

Tentamen april 2013

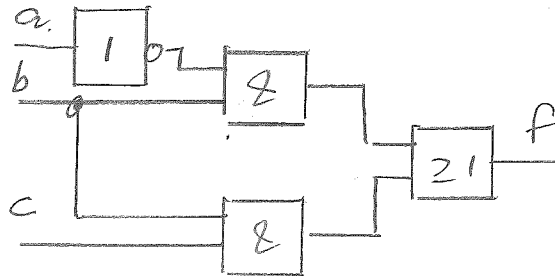
1) a)

a	b	c	f
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

b)

f	bc
0	00 01 11 10
1	01 00 11 00

$$f = b \cdot c + \bar{a} \cdot b$$

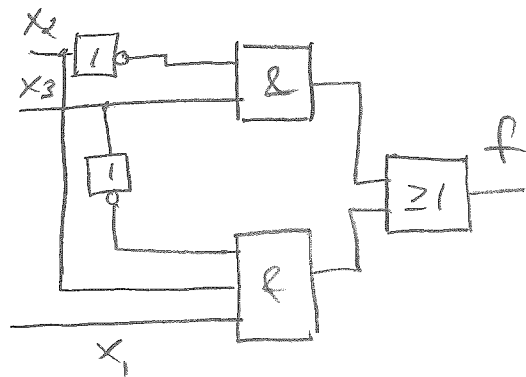


1)

x_3	x_2	x_1	x_0	f
0	1	1	0	1
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
övriga				0

f	x_1, x_0
00	00 00 00 00
01	00 00 11 00
11	00 00 00 00
10	11 11 11 11

$$f = x_3 \cdot \bar{x}_2 + \bar{x}_3 \cdot x_2 \cdot x_1$$



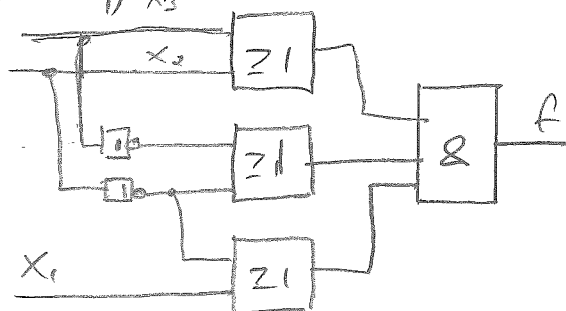
1)

f	x_1, x_0
00	00 00 00 00
01	00 00 11 00
11	00 00 00 00
10	11 11 11 11

$$\bar{f} = \bar{x}_3 \cdot \bar{x}_2 + x_3 \cdot x_2 + x_2 \cdot \bar{x}_1$$

$$f = \overline{\bar{x}_3 \cdot \bar{x}_2 + x_3 \cdot x_2 + x_2 \cdot \bar{x}_1} = \overline{\bar{x}_3 \cdot \bar{x}_2} \cdot \overline{x_3 \cdot x_2} \cdot \overline{x_2 \cdot \bar{x}_1} \Rightarrow$$

$$f = (x_3 + x_2) \cdot (\bar{x}_3 + \bar{x}_2) \cdot (\bar{x}_2 + x_1) \cdot x_3$$



3)

$q_1 q_0$	$x_1 x_0$	$x_1 x_0$	$x_1 x_0$	$x_1 x_0$	$u_1 u_0$
00	00	01	11	10	00
01	10	01	00	00	01
10	10	10	10	11	11
11	00	01	11	11	10

$u_1 = q_1$
 $u_0 = q_1 \oplus q_0$

q_1^+

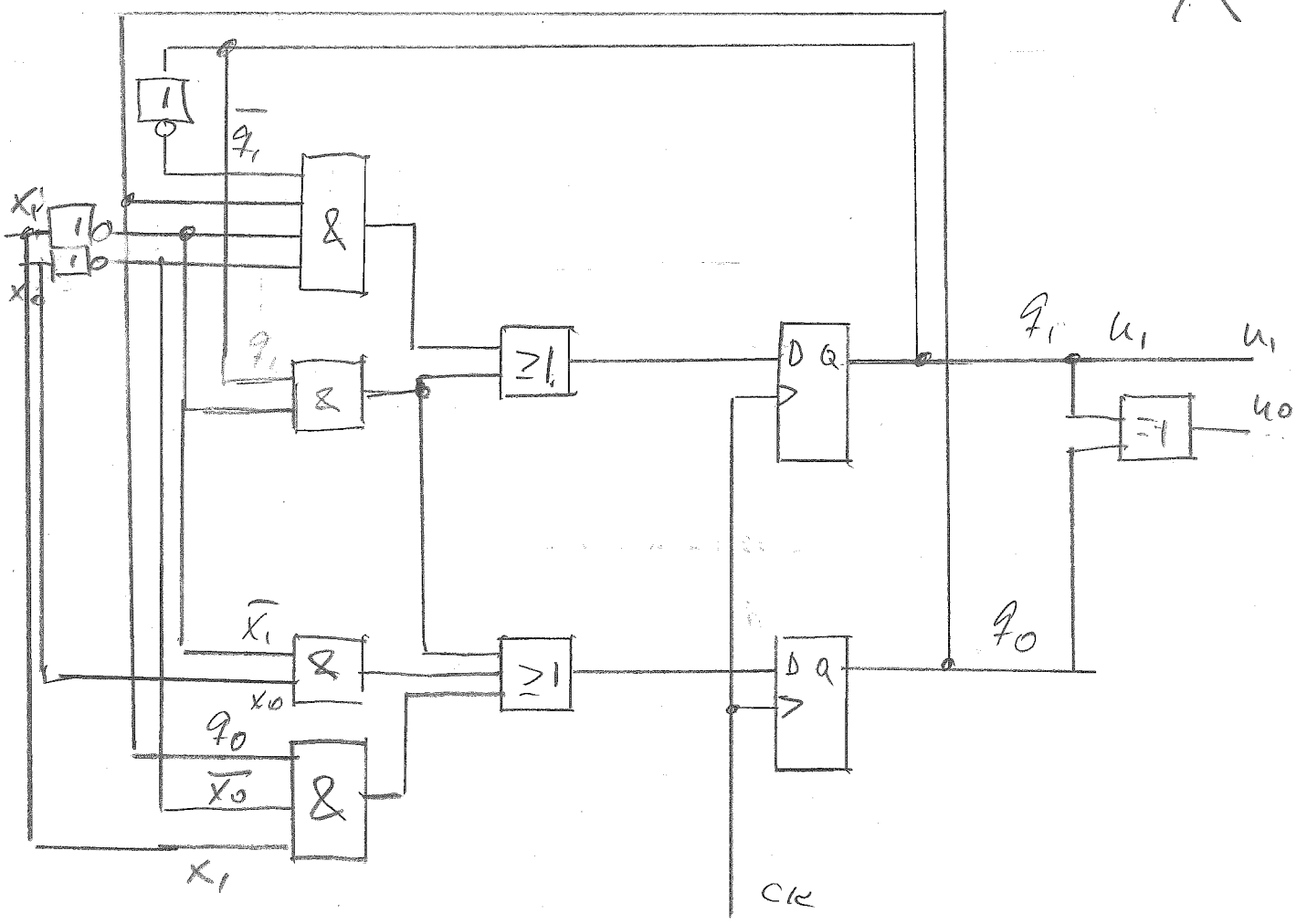
q_1	$x_1 x_0$
00	00 00 00
01	10 00 00
11	00 11 11
10	00 11 11

q_0^+

q_0	$x_1 x_0$
00	00 00 00
01	01 01 01
11	01 01 01
10	01 01 01

$q_1^+ = q_1 \cdot x_1 + \bar{q}_1 \cdot \bar{q}_0 \cdot \bar{x}_1 \cdot \bar{x}_0$

~~$q_0^+ = x_1 \cdot x_0 + q_1 \cdot x_1 + q_0 \cdot x_1 \cdot x_0$~~



Se nästa blad!

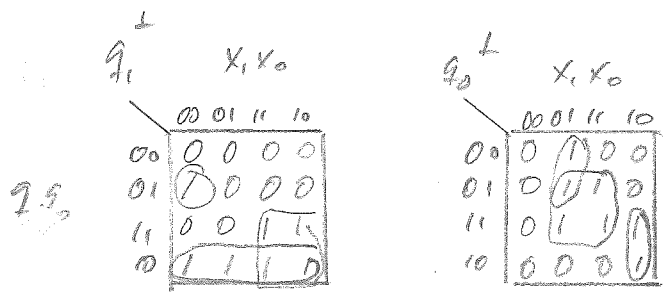
3)

Nur	Nächstes				u
	x_0	x_1	x_2	x_3	
S0	S0	S1	S0	S0	00
S1	S2	S1	S1	S0	01
S2	S2	S2	S2	S3	11
S3	S0	S1	S3	S3	10

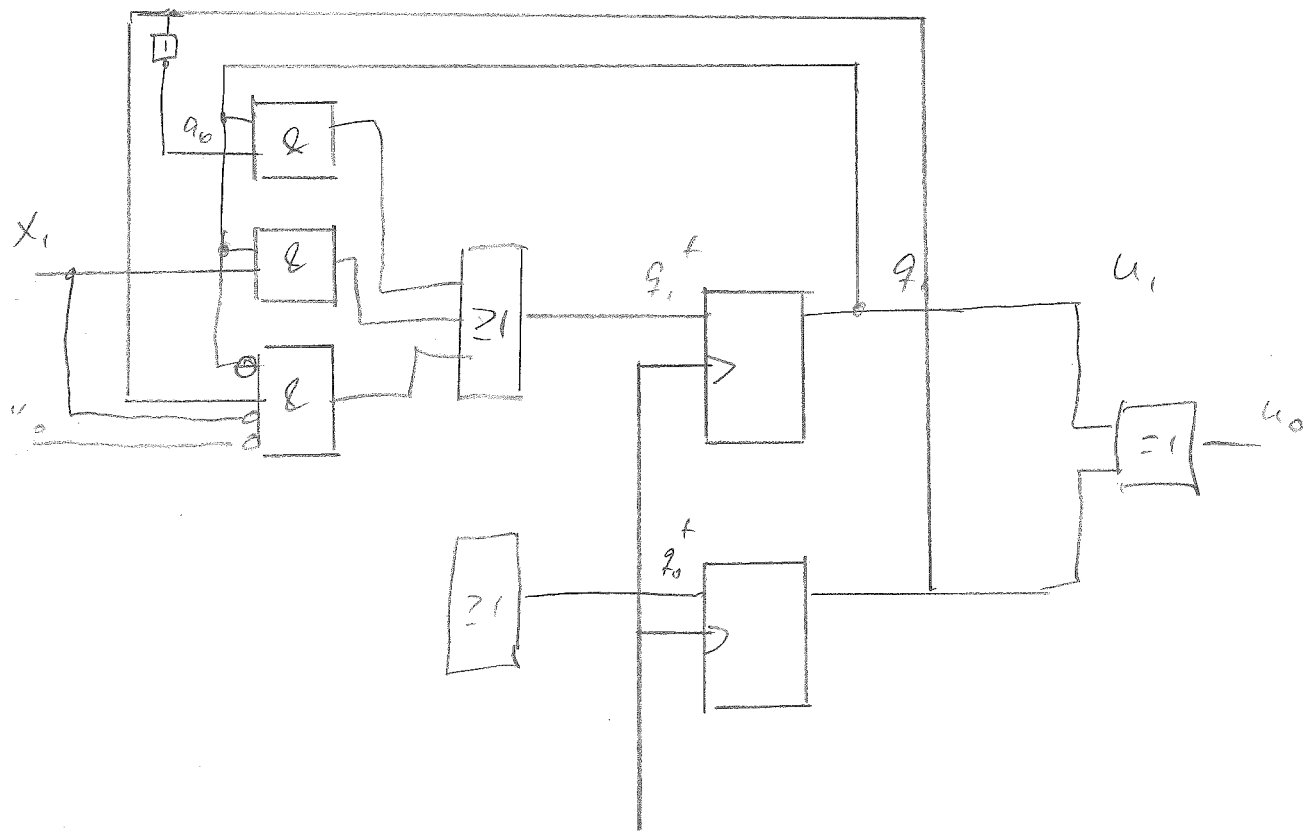
$q_1^+ q_0^+$
 $x_1 x_0$

$q_1 q_0$	00	01	11	10	$u_1 u_0$
00	00	01	00	00	00
01	10	01	01	00	01
10	10	10	10	11	11
11	00	01	11	11	10

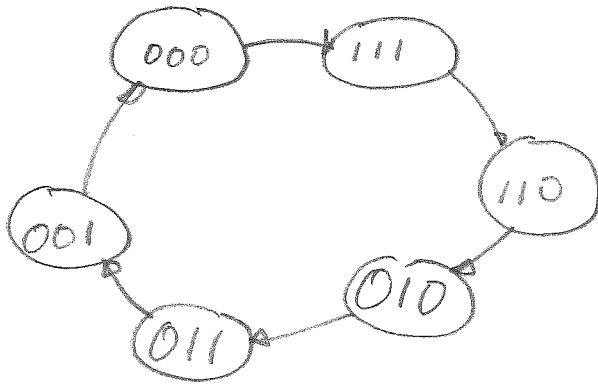
$u_1 = q_1$
 $u_0 = q_1 \oplus q_0$



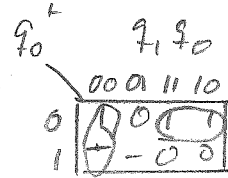
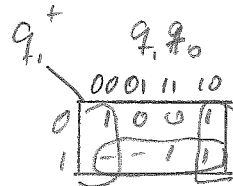
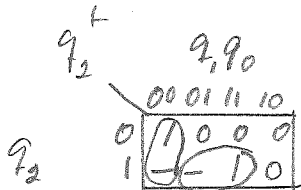
$q_1^+ = q_1 \cdot \bar{x}_0 + q_1 \cdot x_1 + \bar{q}_1 \cdot q_0 \cdot \bar{x}_1 \cdot \bar{x}_0$ $q_0^+ = q_0 \cdot x_0 + \bar{q}_1 \cdot x_1 \cdot x_0 + \bar{q}_1 \cdot \bar{x}_1 \cdot y_0$



5)



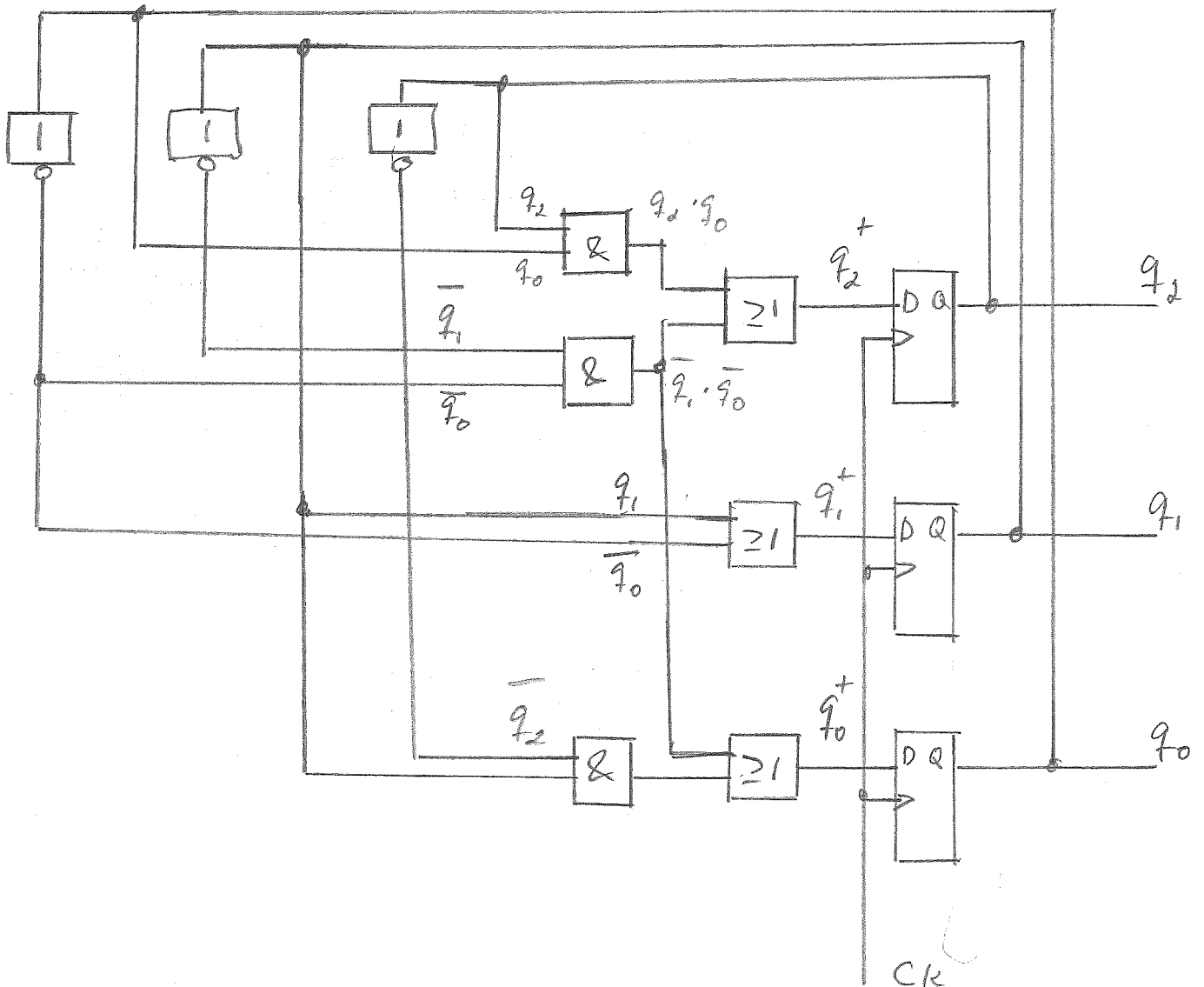
q_2	q_1	q_0	q_2^+	q_1^+	q_0^+
0	0	0	1	1	1
0	0	1	0	0	0
0	1	0	0	1	1
0	1	1	0	0	1
1	0	0	—	—	—
1	0	1	—	—	—
1	1	0	0	1	0
1	1	1	1	1	0



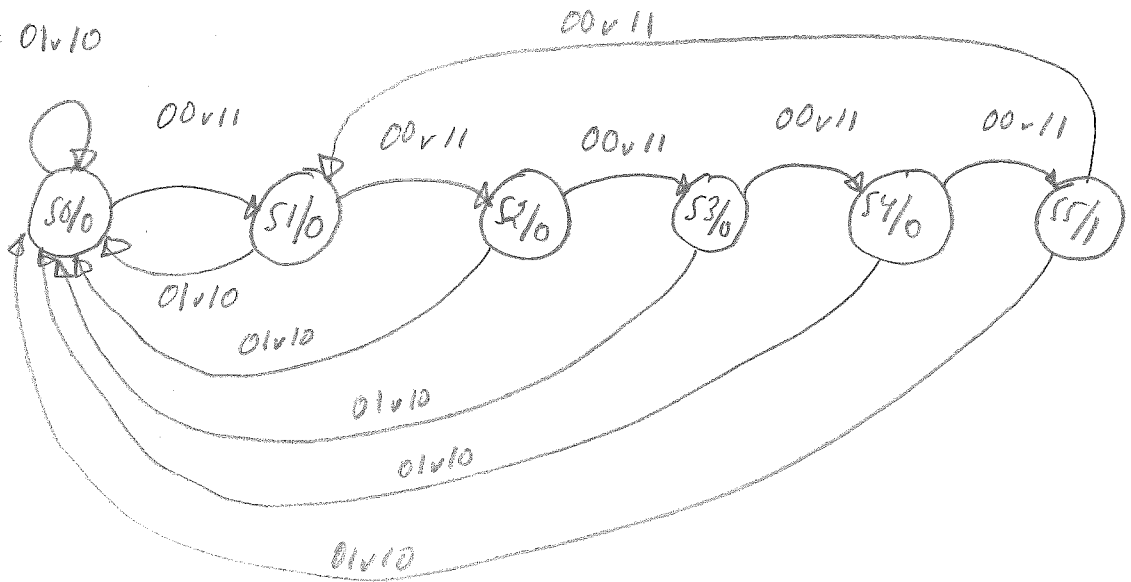
$$q_2^+ = \overline{q_1} \cdot \overline{q_0} + q_2 \cdot q_0$$

$$q_1^+ = q_1 + q_0$$

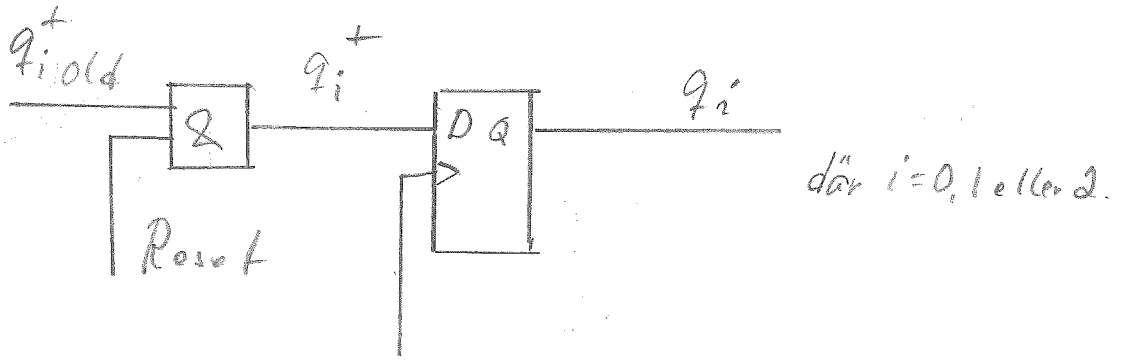
$$q_0^+ = \overline{q_1} \cdot \overline{q_0} + q_2 \cdot q_1$$



6) $x_8 = 0110$

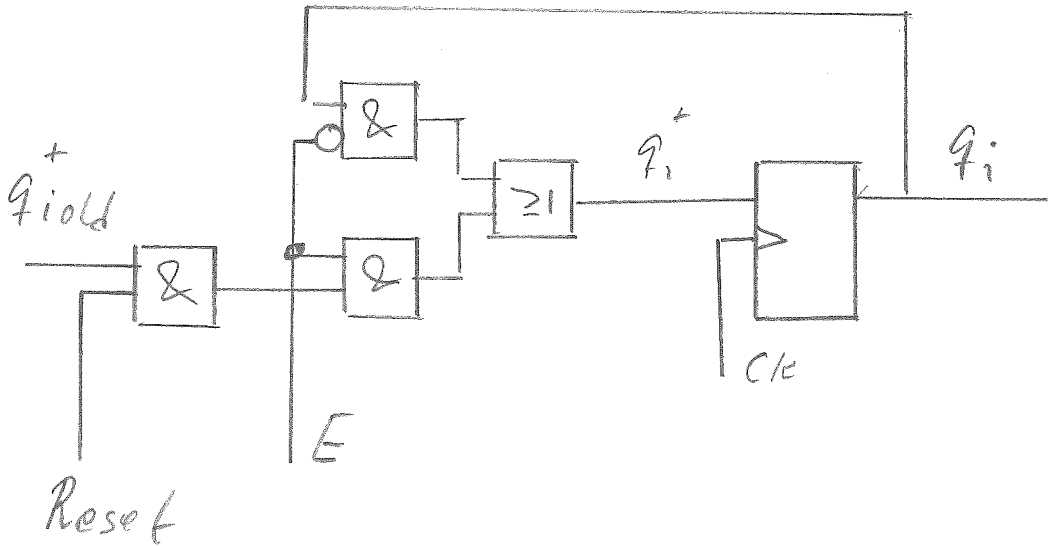


7a)



där q_i^+old är lösningar från uppg. 5!

b)



8)

Se läroboken

