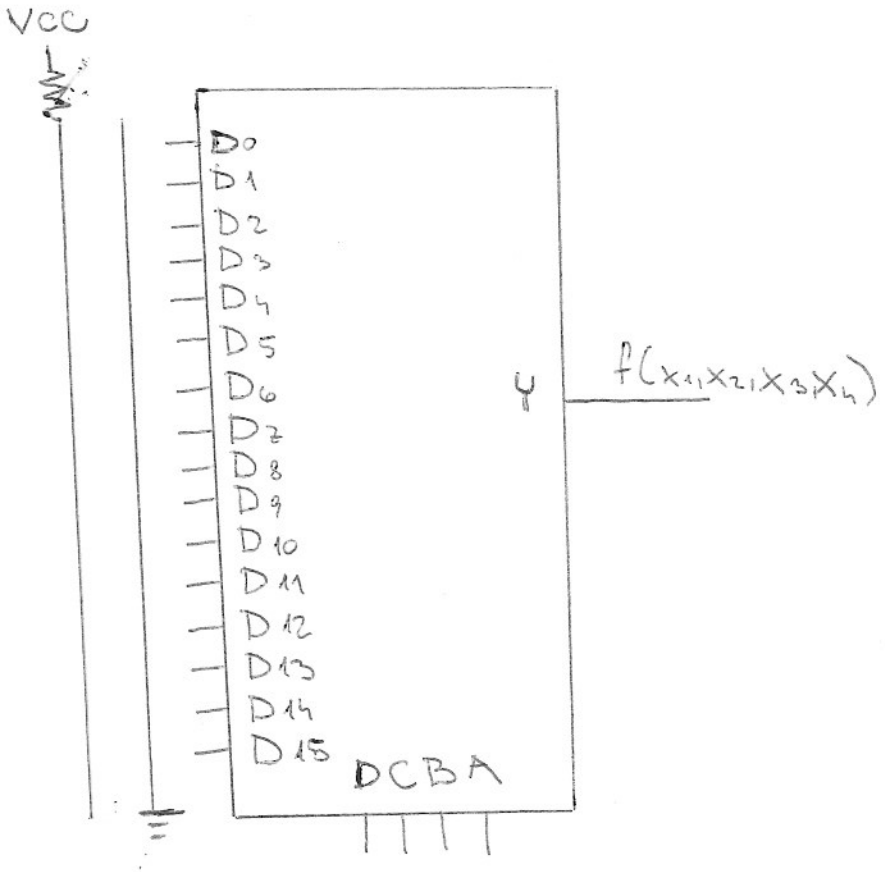
6.3 Pomocí multiplexoru realizujte funkci

$$f(x_1, x_2, x_3, x_4) = \sum(0, 1, 2, 3, 4, 9, 13, 14, 15)$$

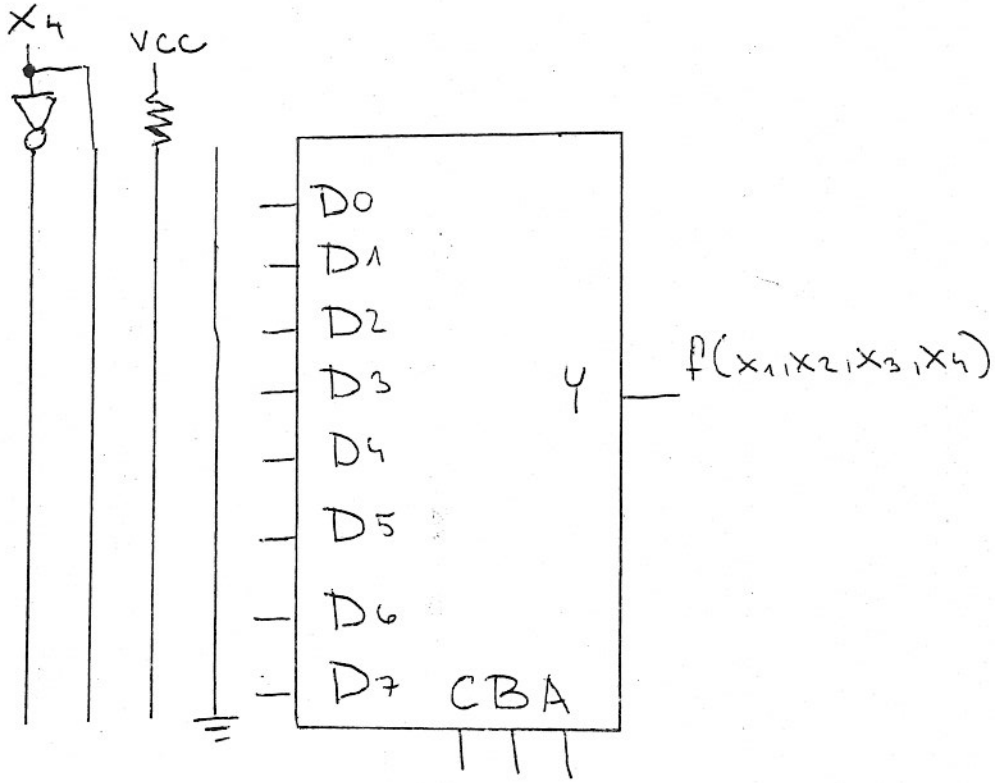
s	x_1	x_2	x_3	x_4	f
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	



6.3 Pomocí multiplexoru realizujte funkci

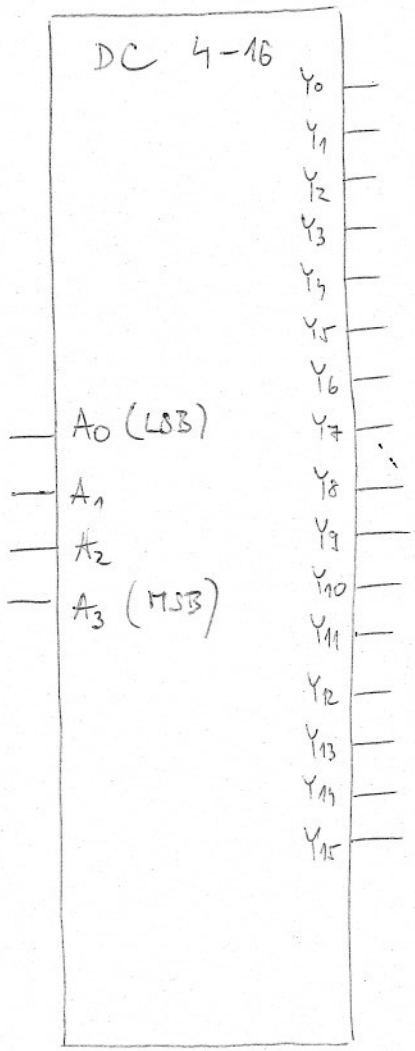
$$f(x_1, x_2, x_3, x_4) = \sum(0, 1, 2, 3, 4, 9, 13, 14, 15)$$

s	x_1	x_2	x_3	x_4	f	f
0	0	0	0	0	1	
	0	0	0	1	1	
1	0	0	1	0	1	
	0	0	1	1	1	
2	0	1	0	0	1	
	0	1	0	1	0	
3	0	1	1	0	0	
	0	1	1	1	0	
4	1	0	0	0	0	
	1	0	0	1	1	
5	1	0	1	0	0	
	1	0	1	1	0	
6	1	1	0	0	0	
	1	1	0	1	1	
7	1	1	1	0	1	
	1	1	1	1	1	



PŘ. 1 Logickou funkci čtyř proměnných $f(x_1, x_2, x_3, x_4) = \Sigma(0, 1, 2, 3, 4, 9, 13, 14, 15)$ realizujte pomocí dekodéru 4-16 a hradla OR.

S	x_1	x_2	x_3	x_4	f
0	0	0	0	0	1
1	0	0	0	1	1
2	0	0	1	0	1
3	0	0	1	1	1
4	0	1	0	0	1
5	0	1	0	1	0
6	0	1	1	0	0
7	0	1	1	1	0
8	1	0	0	0	0
9	1	0	0	1	1
10	1	0	1	0	0
11	1	0	1	1	0
12	1	1	0	0	0
13	1	1	0	1	1
14	1	1	1	0	1
15	1	1	1	1	1



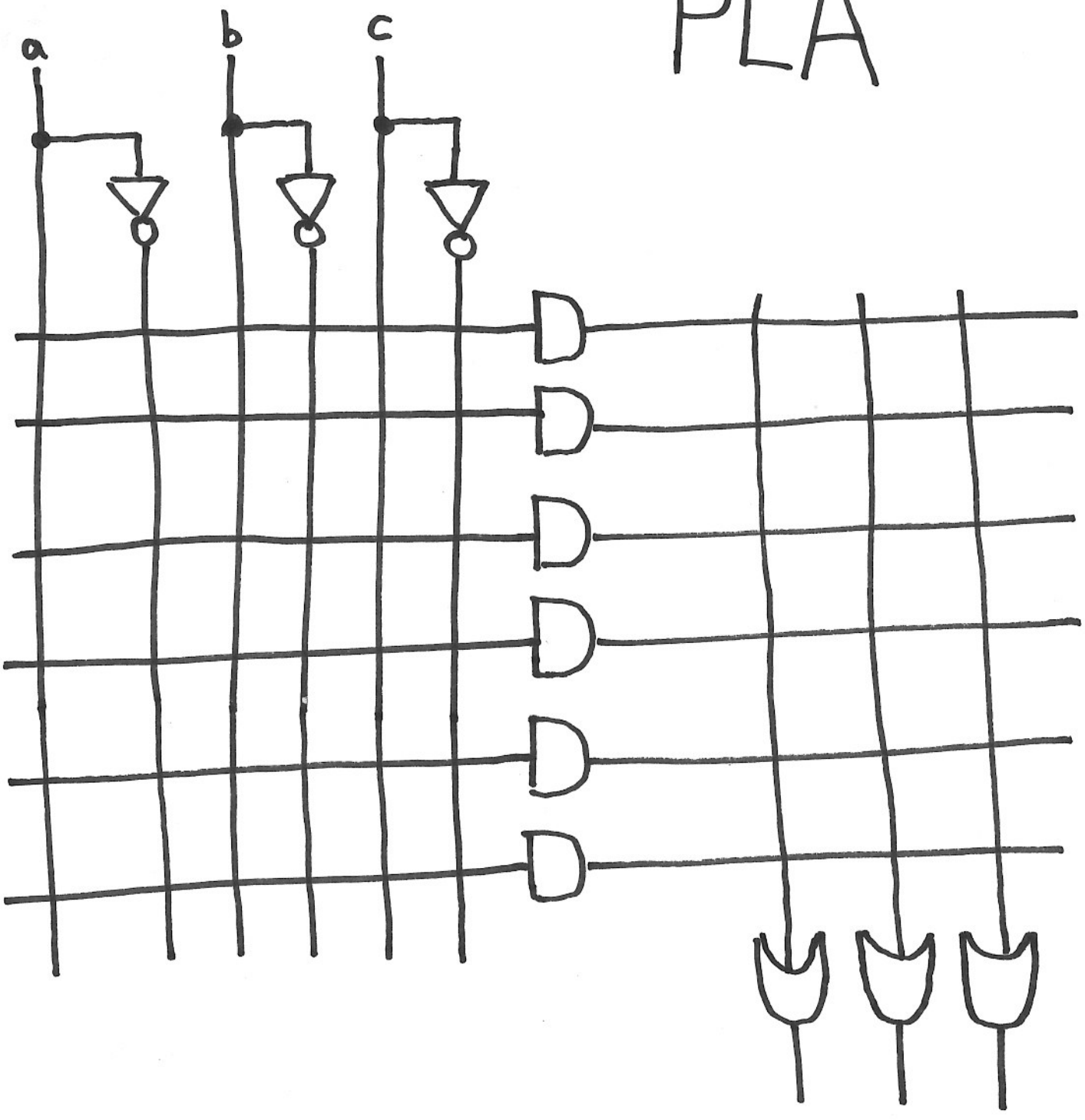
Příklad 6.7)

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

$$g(a,b,c) = \bar{a}\cdot\bar{b}\bar{c} + ab + bc$$

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

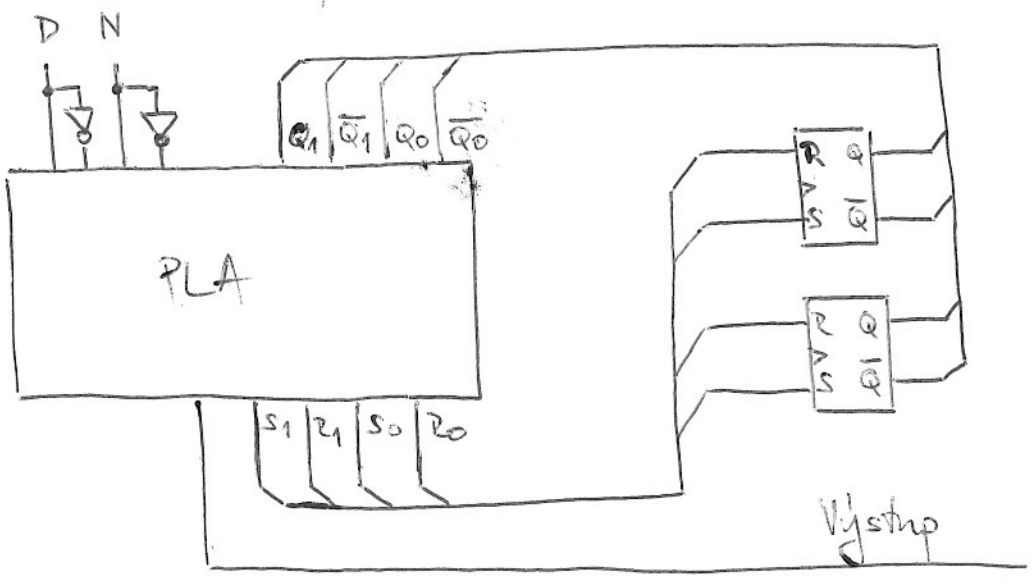
PLA



7.24 (dokončení) Realizujte navrženou řídicí jednotku automatu na občerstvení pomocí obvodu PLA a RS KO.

	Souč. stav Q_1	Souč. stav Q_0	Vstup D	Vstup N	Násl. stav Q_1^*	Násl. stav Q_0^*	Výstup	S_1	R_1	S_0	R_0
0¢	0	0	0	0	0	0	0	0	x	0	x
	0	0	0	1	0	1	0	0	x	1	0
	0	0	1	0	1	0	0	1	0	0	x
	0	0	1	1	x	x	x	x	x	x	x
5¢	0	1	0	0	0	1	0	0	x	x	0
	0	1	0	1	1	0	0	1	0	0	1
	0	1	1	0	1	1	1	1	0	x	0
	0	1	1	1	x	x	x	x	x	x	x
10¢	1	0	0	0	1	0	0	x	0	0	x
	1	0	0	1	1	1	1	x	0	1	0
	1	0	1	0	1	1	1	x	0	1	0
	1	0	1	1	x	x	x	x	x	x	x
≥15¢	1	1	0	0	0	0	0	0	1	0	1
	1	1	0	1	0	1	0	0	1	x	0
	1	1	1	0	1	0	0	x	0	0	1
	1	1	1	1	x	x	x	x	x	x	x

Realizace pomocí PLA a RS KO



S_0

Q_1Q_0 \ PN	00	01	11	10
00	0	1	X	0
01	X	0	X	X
11	0	X	X	0
10	0	1	X	1

R_0

Q_1Q_0 \ DN	00	01	11	10
00	X	0	X	X
01	0	1	X	0
11	X	0	X	1
10	X	0	X	0

S_1

Q_1Q_0 \ PN	00	01	11	10
00	0	0	X	1
01	0	1	X	1
11	0	0	X	X
10	X	X	X	X

R_1

Q_1Q_0 \ DN	00	01	11	10
00	X	X	X	0
01	X	0	X	0
11	1	1	X	0
10	0	0	X	0

Výstup

Q_1Q_0 \ DN	00	01	11	10
00	0	0	X	0
01	0	0	X	1
11	0	0	X	0
10	0	1	X	1

PLA implementace