Atividade 7. Circuitos Digitais

Andrew Gabriel Gomes

1) nível alto quando 70110

* $\bar{A}.B + A = A + B$

(a)

A	B	C	D	Z	
0	0	0	0	0	
0	0	0	1	0	
0	0	1	0	0	
0	0	1	1	0	
0	1	0	0	0	
0	1	0	1	0	
0	1	1	0	0	
0	1	1	1	1	$\bar{A}BCD$
1	0	0	0	1	$A\bar{B}\bar{C}\bar{D}$
1	0	0	1	1	$A\bar{B}\bar{C}D$
1	0	1	0	1	$A\bar{B}C\bar{D}$
1	0	1	1	1	$A\bar{B}CD$
1	1	0	0	1	$AB\bar{C}\bar{D}$
1	1	0	1	1	$AB\bar{C}D$
1	1	1	0	1	$ABC\bar{D}$
1	1	1	1	1	$ABCD$

(B) expressão usando (SOP)
→ Soma de produtos

$Z = \bar{A}BCD + A\bar{B}\bar{C}\bar{D} + A\bar{B}\bar{C}D + A\bar{B}C\bar{D} + A\bar{B}CD + AB\bar{C}\bar{D} + AB\bar{C}D + ABC\bar{D} + ABCD$

$Z = \bar{A}BCD + A\bar{B}\bar{C}(\bar{D}+D)' + A\bar{B}C(\bar{D}+D)' + AB\bar{C}(\bar{D}+D)' + ABC(\bar{D}+D)'$

$Z = \bar{A}BCD + A\bar{B}\bar{C} + A\bar{B}C + AB\bar{C} + ABC$

$Z = \bar{A}BCD + A\bar{B}(\bar{C}+C)' + AB(\bar{C}+C)'$

$Z = \bar{A}BCD + A\bar{B} + AB$

$Z = \bar{A}BCD + A(\bar{B}+B)'$

$Z = \bar{A}.BCD + A$ *

$Z = A + BCD$

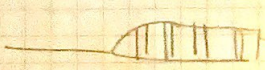
(C) EXPRESSÃO SIMPLIFICADA

(D) ANEXO

$V = R.I$

$R = \frac{12 - 2,5}{0,015} \rightarrow \frac{9,5}{0,015} = \frac{633,3\ \Omega}{640}$

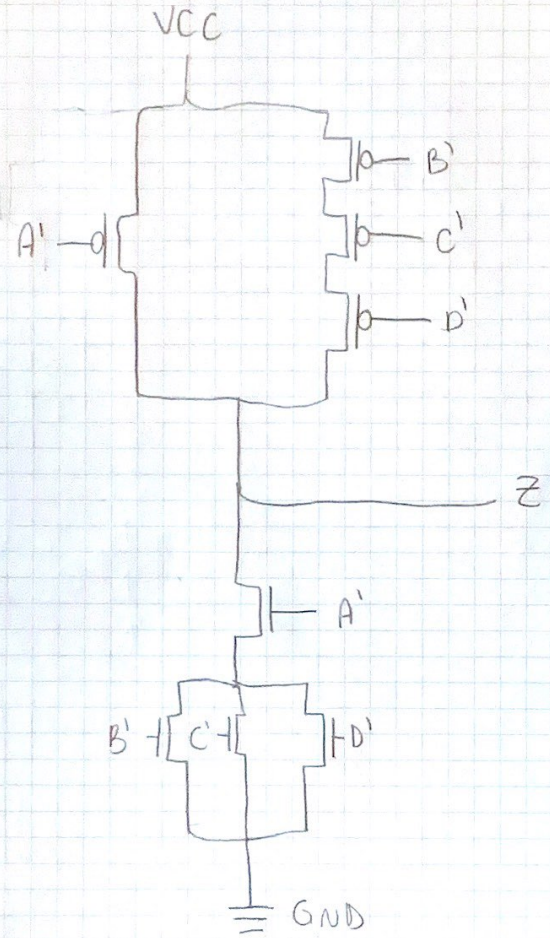
$P = 12.0,015 = 0,18W$



(azul, amarelo, marrom, dourado)

(e) $Z = A + B.C.D$

Circuito CMOS



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