset{4}{c\bar{b}\bar{a}} + \underset{6}{cb\bar{a}} + \underset{7}{cba}$



$\Rightarrow \bar{a} + b \Rightarrow$ a

2005. 1ª S. Gestion (54). A. 2

Maxterm de $f(a,b,c,d) = m_0 + m_1 + m_4 + m_5 + m_7 + m_8 + m_9 + m_{11} + m_{12} + m_{15}$

$\overline{f(a,b,c,d)} = m_2 + m_3 + m_6 + m_{10} + m_{13} + m_{14} \Rightarrow f(a,b,c) = \overline{m_2 + m_3 + m_6 + m_{10} + m_{13} + m_{14}}$

$f(a,b,c,d) = \bar{m}_2 \cdot \bar{m}_3 \cdot \bar{m}_6 \cdot \bar{m}_{10} \cdot \bar{m}_{13} \cdot \bar{m}_{14} = M_{13} \cdot M_{12} \cdot M_9 \cdot M_5 \cdot M_2 \cdot M_1$

$\Downarrow$

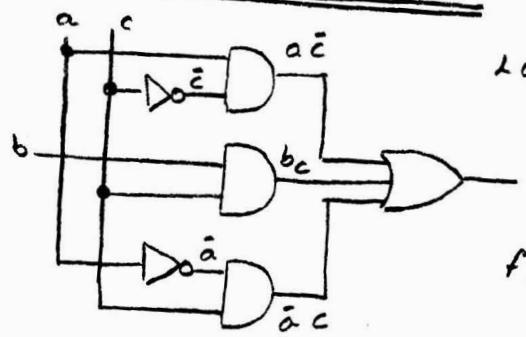
c

2005. 1ª S. Gest. (54) A. 7

Según la ley de absorción el valor de w es

$w = a + ab = a\underbrace{(1+b)}_{1} = a \Rightarrow$ c

2005. 1ª S. Gest (S4) A. 12



La función asociada $f(a,b,c)$

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

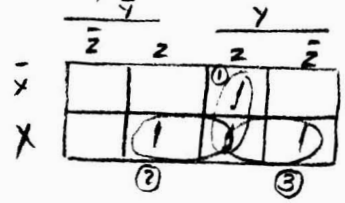
$$f(a,b,c) = \overline{a\bar{c} + bc + \bar{a}c} = \overline{a\bar{c}} \cdot \overline{bc} \cdot \overline{\bar{a}c}$$

⇓

C

2005. Sep. Ges (S4) A. 13

Simplificar $f(x,y,z) = xyz + \bar{x}yz + x\bar{y}z + xy\bar{z}$



$$f(x,y,z) = \overbrace{yz}^{1} + \overbrace{xz}^{2} + \overbrace{xy}^{3} \Rightarrow \underline{d}$$

2005. Sep. Ges (S4) A. 14

Expresión de la T. V.

a	b	c	f
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

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

⇓

d

2005. Sep. Gest (S4). A. 15

Expresar en minterms

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

$$f(a,b,c,d) = \bar{a}\bar{b} + \bar{a}\bar{c} + \bar{a}d + \underbrace{\bar{b}\bar{b} + \bar{b}\bar{c} + \bar{b}d}_{\bar{b}(1 + \bar{c} + d) = \bar{b}} + \bar{a}c\bar{d}$$

Aplicando expansión (Shanon)

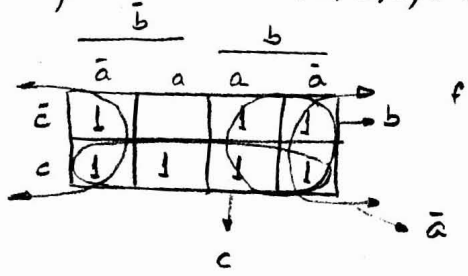
$$f(a,b,c,d) = \underbrace{\bar{a}\bar{b}\bar{c}\bar{d}}_{0} + \underbrace{\bar{a}\bar{b}\bar{c}d}_{1} + \underbrace{\bar{a}\bar{b}c\bar{d}}_{2} + \underbrace{\bar{a}\bar{b}cd}_{3} + \underbrace{\bar{a}b\bar{c}\bar{d}}_{4} + \underbrace{\bar{a}b\bar{c}d}_{5} + \underbrace{\bar{a}bc\bar{d}}_{6} + \underbrace{\bar{a}bcd}_{7} +$$

$$+ \underbrace{a\bar{b}\bar{c}\bar{d}}_{8} + \underbrace{a\bar{b}\bar{c}d}_{9} + \underbrace{a\bar{b}c\bar{d}}_{10} + \underbrace{a\bar{b}cd}_{11} + \underbrace{ab\bar{c}\bar{d}}_{12} + \underbrace{ab\bar{c}d}_{13} + \underbrace{abc\bar{d}}_{14} + \underbrace{abcd}_{15}$$

$$f(a,b,c,d) = \sum_{0}^{15}$$

2005. Sep. Gest(54) D. 19

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

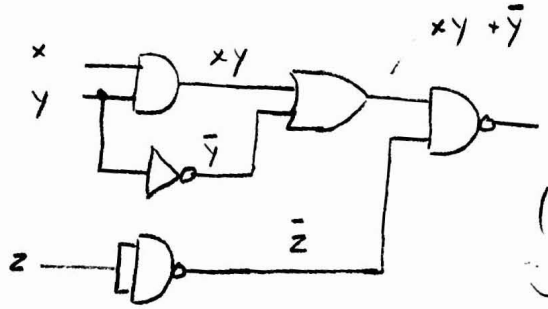


$f(c,b,a) = \bar{c}\bar{b}\bar{a} + \bar{c}b\bar{a} + \bar{c}ba + c\bar{b}\bar{a} + c\bar{b}a + cb\bar{a} + c$

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

2005. Gest (54). D.16

Función del circuito



$\overline{(xy+\bar{y})\bar{z}} = \overline{(x+\bar{y})\bar{z}} = \overline{x+\bar{y}} + \bar{\bar{z}} =$

$(x+\bar{y})(y+\bar{y})$ ($y+\bar{y}=1$)

$x+\bar{y}$

$= (\bar{x}\cdot y) + z$

$\Rightarrow \underline{b}$

En las respuestas $(\bar{x}+\bar{y})y + z = \bar{x}y + z$

$\bar{x}y + \bar{y}y$ ($\bar{y}y = 0$)

$\bar{x}y$