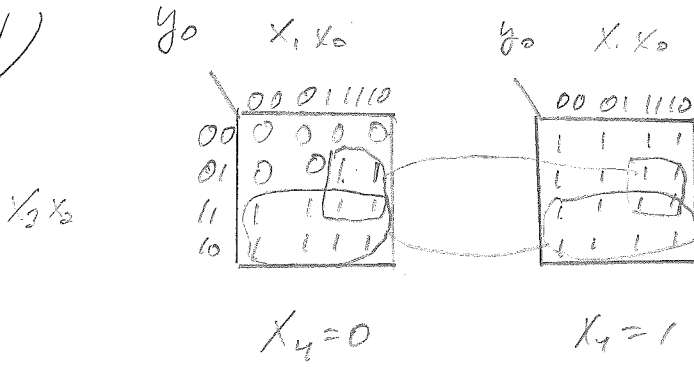
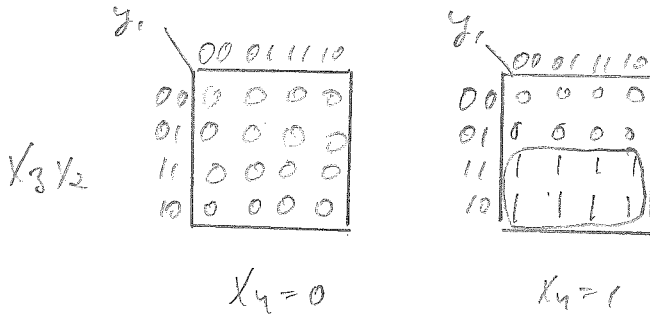


1)



$$y_0 = x_3 + x_2 \cdot x_1 + x_4$$

$$6 = 00110$$

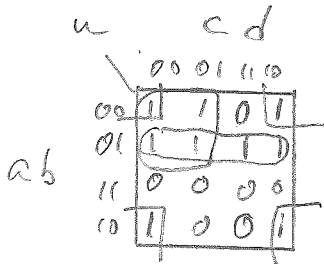


$$y_1 = x_4 \cdot x_3$$

$$24 = 11001$$

2)

$$u = \bar{a} \cdot \bar{c} + \bar{a} \cdot b \cdot c + a \cdot \bar{b} \cdot \bar{d} + \bar{b} \cdot c \cdot \bar{d}$$



$$u = \bar{b} \cdot \bar{d} + \bar{a} \cdot b + \bar{a} \cdot c$$

a	b	c	d	u
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	1
1	0	1	1	0
1	1	0	0	0
1	1	0	1	0
1	1	1	0	0
1	1	1	1	0

3)

Kodning:

$S_0 = 00$

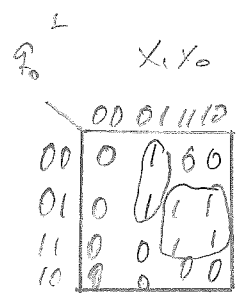
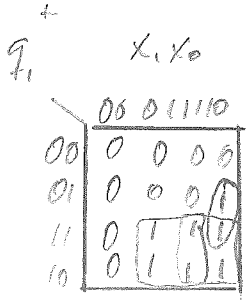
$S_1 = 01$

$S_2 = 11$

$S_3 = 10$

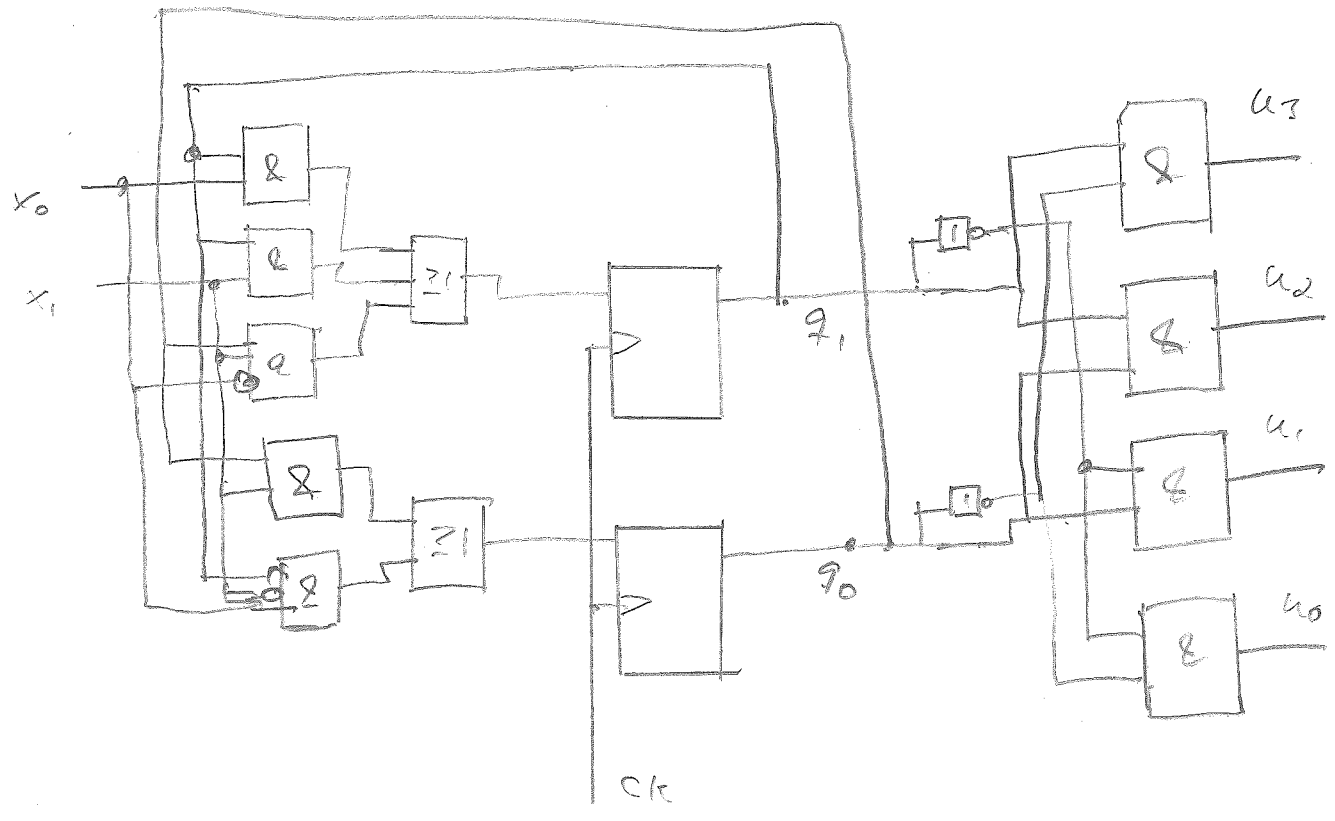
q_1^+, q_0^+
 x_1, x_0

q_1, q_0	00	01	11	10	u_3, u_2, u_1, u_0
00	00	01	00	00	0001
01	00	01	01	11	0010
11	00	10	11	11	0100
10	00	10	10	10	1000



$q_1^+ = q_1 \cdot x_0 + q_1 \cdot x_1 + q_0 \cdot x_1 \cdot \bar{x}_0$

$q_0^+ = q_0 \cdot x_1 + \bar{q}_1 \cdot \bar{x}_1 \cdot y_0$



4)

$$175 = 128 + 32 + 8 + 4 + 2 + 1 = \underline{10101111}$$

a) $175_{10} = \underline{10101111}_2$ Svar: 10101111

b) $10101111_2 = AF_{16}$

c) $10101111 = 257_8$

d) $56 = 32 + 16 + 8 = 00111000_2$

$$-56 = 200111000 = \begin{array}{r} 11 \\ 11000111 \\ \hline 11001000 \end{array}$$

Svar: 11001000

e) $45 = 32 + 8 + 4 + 1 = 00101101_2$

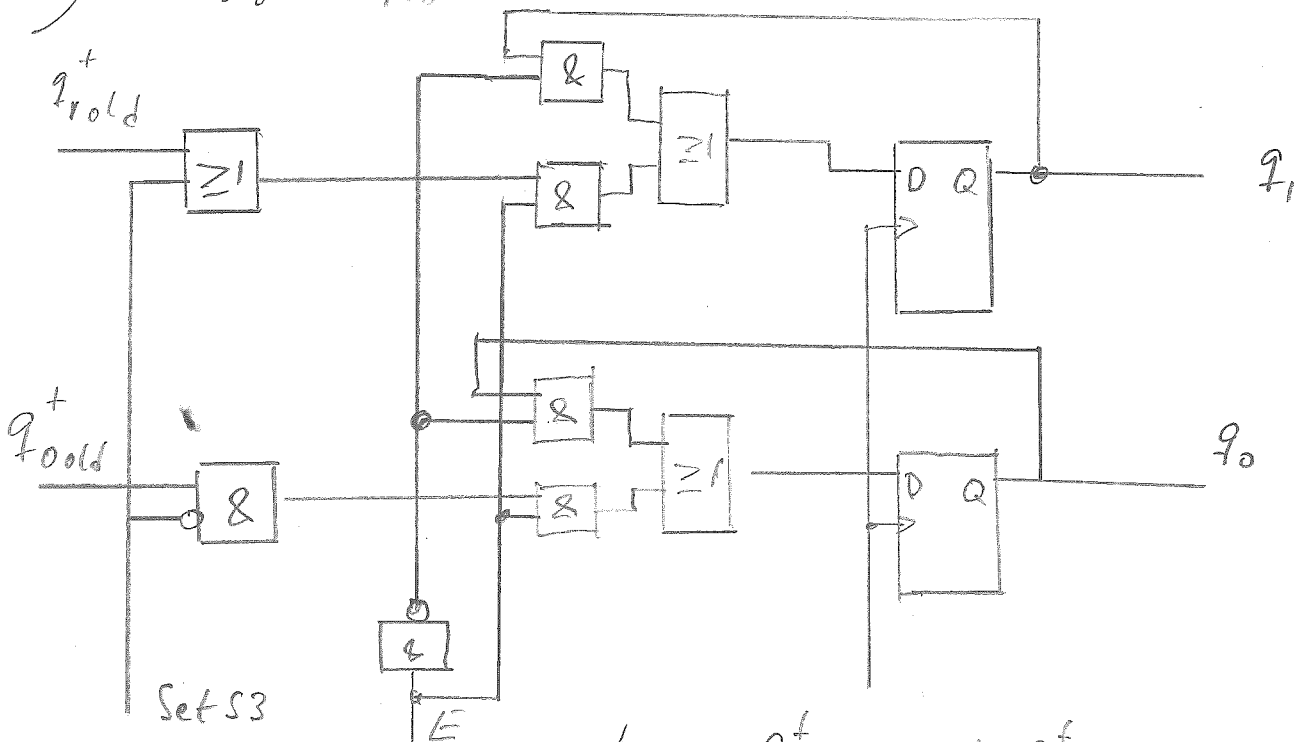
$$45 - 56 \Rightarrow 00101101_2 + 11001000_2 = \begin{array}{r} 1 \\ 00101101 \\ + 11001000 \\ \hline 11110101 \end{array}$$

$$\begin{array}{r} 21110101 = 00001010 \\ 1 \\ \hline 00001011 \end{array} = 00001011_2 = 11_{10}$$

Svar: -11_{10}

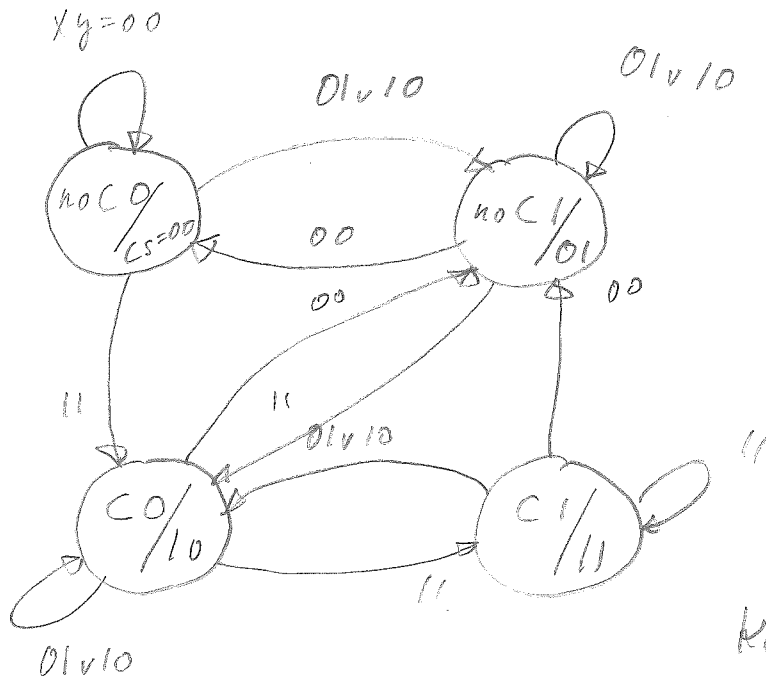
5)

$S3 \Rightarrow q_1, q_0 = 10$



Anm: q_1^+ och q_0^+ är signaler från uppg. 3.

6)



Koordinat: $noCO = 00$
 $noCI = 01$
 $CO = 10$
 $CI = 11$

Q	Q^+ xy				CS
	00	01	11	10	
noCO	noCO	noCI	CO	noCI	00
noCI	noCO	noCI	CO	noCI	01
CO	noCI	CO	CI	CO	10
CI	noCI	CO	CI	CO	11

q_1, q_0	q_1^+, q_0^+ xy				CS
	00	01	11	10	
00	00	01	10	01	00
01	00	01	10	01	01
10	01	10	11	10	10
11	01	10	11	10	11

q_1, q_0	q_1^+ xy			
	00	01	11	10
00	0	0	1	0
01	0	0	1	0
11	0	1	1	1
10	0	1	1	1

q_1, q_0	q_0^+ xy			
	00	01	11	10
00	0	1	0	1
01	0	1	0	1
11	1	0	1	0
10	1	0	1	0

$$q_1^+ = xy + q_1 \cdot y + q_0 \cdot x$$

$$q_0^+ = q_1 \cdot x \cdot y + \overline{q_1} \cdot \overline{x} \cdot y + q_1 \cdot x \cdot \overline{y} + \overline{q_1} \cdot \overline{x} \cdot \overline{y}$$

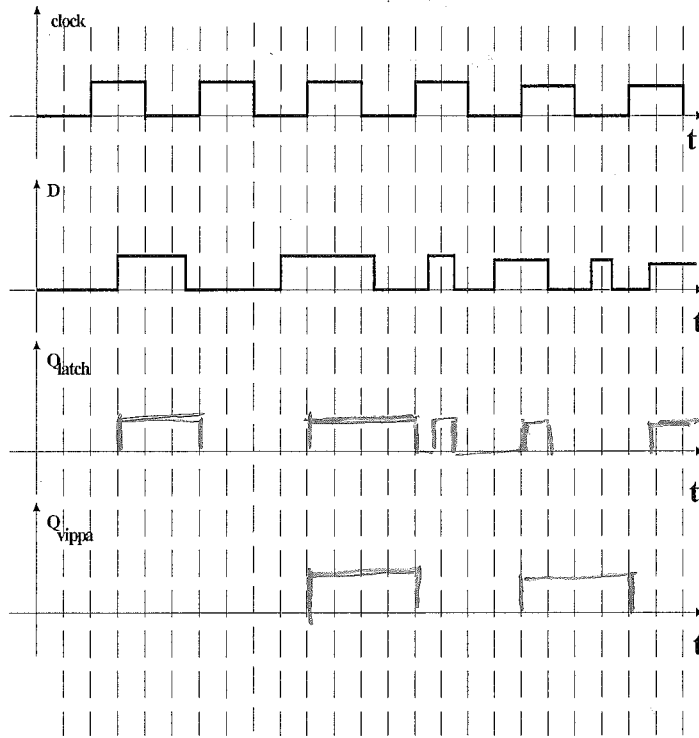
$$= q_1 \cdot x \oplus y + \overline{q_1} \cdot x \oplus y = q_1 \oplus x \oplus y$$

$$C = q_1$$

$$S = q_0$$

O.S.V.

7.



8. Se läroboken