

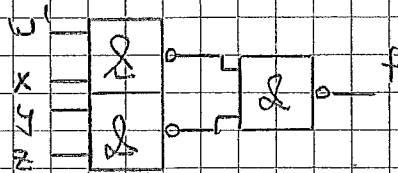
- DL. D1.1 b) NOR
 D1.2 a) $(x+y) \cdot (x+z)$
 D1.3 b) $y \cdot z$
 D1.4 b) $-16 \leq R \leq 15$
 D1.5 b) 89

D1.6

| | | | |
|---|-------------|----|----|
| | | yz | |
| | 00 01 11 10 | 00 | 10 |
| w | 00 | 1 | 1 |
| x | 01 | 1 | 1 |
| y | 11 | 1 | 1 |
| z | 10 | 1 | 1 |

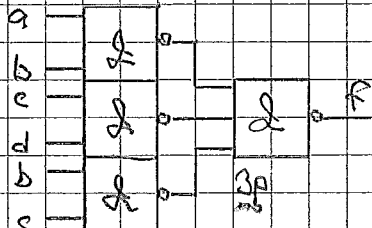
$f = w \cdot x + y \cdot z$

$f = [(w \cdot x) \cdot (y \cdot z)]'$



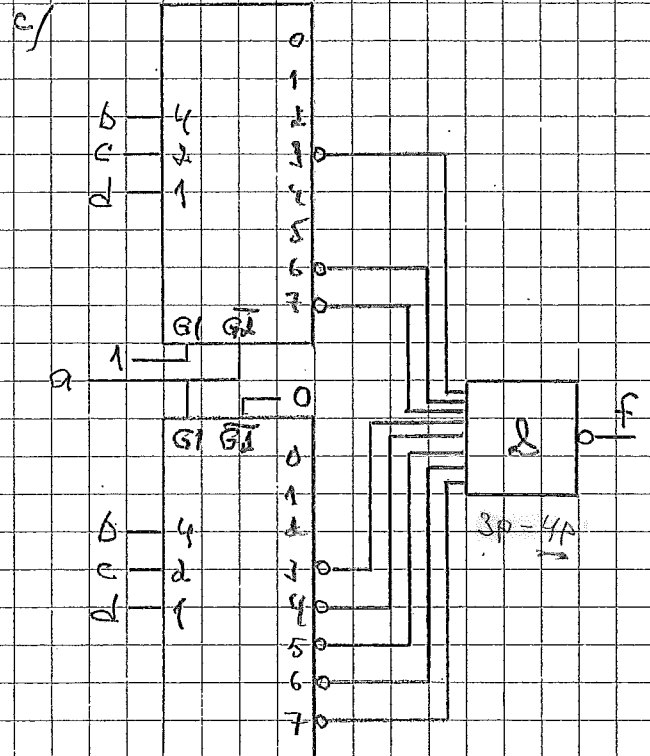
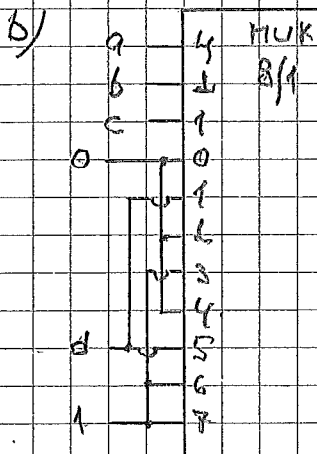
DL. 9)

| | | | |
|---|-------------|----|----|
| | | cd | |
| | 00 01 11 10 | 00 | 10 |
| a | 00 | 0 | 0 |
| b | 01 | 0 | 1 |
| c | 11 | 1 | 1 |
| d | 10 | 0 | 0 |



$f = a \cdot b + c \cdot d + b \cdot c$

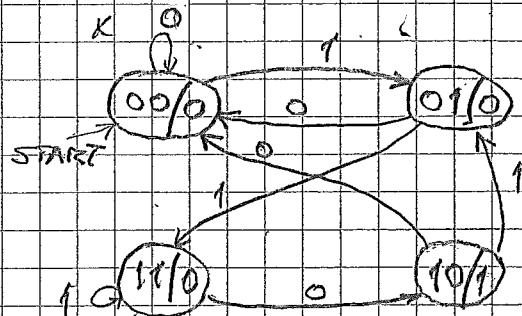
$f = [(a \cdot b)' \cdot (c \cdot d)' \cdot (b \cdot c)']'$

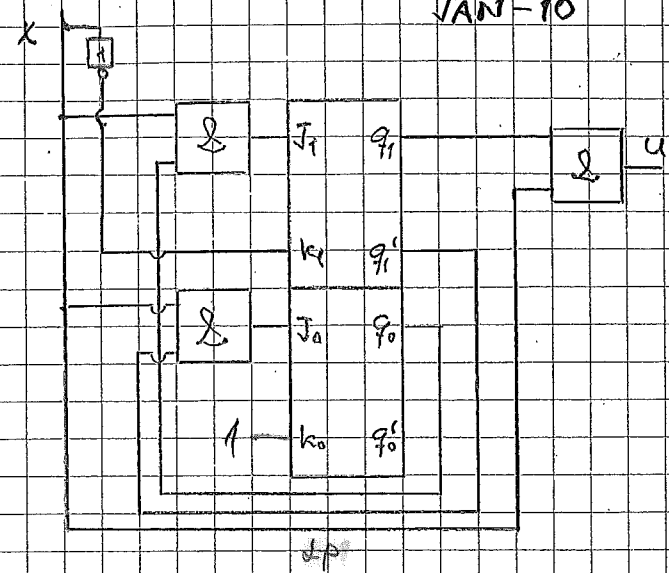
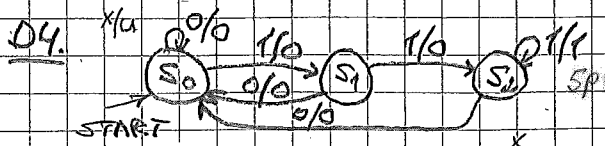


D3. $\{q_1^1 = [(q_1 \cdot q_2)' \cdot (q_1 \cdot x)]'\} = q_1 \cdot q_2 + q_1 \cdot x$
 $\{q_2^1 = x$

$u = [(q_1 \cdot q_2)'] = q_1' \cdot q_2'$

| | | | |
|-----------------|----|----|---|
| $q_1 \cdot q_2$ | 0 | 1 | u |
| 00 | 00 | 01 | 0 |
| 01 | 00 | 11 | 0 |
| 10 | 00 | 01 | 1 |
| 11 | 10 | 11 | 0 |

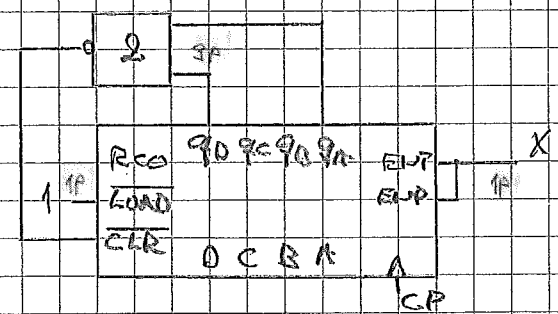




| | | | | | |
|---------------|----|-------------------|---------|---------|---------|
| | X | | q_1^k | q_2^k | q_3^k |
| $q_1^k q_2^k$ | 0 | 1 | 00 | 00 | 00 |
| S_0 | 00 | 00/0 | 01/0 | 01 | 01 |
| S_1 | 01 | 00/0 | 10/0 | 11 | 11 |
| - | 11 | -/1 | -/1 | 10 | 01 |
| S_2 | 10 | 00/0 | 10/1 | q_1^k | J_1 |
| | | $q_1^k q_2^k / U$ | 00 | 01 | 01 |
| X | 0 | 1 | 01 | 00 | - |
| $q_1^k q_2^k$ | 00 | 00 | 11 | - | - |
| 00 | 00 | 00 | 10 | 00 | 00 |
| 01 | 00 | 00 | 10 | 00 | 00 |
| 11 | 00 | 00 | 10 | 00 | 00 |
| 10 | 00 | 00 | 10 | 00 | 00 |
| U | | | q_1^k | J_1 | K_1 |
| $U = q_1^k X$ | | | | | |

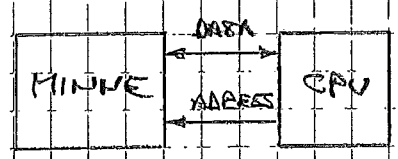
$$\begin{cases} J_1 = q_2^k X \\ K_1 = X^k \end{cases} \quad \begin{cases} J_2 = q_1^k X \\ K_2 = 1 \end{cases}$$

D5.



- M6. 1-F 2-G 3-D 4-k 5-A 6-N 7-L 8-C 9-E 10-B

M7 VON NEUMANN:
 DATA & PROGRAM DELAR
 SAMMA BUS
 GEMENSAMT MINNE
 FÖR BÅDE PROGRAM
 DATA

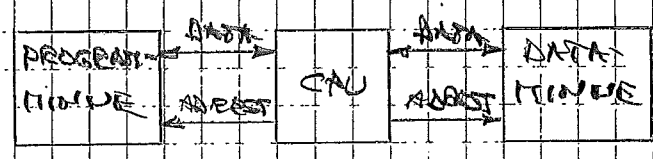


FÖRDEL: BÅDE EN MINNES-
 ÖRYMD

NACKDEL: GÅR ATT HÄMTA
 HÄMTA INSTR.
 & DATA PARALLELT

EX. EN VANLIG PC

HAARVARD:
 SEPARAT DATABUS & SEPARAT
 INSTRUCTION/PROGRAM BUS
 ⇒ SNABBARE EXECUTING
 SEPARATA MINNE FÖR DATA
 OCH PROGRAM



FÖRDEL: GÅR ATT HÄMTA BÅDA
 INSTR. & ÖFRANDRA
 SAMTIDIGT

EX. DIGITALA SIGNALAROC. CASI
 ENLIGT INVESTERINGSKEM

