

Problema 1:

Diagrama

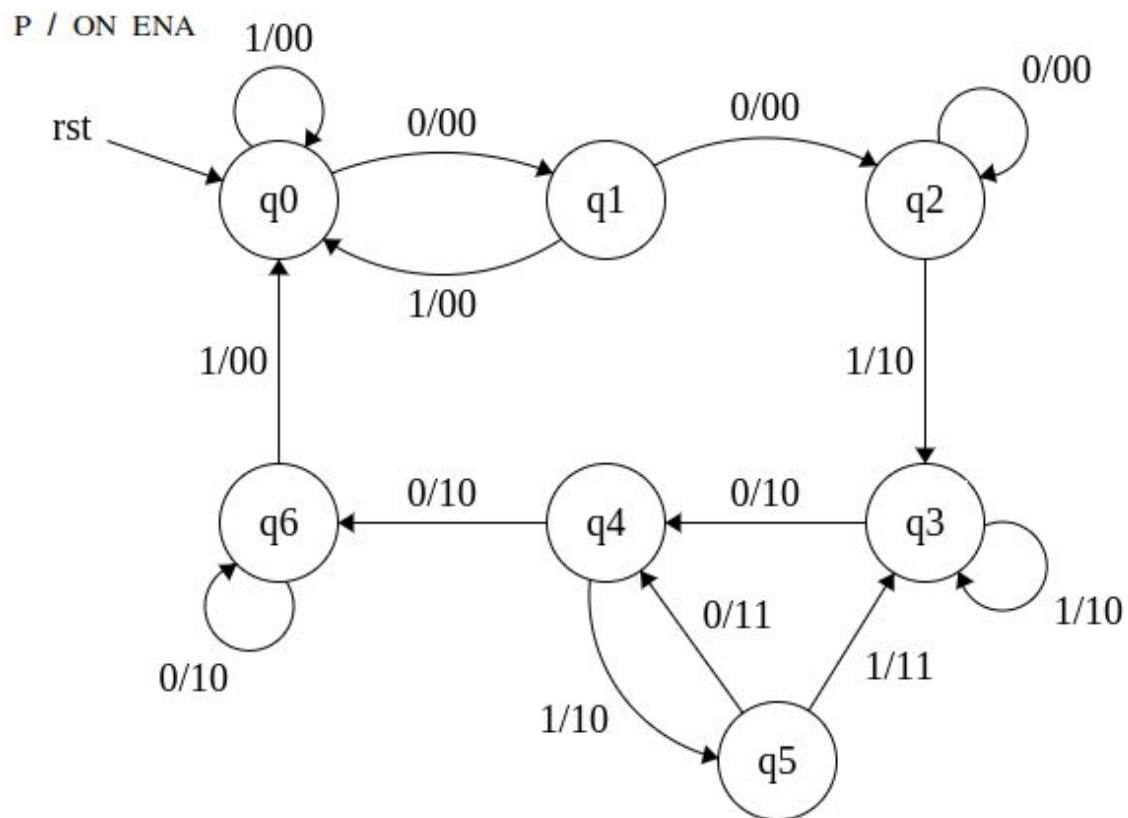


Tabla de Estados

| | qt+1 | | ON - ENA | |
|--------|------|----|----------|----|
| qt \ P | 0 | 1 | 0 | 1 |
| q0 | q1 | q0 | 00 | 00 |
| q1 | q2 | q0 | 00 | 00 |
| q2 | q2 | q3 | 00 | 10 |
| q3 | q4 | q3 | 10 | 10 |
| q4 | q6 | q5 | 10 | 10 |
| q5 | q4 | q3 | 11 | 11 |
| q6 | q6 | q0 | 10 | 00 |

Minimización

| | | | | | | |
|----|----------------|----|----|------------------------|----|----|
| q1 | 1-2 | | | | | |
| q2 | X | X | | | | |
| q3 | X | X | X | | | |
| q4 | X | X | X | 4-6 3-5 | | |
| q5 | X | X | X | X | X | |
| q6 | X | X | X | X | X | X |
| | q0 | q1 | q2 | q3 | q4 | q5 |

Es mínimo.

Codificación de estados

| | | | | | |
|----|--------|-----|-----|----|----|
| | y2y1y0 | 0 | 1 | 0 | 1 |
| q0 | 000 | 001 | 000 | 00 | 00 |
| q1 | 001 | 010 | 000 | 00 | 00 |
| q2 | 010 | 010 | 011 | 00 | 10 |
| q3 | 011 | 100 | 011 | 10 | 10 |
| q4 | 100 | 110 | 101 | 10 | 10 |
| q5 | 101 | 100 | 011 | 11 | 11 |
| q6 | 110 | 110 | 000 | 10 | 00 |

Elijo FF tipo D

Mapas K

D2

| $y_2 y_1 \backslash y_0 P$ | 00 | 01 | 11 | 10 |
|----------------------------|----|----|----|----|
| 00 | 0 | 0 | 0 | 0 |
| 01 | 0 | 0 | 0 | 1 |
| 11 | 1 | 0 | X | X |
| 10 | 1 | 1 | 0 | 1 |

$$D2 = y_2 \cdot \bar{P} + y_2 \bar{y}_1 \bar{y}_0 + y_1 y_0 \bar{P}$$

| $y_2 y_1 \backslash y_0 P$ | 00 | 01 | 11 | 10 |
|----------------------------|----|----|----|----|
| 00 | 0 | 0 | 0 | 1 |
| 01 | 1 | 1 | 1 | 0 |
| 11 | 1 | 0 | X | X |
| 10 | 1 | 0 | 1 | 0 |

$$D1 = \bar{y}_2 \bar{y}_1 y_0 \bar{P} + y_2 y_0 P + \bar{y}_2 y_1 P + y_1 \bar{y}_0 \bar{P} + y_2 \bar{y}_0 \bar{P}$$

D0

| $y_2 y_1 \backslash y_0 P$ | 00 | 01 | 11 | 10 |
|----------------------------|----|----|----|----|
| 00 | 1 | 0 | 0 | 0 |
| 01 | 0 | 1 | 1 | 0 |
| 11 | 0 | 0 | X | X |
| 10 | 0 | 1 | 1 | 0 |

$$D0 = \bar{y}_2 \bar{y}_1 \bar{y}_0 \bar{P} + \bar{y}_2 y_1 P + y_2 \bar{y}_1 P$$

ON

| $y_2 y_1 \backslash y_0 P$ | 00 | 01 | 11 | 10 |
|----------------------------|----|----|----|----|
| 00 | 0 | 0 | 0 | 0 |
| 01 | 0 | 1 | 1 | 1 |
| 11 | 1 | 0 | X | X |
| 10 | 1 | 1 | 1 | 1 |

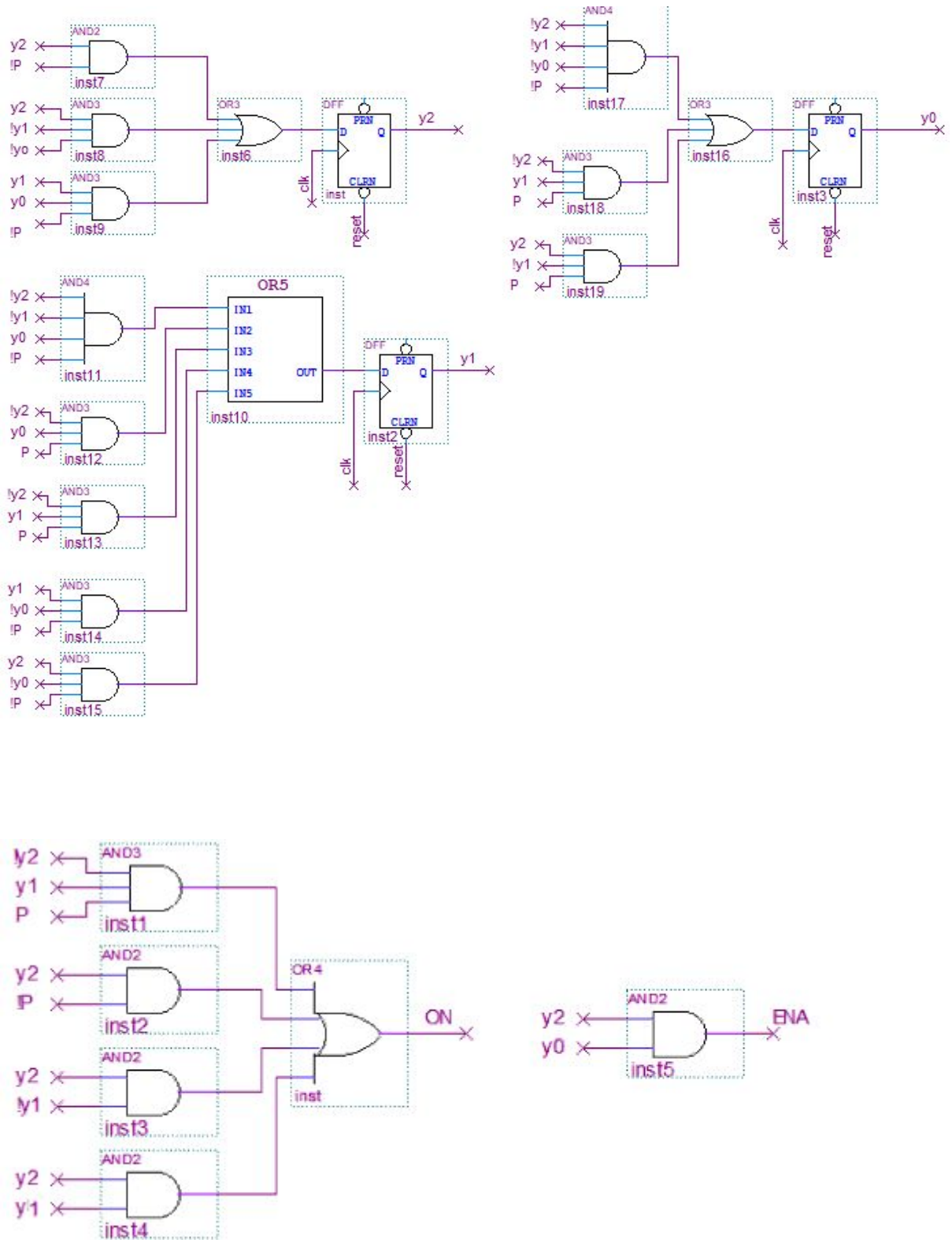
$$ON = \bar{y}_2 y_1 P + y_2 \bar{P} + y_2 \bar{y}_1 + y_1 y_0$$

ENA

| $y_2 y_1 \backslash y_0 P$ | 00 | 01 | 11 | 10 |
|----------------------------|----|----|----|----|
| 00 | 0 | 0 | 0 | 0 |
| 01 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | X | X |
| 10 | 0 | 0 | 1 | 1 |

$$ENA = y_2 y_0$$

Circuito



Problema 2:

Module: Examen Diciembre 2020

INPUT: serie, data[8]

OUTPUT: dir[5], cas[5], abrir, alarma

MEMORY: cont[4], mem[13], alarma_mem

0. alarma_mem \leftarrow 0
1. cont[4] \leftarrow 0
alarma = alarma_mem
 \rightarrow (serie, !serie) / (1,2)
2. cont[4] \leftarrow INC(cont[4])
alarma = alarma_mem
mem[12..0] \leftarrow serie, mem[12..1]
 \rightarrow (!(cont[4] = 12), (cont[4] = 12)) / (2,3)
3. dir[4..0]=mem[4..0]
abrir = valido
alarma_mem \leftarrow !alarma_mem.!valido + alarma_mem.!escape
alarma = !alarma_mem.!valido + alarma_mem.!escape
cas [4..0] = Mem[4..0]
cont[4] \leftarrow 0
 \rightarrow (serie, !serie) / (1,2)

END SEQUENCE

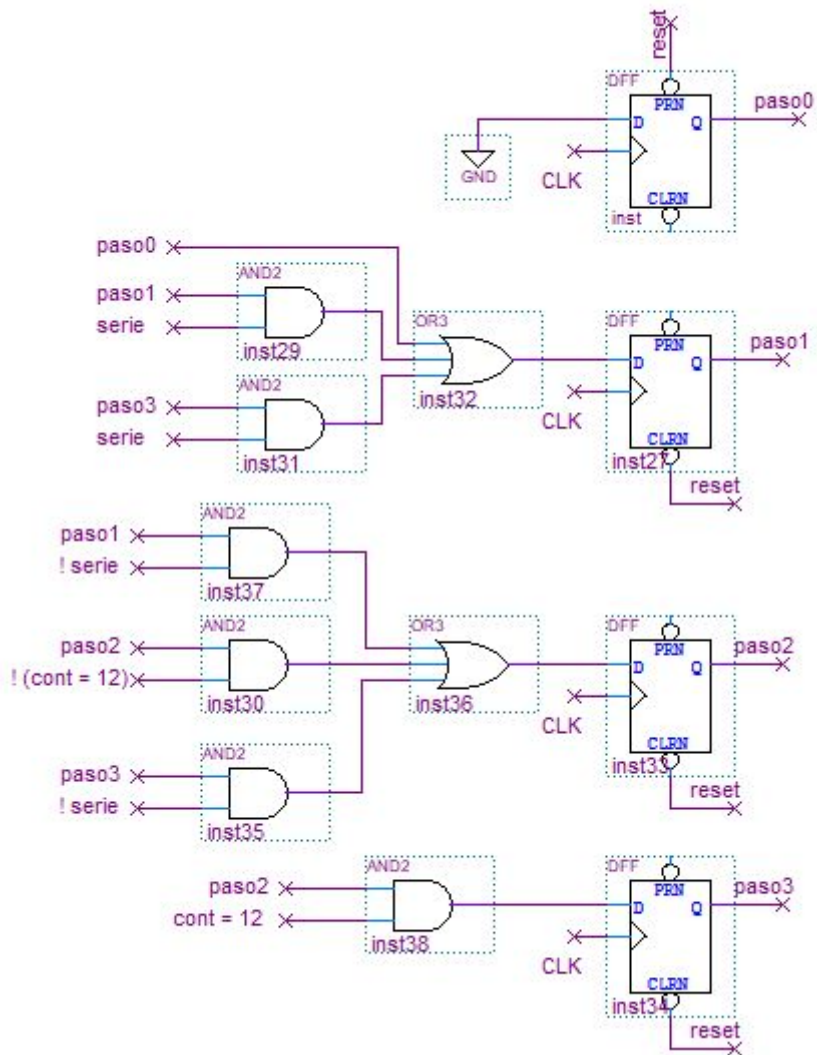
CONTROL RESET(0)

valido = comp(data[8],mem[12..5])

Escape = comp(0xFF,,mem[12..5])

END

Bloque de control



Bloque de datos

