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(-)

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

a)

$$F = a'b'c' + a'bc' + ab'c + abc$$

$$\sum(0,2,5,7) \quad \text{minterms}$$

b)

3×5 decoder

enable bit

or gate

Yuns Force Future
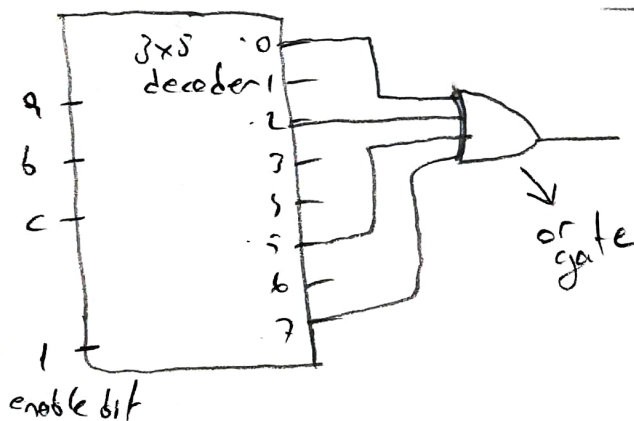
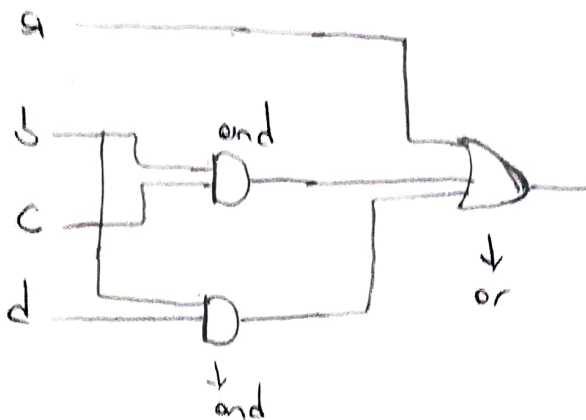| ab\cd	00	01	11	10
00	0	0	0	0
01	0	1	1	1
11	*	*	×	×
10	1	1	×	×

$bd + bc$

$\rightarrow a$

$$y = a + bd + bc$$

$$a + b(d + c)$$
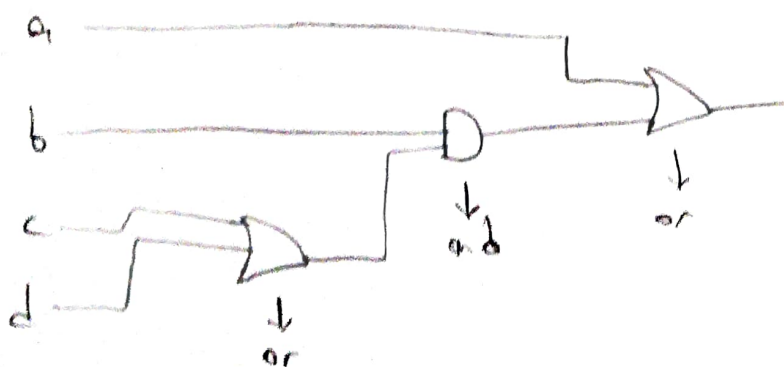
b)

number of transistor $= 7 * 2 = 14$

c) $a + b(d + c)$

number of transistors $= 6 * 2 = 12$

Gate delay
previous : 2
new = 2

3-)

K-map with AB rows / CD columns:

AB \ CD	00	01	11	10
00	0	1	3	2
01	4 1	5 1	7 1	6 1
11	12 1	13	15 1	14
10	8	9	11	10 1

$$A'B + BC'D' + ACD$$

$$+ d(A,B,C,D) \Rightarrow$$

0011   1001   1101

$$\sum(0,3,9,13)$$

$$A'B'C'D' + A'B'CD + AB'C'D + ABC'D$$
0000   0011   1001   1101

AB \ CD	00	01	11	10
00	1		1	
01				
11		1		
10		1		

$\Downarrow$

$$A'B'C'D' + AC'D + A'B'CD$$
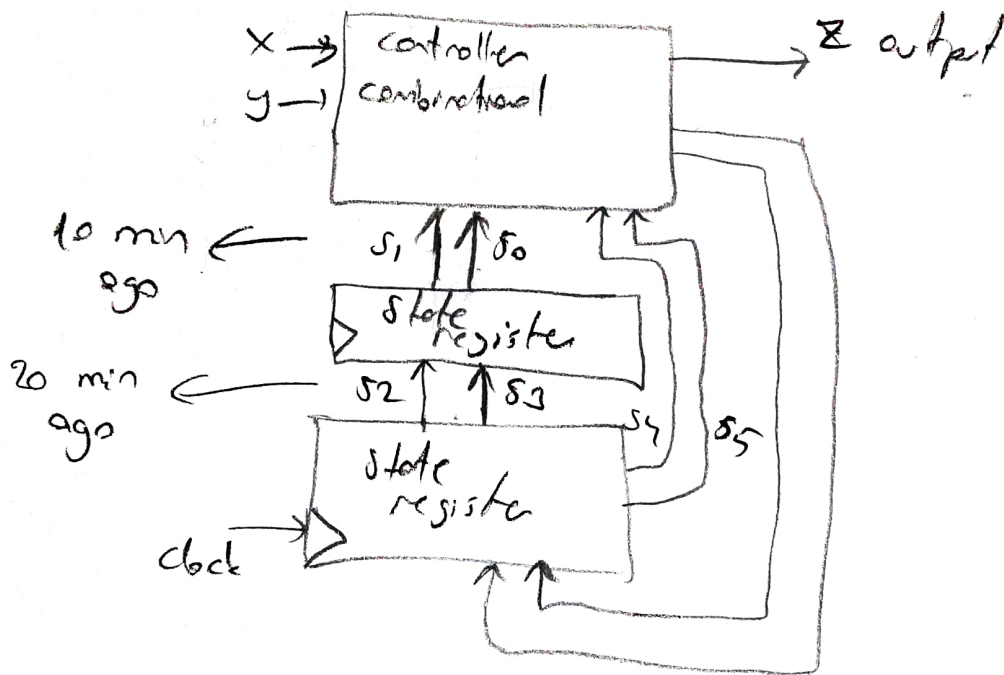
Yours truly future

4.) clock = 10 min

before 20 min
if current = x, y => $z = x$
else $z = y$

x and y is present values coming from fsm
S_1 and S_0 is 10 min before values
S_4 and S_5 are 20 min before values
in controller x and S_0, y and S_1 will be compared
if they are equal z will be 20 min ago x
⌣
this info will come
from S_4 and S_5