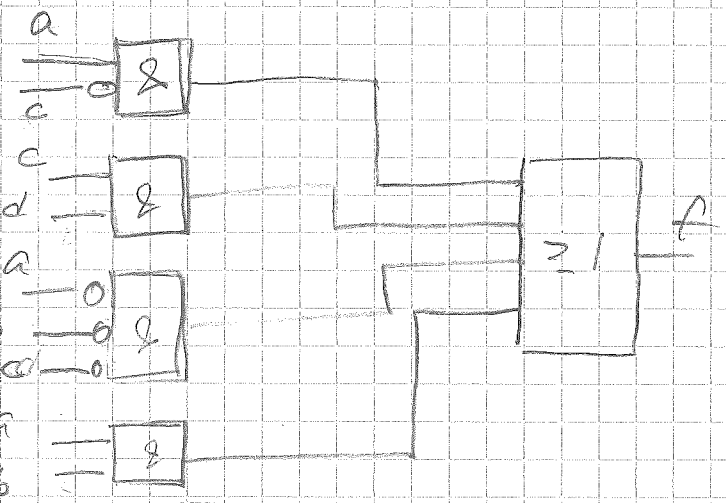
Testarea 12/12-11 blatul 1.

1/

ab \ cd	00	01	11	10
00	1	0	1	1
01	0	0	1	0
11	1	1	1	1
10	1	1	0	0

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

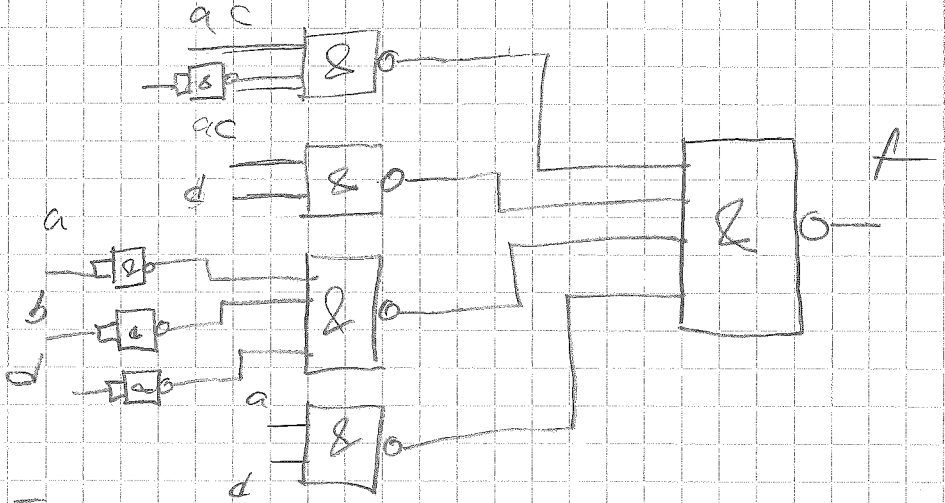


(5p)

b/

$f = \overline{\overline{a \cdot \bar{c}} \cdot \overline{c \cdot d} \cdot \overline{a \cdot b} \cdot \overline{\bar{a} \cdot \bar{b} \cdot \bar{d}}} =$

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

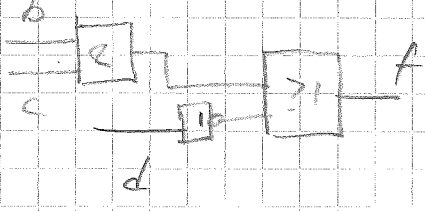


(3p)

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

f \ ab \ cd	00	01	11	10
00	1	0	1	1
01	0	0	1	0
11	1	1	1	1
10	1	1	0	0

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



(5p)

Tentamen 12/12-11 blad 2

b) Då a0=b0, a1=b1, a2=b2 och a3=b3 så är f=0 annars är f=1.
dvs. nätet testar om ord b är lika med ord a. (4p)

3)

	97	83
1	1	1
2	0	1
4	0	0
8	0	0
16	0	1
32	1	0
64	1	1
128	0	

a) $97_{10} = 0110|0001_2$ (6, 1) 1p

b) gruppera om 4 bitar ⇒
$97_{10} = 61_{16}$ 1p

c) 97 = 01100001
^{2}97 = 10011111

^{2}97 = 10011110
+ 1
= 10011111

d) 83 = 01010011
$-83 = {}^2 01010011_2 = 10101100_2$
+ 1
= 10101101

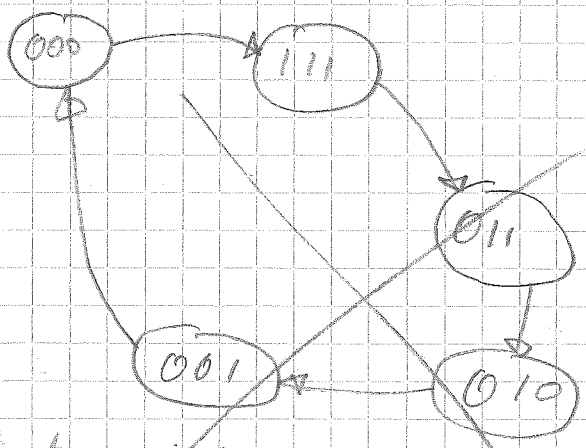
97−83 ⇒
  01100001
+ 10101101
= ×00001110

$00001110_2 = 1\cdot8 + 1\cdot4 + 1\cdot2 + 0 =$
= 14

Svar: 97−83 = 14 2p

Tentamen 12/12-11 blad 3

4.



fel

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 0 1
0 1 1	0 1 0
1 0 0	– – –
1 0 1	– – –
1 1 0	– – –
1 1 1	0 1 1

q_2^+

q_2q_1 \ q_0	0	1
00	1	0
01	0	0
11	–	0
10	–	–

q_1^+

q_2q_1 \ q_0	0	1
00	1	0
01	0	1
11	–	1
10	–	–

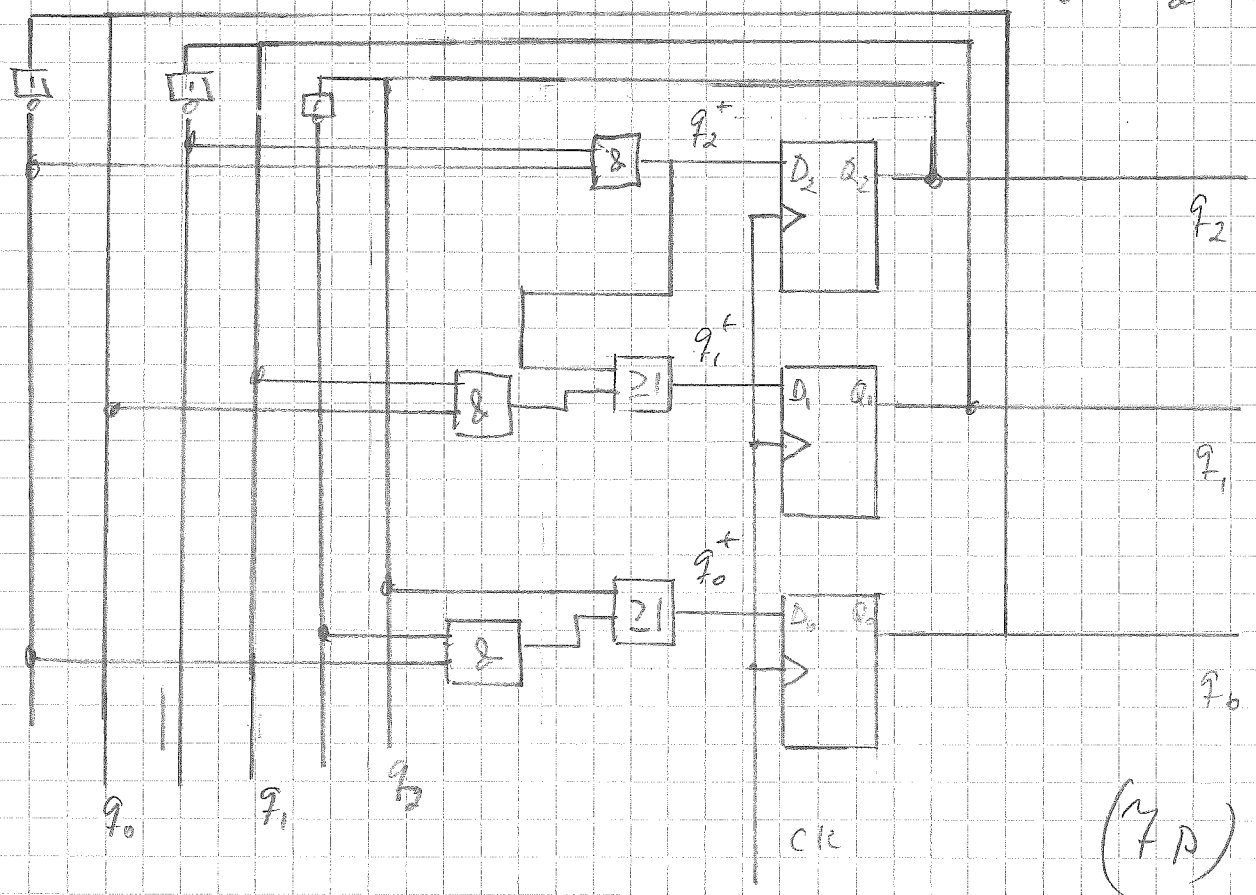
q_0^+

q_2q_1 \ q_0	0	1
00	1	0
01	1	0
11	–	1
10	–	–

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

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

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

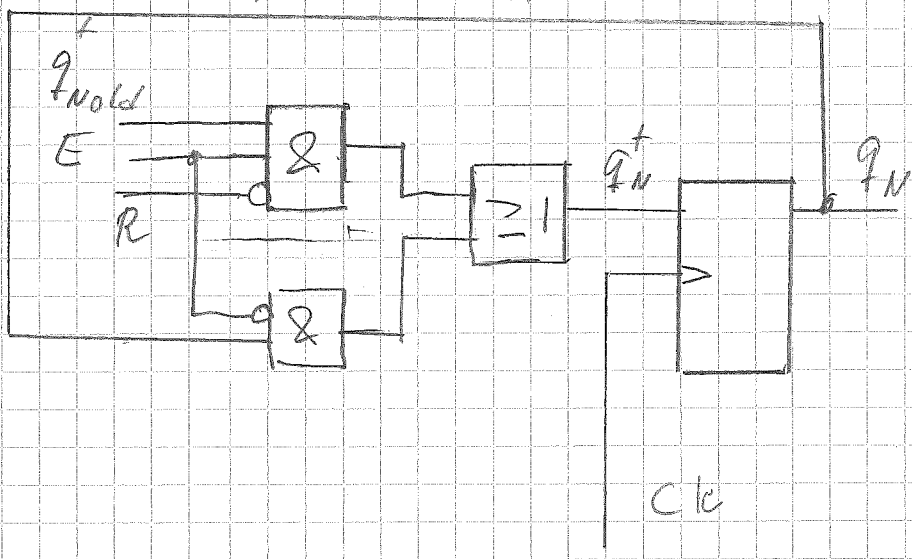


(7p)

Tentamen 12/12-11 blad 4

5) $q_N^+ = q_{Nold}^+ \cdot E \cdot \overline{R} + \overline{E} \cdot q_N$ där q_{old}^+ är

Lösningen från uppg. 4 för de olika vippornas.

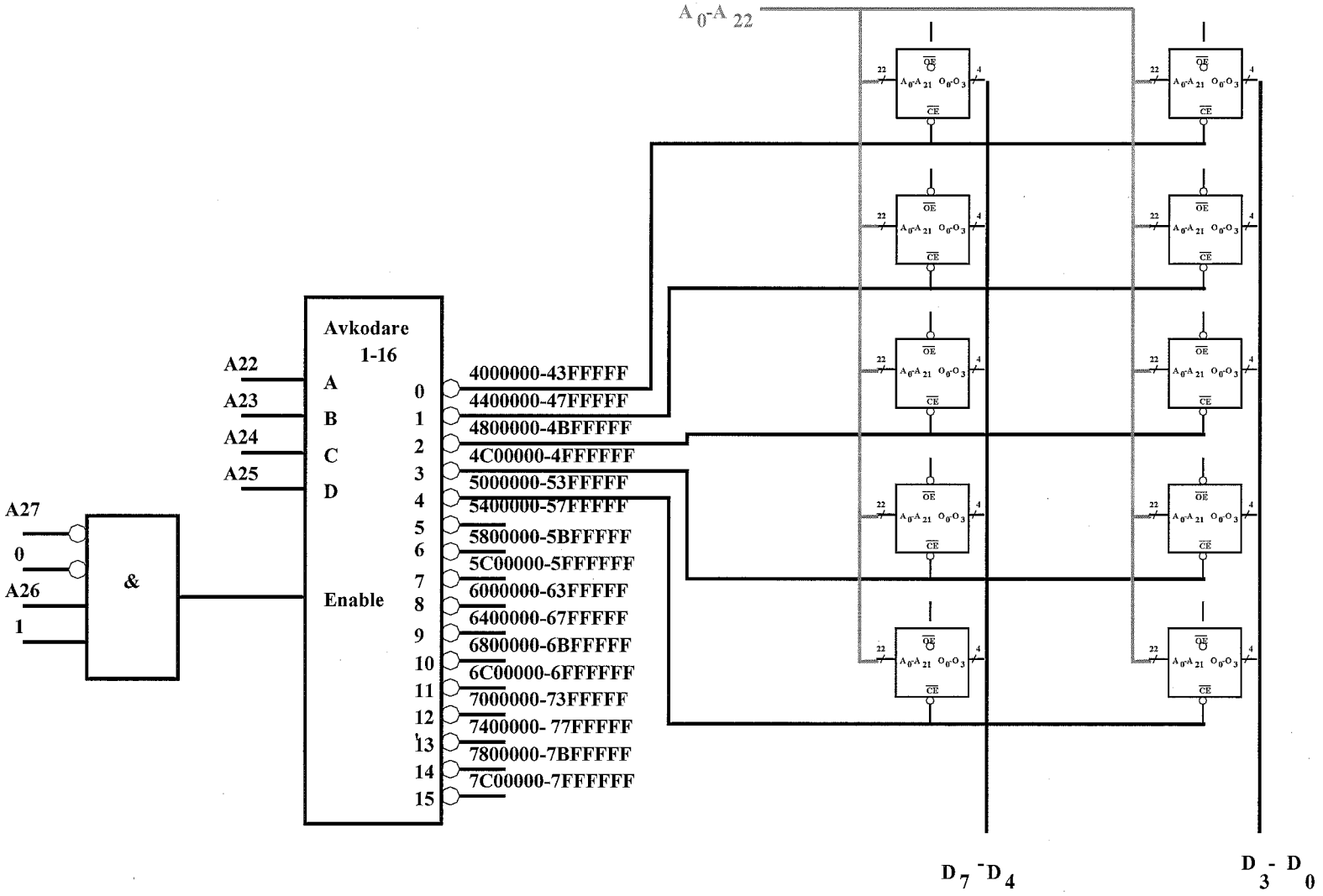


(4p)

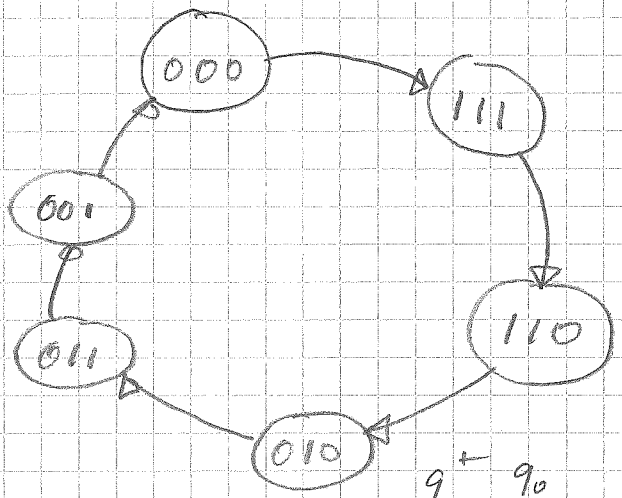
6)

A_{27}	A_{26}	A_{25}	A_{24}	A_{23}	A_{22}	A_{21}	A_{20}	A_{19}	A_{18}	A_{17}	A_{16}	A_{15}	A_{14}	A_{13}	A_{12}	A_{11}	A_{10}	A_9	A_8	A_7	A_6	A_5	A_4	A_3	A_2	A_1	A_0	
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40000000
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7FFFFFFF
0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	53FFFFFF
0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	43FFFFFF
0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44000000
0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	47FFFFFF
0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48000000
0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4BFFFFFF
0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4C000000
0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4FFFFFFF

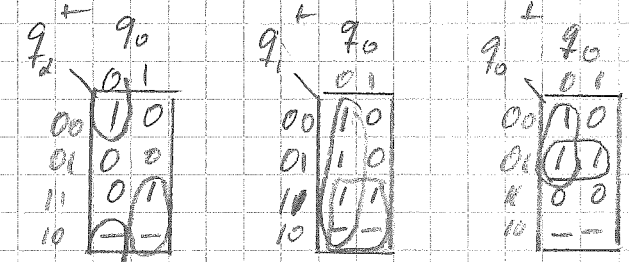
8p


A 0-A 22
Avkodare
1-16
A22
A23
A24
A25
A
B
C
D
Enable
A27
0
A26
1
&
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
4000000-43FFFFF
4400000-47FFFFF
4800000-4BFFFFF
4C00000-4FFFFFF
5000000-53FFFFF
5400000-57FFFFF
5800000-5BFFFFF
5C00000-5FFFFFF
6000000-63FFFFF
6400000-67FFFFF
6800000-6BFFFFF
6C00000-6FFFFFF
7000000-73FFFFF
7400000- 77FFFFF
7800000-7BFFFFF
7C00000-7FFFFFF
D 7 -D 4
D 3 - D 0

4.



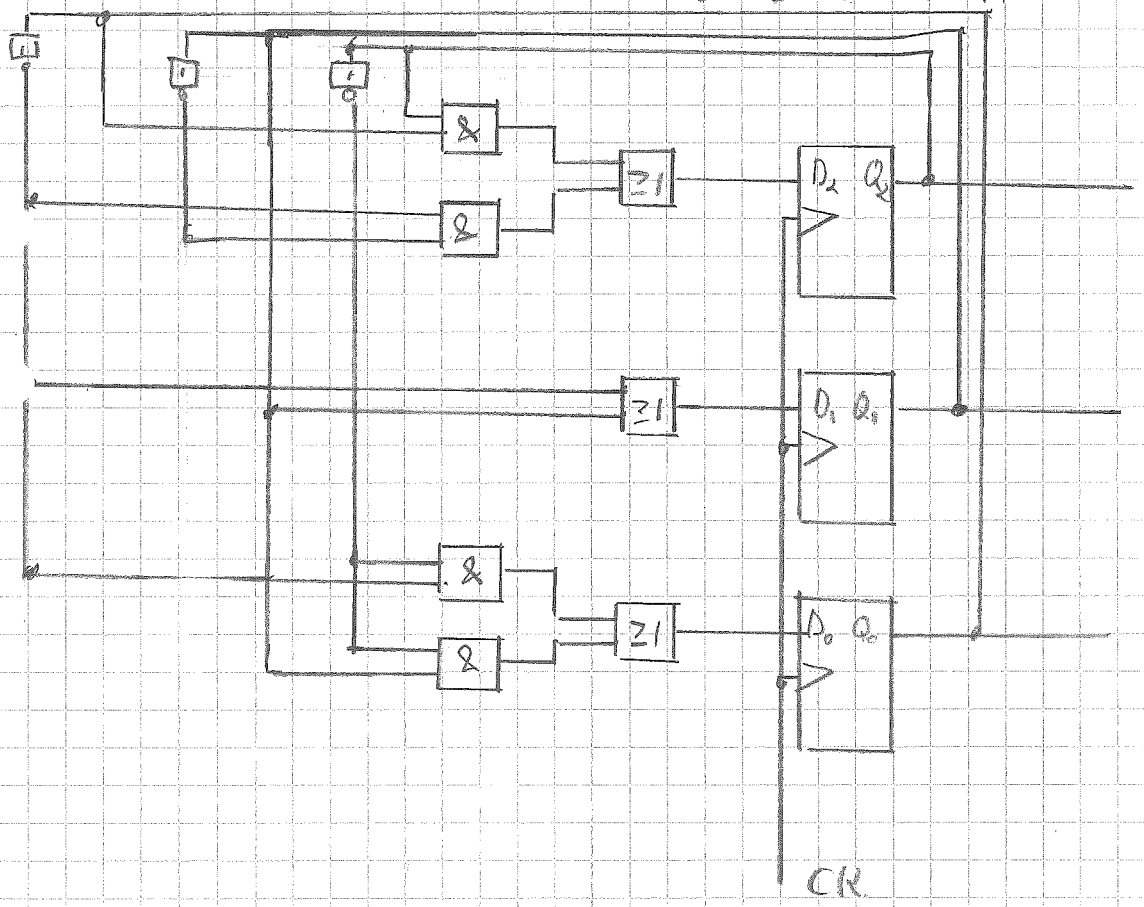
$q_2\ q_1\ q_0$	$q_2^+\ q_1^+\ q_0^+$
0 0 0	1 1 1
0 0 1	0 0 0
0 1 0	0 1 1
0 1 1	0 0 1
1 0 0	– – –
1 0 1	– – –
1 1 0	0 1 0
1 1 1	1 1 0



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

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

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



V 7 15/2 e.m Anders upptagen

17/2 — " ————

1:a C-lab avbrott. Up 3

2:a — " — trafikdom

100 000 000 0000 = $\frac{1 \cdot 10^{4}}{1 \cdot 10^{0}}$