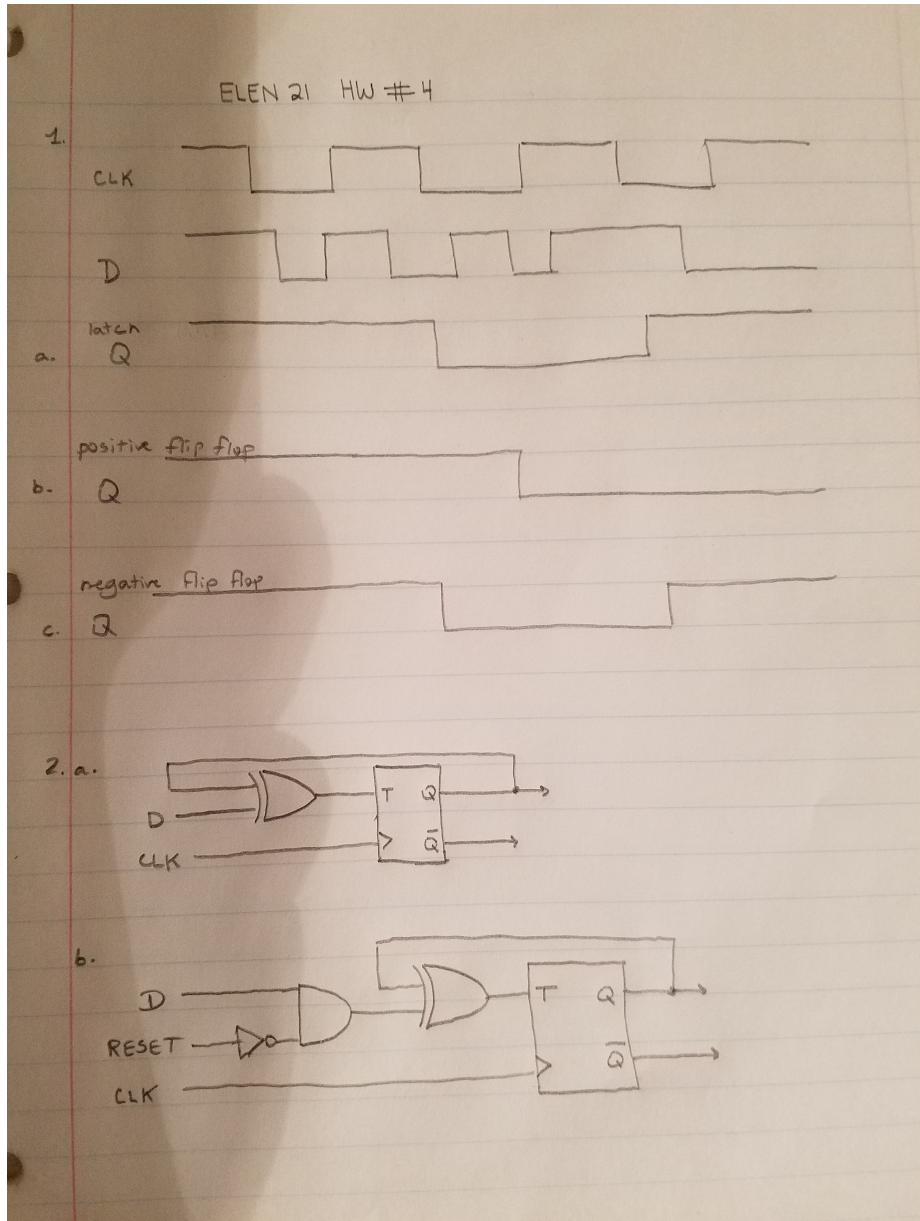


ELEN 21 HW #4

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Question #1 & #2:



Question #3:

- a. The signals are J, K, and Q
- b.

J	K	Q	T
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

Table 1: Truth table of Inputs J, K, and Q, and output function T

c.

	00	01	11	10
0	0 0	0 1	1 3	0 2
1	1 4	0 5	1 7	1 6

$$T = Q \cdot K + \bar{Q} \cdot J$$

Figure 1: K-map and SOP solution for T

d.

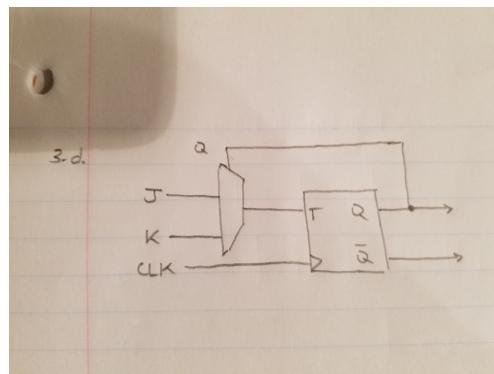


Figure 2: Circuit for the T flip-flop

Question #4:

a.

Select[1:0]	Bus
00	A
01	B
10	C
11	D

Table 2: Truth Table with a Bus Select and Bus output

b.

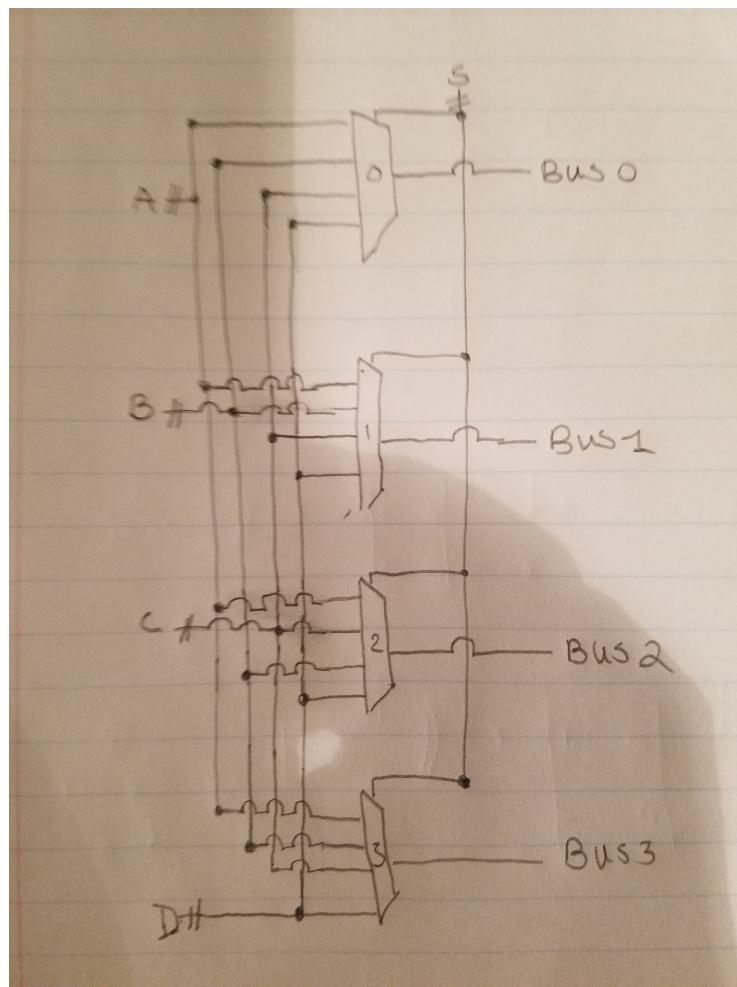


Figure 3: Circuit schematic for a 4-bit inputs A-D and output Busses