

LAB 2

Pre-Lab

ones and zeros. The first couple of entries are done for your convenience

LIGHTS		CLOCK INPUT BITS			LIGHT 1			LIGHT 2		
1	2	C2	C1	C0	G	Y	R	G	Y	R
R	R	0	0	0	0	0	1	0	0	1
G	R	0	0	1	1	0	0	0	0	1
G	R	0	1	0	1	0	0	0	0	1
Y	R	0	1	1	0	1	0	0	0	1
R	R	1	0	0	0	0	1	0	0	1
R	G	1	0	1	0	0	1	1	0	0
R	G	1	1	0	0	0	1	1	0	0
R	Y	1	1	1	0	0	1	0	1	0

LAB 2 & 3 Difference

a)

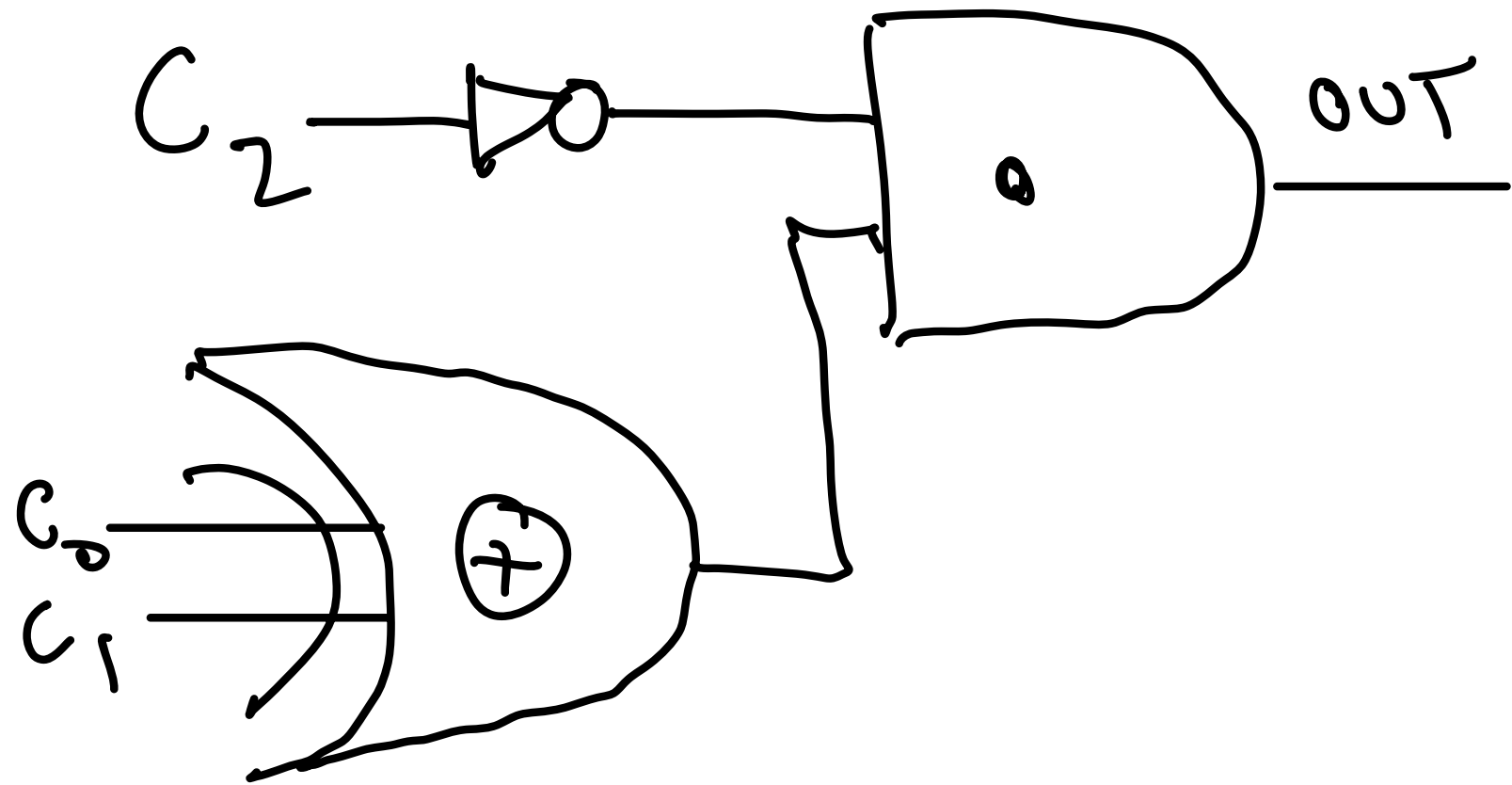
Light 1 Green

$C_2 \backslash C_1 C_0$	00	01	11	10
00	0	0		
01	1	$\bar{C}_2 \bar{C}_1 C_0$	0	
11	0		0	
10	1	$\bar{C}_2 C_1 \bar{C}_0$	0	

$$\text{SOP: } \bar{C}_2 \bar{C}_1 C_0 + \bar{C}_2 C_1 \bar{C}_0$$

$$= \bar{C}_2 (C_1 \oplus C_0)$$

Light 1, Green



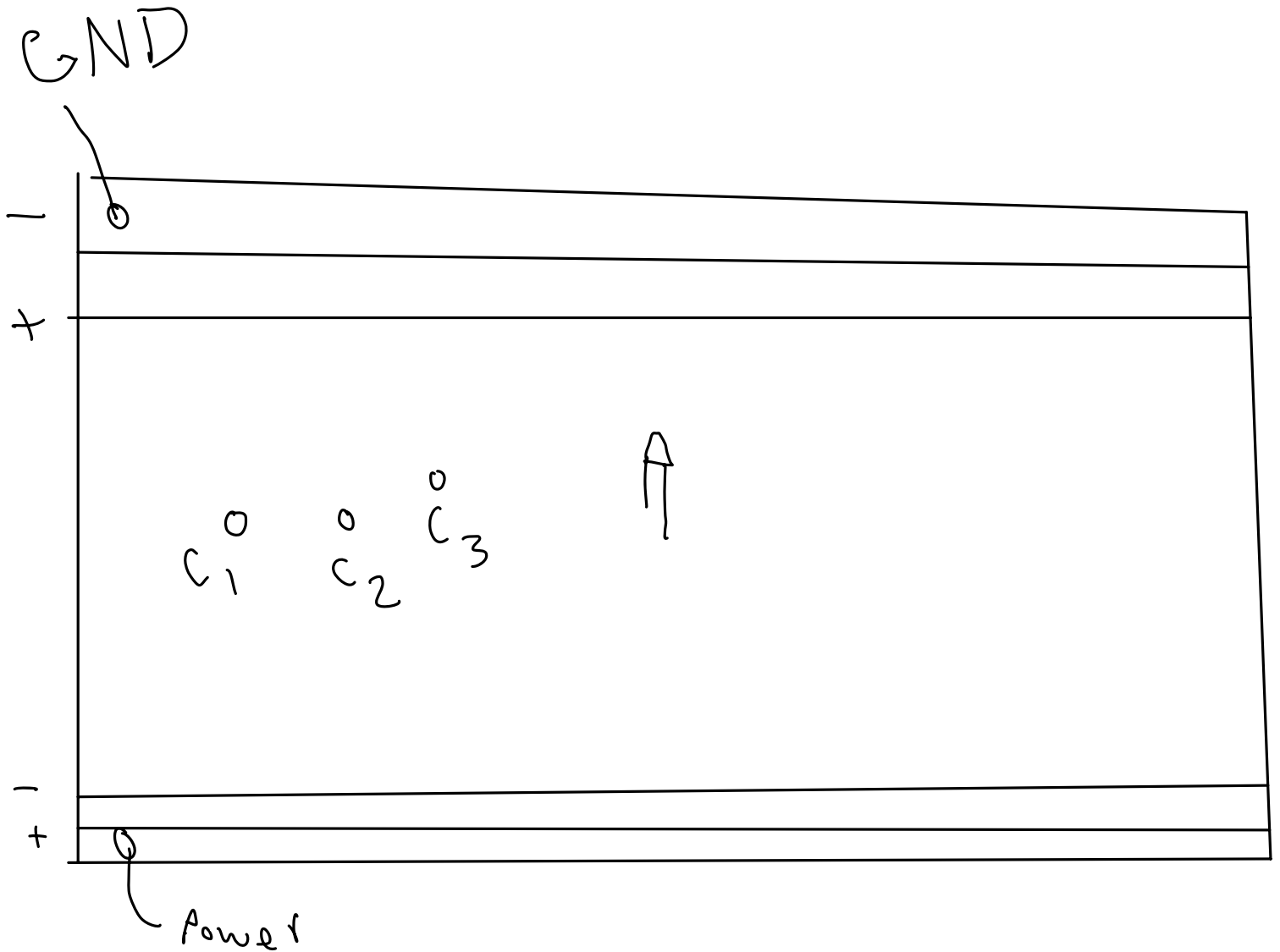
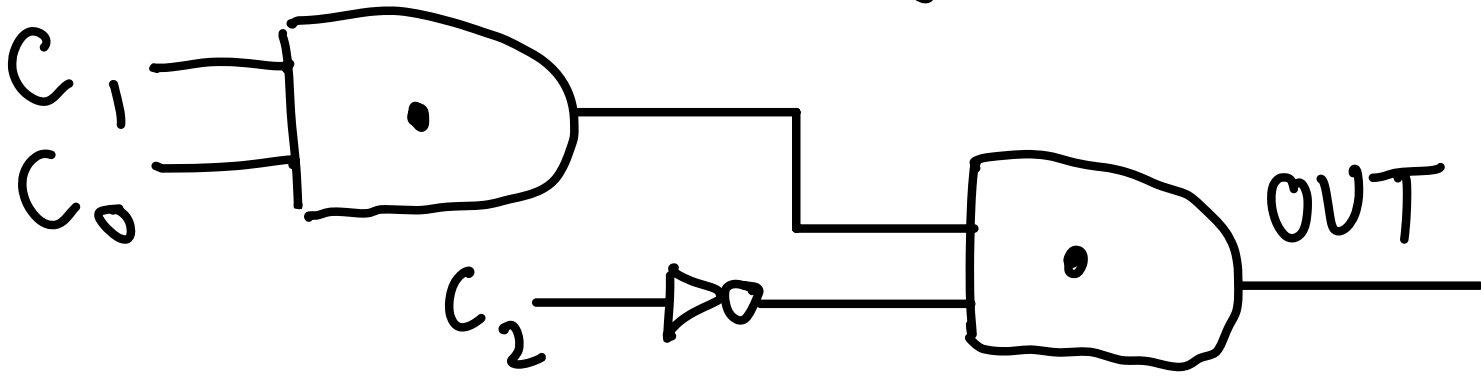
b) Light 1 Yellow

$C_1 \backslash C_2$	0	1
00	0	0
01	0	0
11	1	0
10	0	0

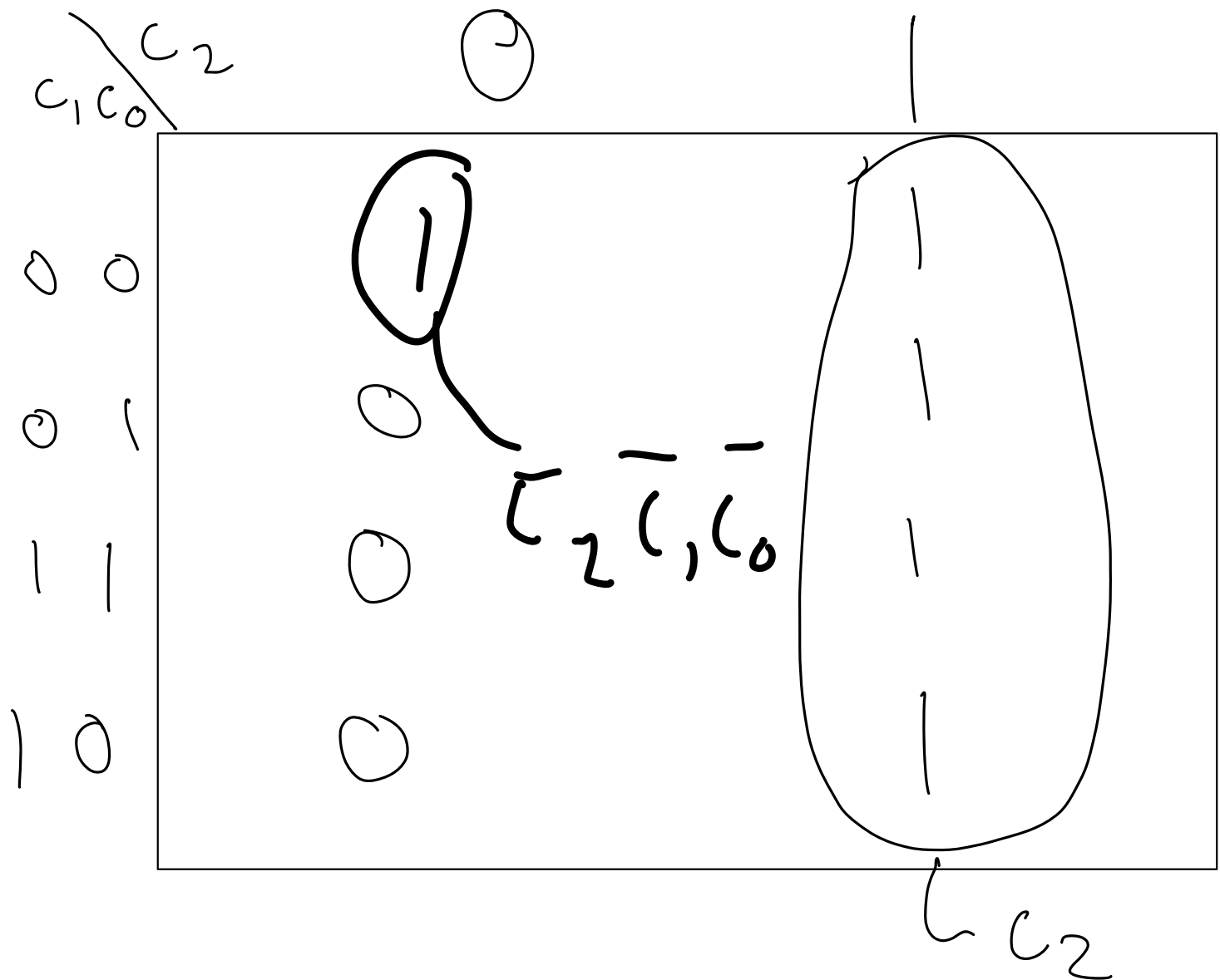
$\overline{C_2} C_1 C_0$

SOP: $\overline{C_2} C_1 C_0$

Light 1, Yellow



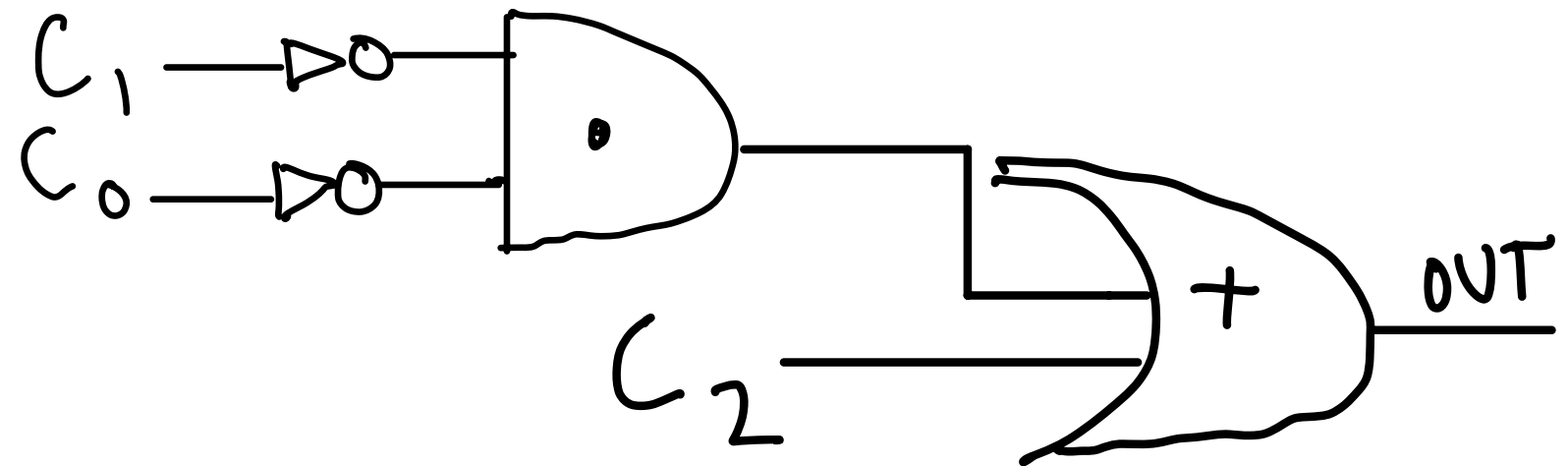
c) Light 1 Red 100 101 110 111



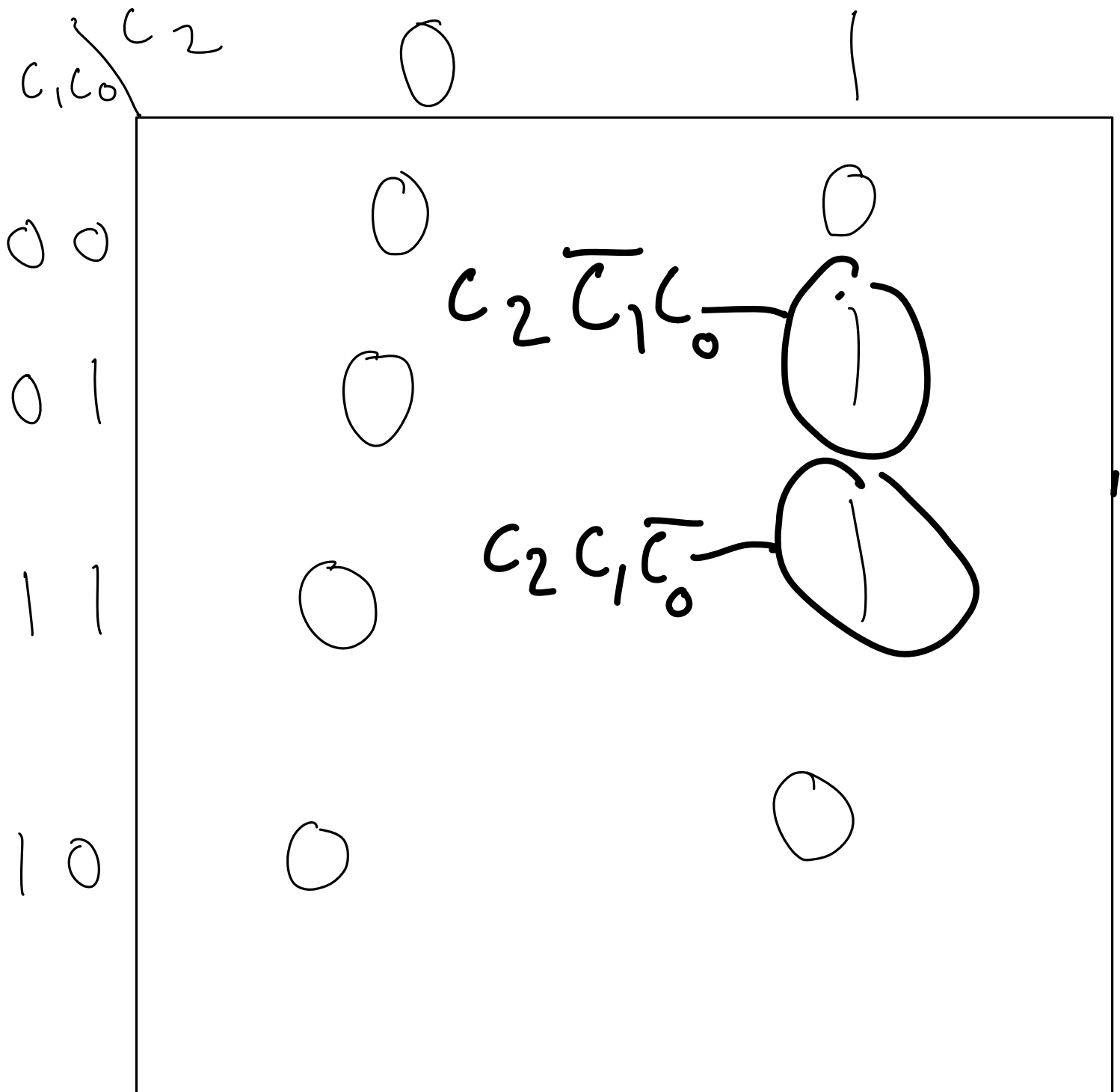
SOP: $c_2 + \bar{c}_2 \bar{c}_1 \bar{c}_0$

SOP: $c_2 + \bar{c}_1 \bar{c}_0$

Light 1, Red



d) Light 2 Green



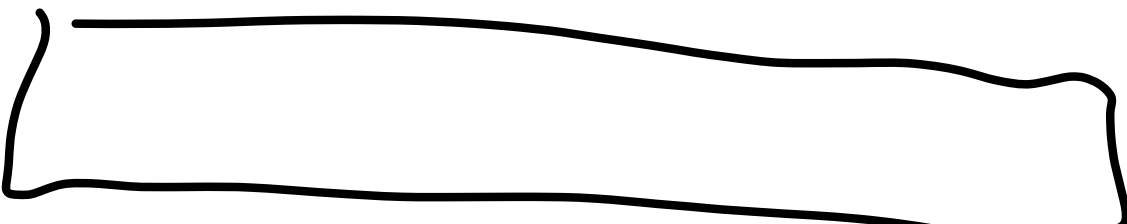
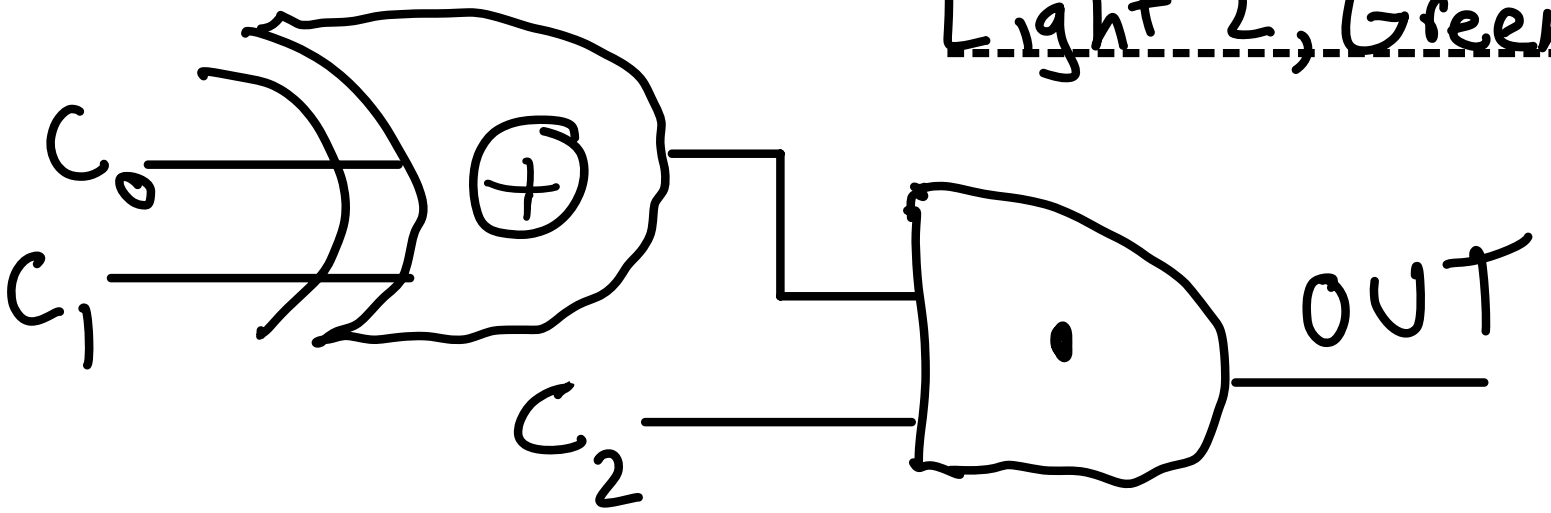
$$c_2 \bar{c}_1 c_0 + c_2 c_1 \bar{c}_0$$

$$c_2 (\bar{c}_1 c_0 + c_1 \bar{c}_0)$$

SOP:

$$c_2 (c_0 \oplus c_1)$$

Light 2, Green



c)

Light 2 Yellow

SoA

C_2

0

1

C_1, C_0

0 0

0

0

0 1

0

0

1 1

0

1

1 0

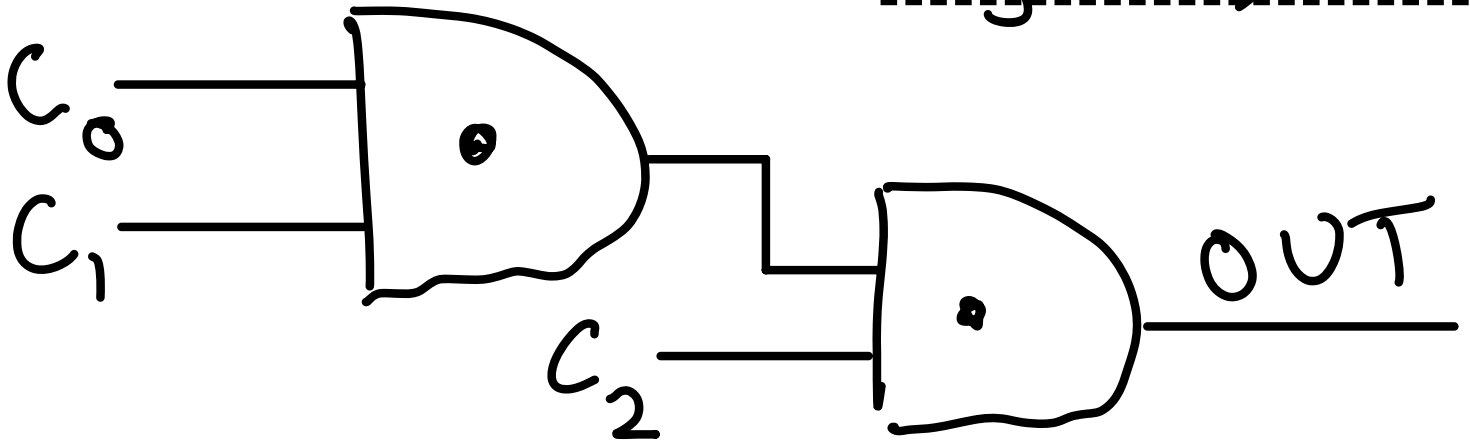
0

0

SoA

$C_0 + C_1 + C_2$

Light 2, Yellow



f) Light 2 Red

C_2	0	1
$C_1 C_0$		
0 0	1	1
0 1	1	0
1 1	1	0
1 0	1	0

$C_2 \bar{C}_1 \bar{C}_0$

\bar{C}_2

$\bar{C}_2 + C_2 \bar{C}_1 \bar{C}_0$

SOP: $\bar{C}_2 + \bar{C}_1 \bar{C}_0$

Light 2, Red

