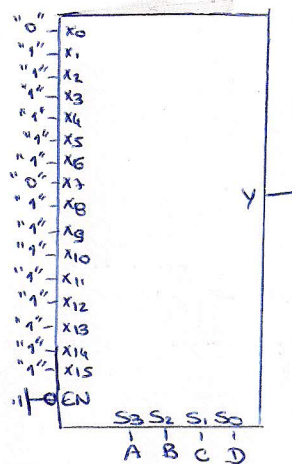


③

$$f(A,B,C,D) = A + \bar{C}D + B\bar{D} + \bar{B}D + \bar{B}C$$

A	B	C	D	F
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
0	1	0	1	1
0	1	1	0	0
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	2
1	1	1	0	1
1	1	1	1	1

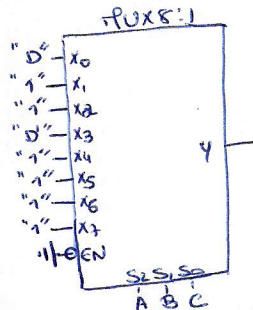
a) Multiplexer 16:1



b) Multiplexer 8:1

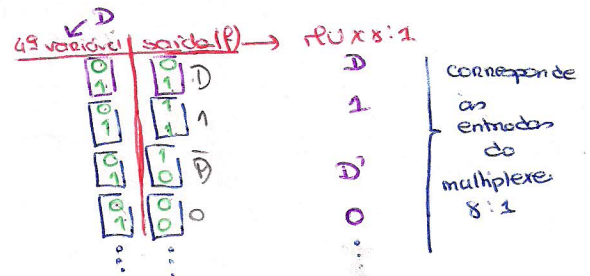
AB \ CD	00	01	11	10
00	0	1	1	1
01	1	1	1	1
11	1	0	1	1
10	1	1	1	1

$$\begin{aligned} x_0 &= D \\ x_1 &= 1 \\ x_2 &= 1 \\ x_3 &= D' \\ x_4 &= 1 \\ x_5 &= 1 \\ x_6 &= 1 \\ x_7 &= 1 \end{aligned}$$



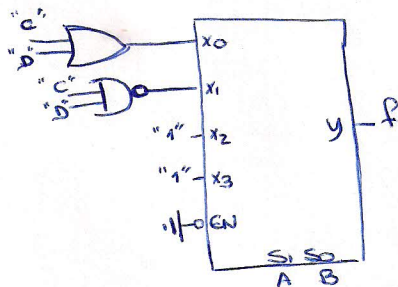
Como temos 4 variáveis e queremos construir um multiplexer de 8:1, temos de considerar as 3 primeiras variáveis e comparar a quarta com a saída. Isto é possível fazer através de uma tabela de verdade ou do mapa de Karnaugh.

Exemplo



c) Multiplexer 4:1

A	B	C	D	F
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1



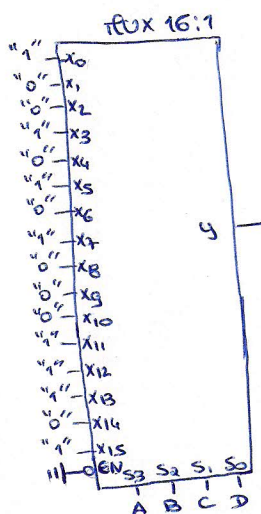
Relacionar C com D de forma a que dê o valor de F.

TPC  
exercício 4 - guia 6 (4)

$$f(A, B, C, D) = \sum_{m(A, B, C, D)} (0, 3, 5, 7, 11, 12, 13, 15)$$

A	B	C	D	f
0	0	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	0
1	1	1	1	1

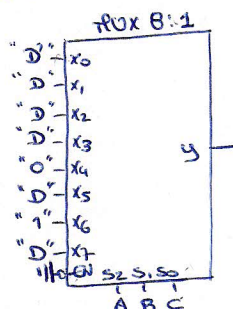
a)



b) Consideramos as três primeiras variáveis e relacionamos com a 4ª variável e a saída

A \ B	00	01	11	10
00	1 0	0 1	1 1	0 0
01	0 1	1 1	1 1	0 0
11	1 1	1 1	1 1	0 0
10	0 1	0 1	0 1	0 0

$x_0 - D$   
 $x_1 - D$   
 $x_2 - D$   
 $x_3 - D$   
 $x_4 - 0$   
 $x_5 - D$   
 $x_6 - 1$   
 $x_7 - D$



c)

A	B	C	D	f
0	0	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	0
1	1	1	1	1

