## 2004. 1^{es} S. A. 13

Simplificar $\quad a + abc + \bar{a}bc + ad + a\bar{d} + \bar{a}c$

$f(a,b,c) = a + abc + \bar{a}bc + ad + a\bar{d} + \bar{a}c = a(1 + bc + \bar{d}) + \bar{a}(bc + c) =$

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

2004. 1^{es} S. A. 16

Indicar la función lógica asociada al circuito

① $= a\bar{c}$

② $= bc \qquad\qquad f(a,b,c) = a\bar{c} + bc + \bar{a}c$

③ $= \bar{a}c \qquad\qquad\qquad\qquad \underline{\underline{c}}$
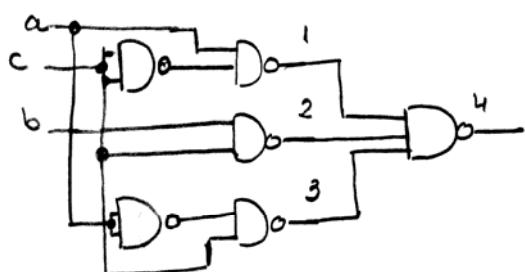
2004. 1^{es} S A. 17

Obtener la función en minterm

$f(a,b,c,d) = M_1 M_2 M_4 M_5 M_7 M_9 M_{10} M_{11} M_{13} M_{14}$

$\overline{f(a,b,c,d)} = M_0 M_3 M_6 M_8 M_{12} M_{15}$

$f(a,b,cd) = \overline{M_0 M_3 M_6 M_7 M_{12} M_{15}} = \overline{M_0} + \overline{M_3} + \overline{M_6} + \overline{M_8} + \overline{M_{12}} + \overline{M_{15}}$

$f(a,b,cd) = m_0 + m_3 + m_7 + m_9 + m_{12} + m_{15} \Rightarrow \underline{\underline{d}}$

2004. 2^{es} S. A. 13

Simplificar $\quad f(x,y,z) = x\bar{z}y + (x\bar{z}y + z\bar{x})(y(z+x) + \bar{y}z + \bar{y}x\bar{z})$

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

$xy\bar{z}\,yz = \varnothing \qquad xy\bar{z}\,xy = xy\bar{z} \qquad xy\bar{z}\,\bar{y}z = 0 \qquad xy\bar{z}\,x\bar{y}\bar{z} = 0 \qquad \bar{x}z\,yz = \bar{x}yz$

$\bar{x}z\,xy = 0 \qquad \bar{x}z\,\bar{y}z = \bar{x}\bar{y}z \qquad\qquad \bar{x}z\,x\bar{y}\bar{z} = \varnothing \qquad\qquad\qquad \nearrow \underline{\underline{a}}$

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

!!!

Indicar la función lógica del circuito
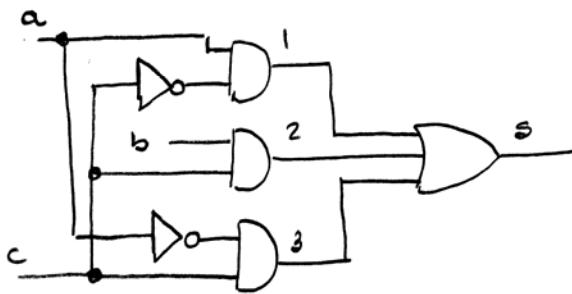
① $= a\bar{c}$

② $= bc$

③ $= \bar{a}c$

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

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

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

2004.2ᵉˢ.Δ17

Obtener la función maxterm

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

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

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

$f(a,b,c,d) = m_1 \cdot m_2 \cdot m_5 \cdot m_9 \cdot m_{12} \cdot m_{13} \Rightarrow \underline{\underline{c}}$

2004.S.Δ.11

Simplificar la función:

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

$= (ab\bar{c} + abd + \underset{0}{\underline{c\bar{c}}} + cd + \underset{d}{\underline{dd}})(\bar{c} + d + e)$

$ab\bar{c} + d(\underset{1}{\underline{1 + ab + c}})$

$= (ab\bar{c} + d)(\bar{c} + d + e) = ab\bar{c}\bar{c} + ab\bar{c}d + ab\bar{c}e + \bar{c}d + \underset{d}{\underline{dd}} + de$

$= ab\bar{c} + ab\bar{c}e + d(ab\bar{c} + \bar{c} + e + 1) = ab\bar{c}(1+e) + d =$

$= ab\bar{c} + d \Rightarrow \underline{\underline{b}}$

2004.5.Δ.16

Obtener el minterm

$f(a,b,c,d) = M_1 \cdot M_2 \cdot M_5 \cdot M_9 \cdot M_{12} \cdot M_{13}$

$\overline{f(a,b,c,d)} = M_0 \cdot M_3 \cdot M_4 \cdot M_6 \cdot M_7 \cdot M_8 \cdot M_{10} \cdot M_{11} \cdot M_{14} \cdot M_{15}$

$f(a,b,c,d) = \overline{M_0 \cdot M_3 \cdot \ldots \cdot M_{15}} = \overline{M_0} + \overline{M_3} + \overline{M_4} + \overline{M_6} + \overline{M_7} + \overline{M_8} + \overline{M_{10}} \overline{M_{11}} \overline{M_{14}} \overline{M_{15}}$

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

$$\Downarrow$$
$$\underline{\underline{c}}$$

3004.SR.D.12

Simplificar $\quad f(a,b,c) = \overline{\left((\bar{a}+b)\bar{c} + a + b + c + \bar{d}\right)}\,\overline{(\bar{c}\,\bar{b})} \qquad$ ¡¡¡ · · !

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

$\qquad \underbrace{}$

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

$\bar{a}\bar{c} + a = \underbrace{(\bar{a}+a)}_{1}(a+\bar{c})$

$\underbrace{a + \bar{c} + b + c + \bar{d}}$

$c + \bar{c} = 1$

$$\Downarrow$$

$1 \Rightarrow \bar{J} = 0 \qquad\qquad 0 \cdot (b+c) = 0 \Rightarrow \underline{\underline{a}}$

2004.SR.D.13

Expresar en minterms

$f(a,b,c) = \overline{\overline{a+b}\,(b+c)} = \overline{(\bar{a}\cdot\bar{b})(b+c)} = \overline{\underset{0}{\underline{\bar{a}\bar{b}b}} + \bar{a}\,\bar{b}c} = \overline{\bar{a}\bar{b}c} =$

$f(a,b,c) = a + b + \bar{c} = \underset{4}{\underline{a\bar{b}\bar{c}}} + \underset{5}{\underline{a\bar{b}c}} + \underset{6}{\underline{a b\bar{c}}} + \underset{7}{\underline{abc}} + \underset{2}{\underline{\bar{a}b\bar{c}}} + \underset{3}{\underline{\bar{a}bc}} +$

$\qquad + \underset{6}{\underline{ab\bar{c}}} + \underset{7}{\underline{abc}} + \underset{0}{\underline{\bar{a}\bar{b}\bar{c}}} + \underset{2}{\underline{\bar{a}b\bar{c}}} + \underset{5}{\underline{a\bar{b}c}} + \underset{6}{\underline{ab\bar{c}}}$

$f(a,b,c) = m_0 + m_2 + m_3 + m_4 + m_5 + m_6 + m_7 = \sum m(0,2,3,4,5,6,7)$

$$\Downarrow$$
$$\underline{\underline{a}}$$

2004. 3R. D.16 !!!

Cuál de las funciones S0, S1, S2 de la tabla de la verdad

es equivalente a la función $f(x,y,z) = xy(z+\bar{z}) + x\bar{y}z$

x	y	z	S_0	S_1	S_2
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	0
0	1	1	0	0	0
1	0	0	0	0	0
1	0	1	1	1	0
1	1	0	1	0	1
1	1	1	1	0	1

$$f(x,y,z) = \underset{7}{xyz} + \underset{6}{xy\bar{z}} + \underset{5}{x\bar{y}z}$$

$$f(x,y,z) = \sum m(5,6,7) \Rightarrow S_0 \Rightarrow \underline{\underline{a}}$$

Sistemas   Plan viejo (40)

2004. 1ᵉˢ. A.12 / 2004. S. A13

Hallar la 2ᵃ forma canónica de

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

$$f(a,b) = ab = m_3 \Rightarrow \overline{f(a,b)} = m_0 + m_1 + m_2$$

$$f(a,b) = \overline{m_0 + m_1 + m_2} = \overline{m_0}\cdot\overline{m_1}\cdot\overline{m_2} = M_3\cdot M_2\cdot M_1 \Rightarrow \underline{\underline{a}}$$

2004. 2ᵃS. C.12

Simplificar $f(a,b,c) = \overline{(a+a\bar{b})}\,\overline{(b + ac(b+ac)+\bar{b})}$

$\underbrace{a(1+\bar{b})}_{a}$ $\underbrace{b+\bar{b}+\cdots = 1}$

$$\underbrace{\qquad a\cdot 1 = a \qquad}$$

$$\overline{a} \Rightarrow \underline{\underline{c}}$$

Simplificar la función

$$f(a,b,c,d) = M_0 \cdot M_2 \cdot M_4 \cdot M_5 \cdot M_6 \cdot M_7 \cdot M_8 \cdot M_{10} \cdot M_{12} \cdot M_{13} \cdot M_{14} \cdot M_{15}$$

$$\overline{f(a,b,c,d)} = M_1 \cdot M_3 \cdot M_9 \cdot M_{11} \Rightarrow f(a,b,c,d) = \overline{M_1 \cdot M_3 \cdot M_9 \cdot M_{11}} = \overline{M_1} + \overline{M_3} + \overline{M_9} + \overline{M_{11}}$$

$$f(a,b,c,d) = m_{14} + m_{12} + m_6 + m_5 = \underbrace{ab\bar{c}\bar{d} + ab\bar{c}\bar{d}} + \underbrace{\bar{a}bc\bar{d} + \bar{a}b\bar{c}d}$$

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

Sistemas   Plan Nuevo (53)

2004. 1º S . Δ .10

2º forma canónica de $f = m_0 + m_2 + m_4 + m_5$

5 Términos ⇒ 3 variables $(2^3 = 8) \Rightarrow f(a,b,c) = m_0 + m_2 + m_4 + m_5$

$$\overline{f(a,b,c)} = m_1 + m_3 + m_6 + m_7 \Rightarrow f(a,b,c) = \overline{m_1 + m_3 + m_6 + m_7}$$

$$f(a,b,c) = \overline{m_1} \cdot \overline{m_3} \cdot \overline{m_6} \cdot \overline{m_7} = M_6 \cdot M_4 \cdot M_1 \cdot M_0 \Rightarrow \underline{\underline{b}}$$

2004. 2º S . D .3

1º forma canónica de $f = M_0 \cdot M_3 \cdot M_6 \Rightarrow 2^3 = 8 \Rightarrow 3$ varia.

$$\bar{f} = M_1 \cdot M_2 \cdot M_4 \cdot M_5 \cdot M_7 \Rightarrow f = \overline{M_1 \cdot M_2 \cdot M_4 \cdot M_5 \cdot M_7}$$

$$f = \overline{M_1} + \overline{M_2} + \overline{M_4} + \overline{M_5} + \overline{M_7} = m_6 + m_5 + m_3 + m_2 + m_0 \Rightarrow \underline{\underline{d}}$$

2004. 3. A. 3
<u>2004. 3. A. 3</u>

$f(a,b,c) = m_1 + m_4 + m_7 \longrightarrow 2^a$ forma canónica

$\overline{f(a,b,c)} = m_0 + m_2 + m_3 + m_5 + m_6 \Rightarrow f(a,b,c) = \overline{m_0 + m_2 + m_3 + m_5 + m_6}$

$f(a,b,c) = \overline{m_0} \cdot \overline{m_2} \cdot \overline{m_3} \cdot \overline{m_5} \cdot \overline{m_6} = M_7 \cdot M_5 \cdot M_4 \cdot M_2 \cdot M_1 \Rightarrow \underline{d}$