

pre-Lab

## Experiment No. 4 - Digital Circuits Implementation using Breadboard.

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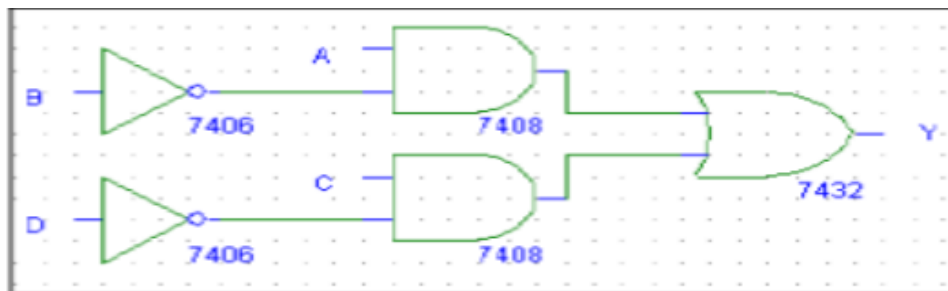
\* Date: 27/4/2023.

\* Section: 2.

- 1) Video watched and it was very bad. I searched for a video myself and I understood how breadboards work and I would recommend it. I hope you study this and replace the link. <https://youtu.be/6WReFkfrUIk>
- 2) I watched and understood the video successfully.
- 3) Design and implement the following circuit using the gates on the chips as shown in Figure 4.1(. Your final circuit must include the IC's, their pin numbers, and the connections between the pins.).

a) Build Full Adder using basic gates.

b) Build the bellow circuit using universal gates.



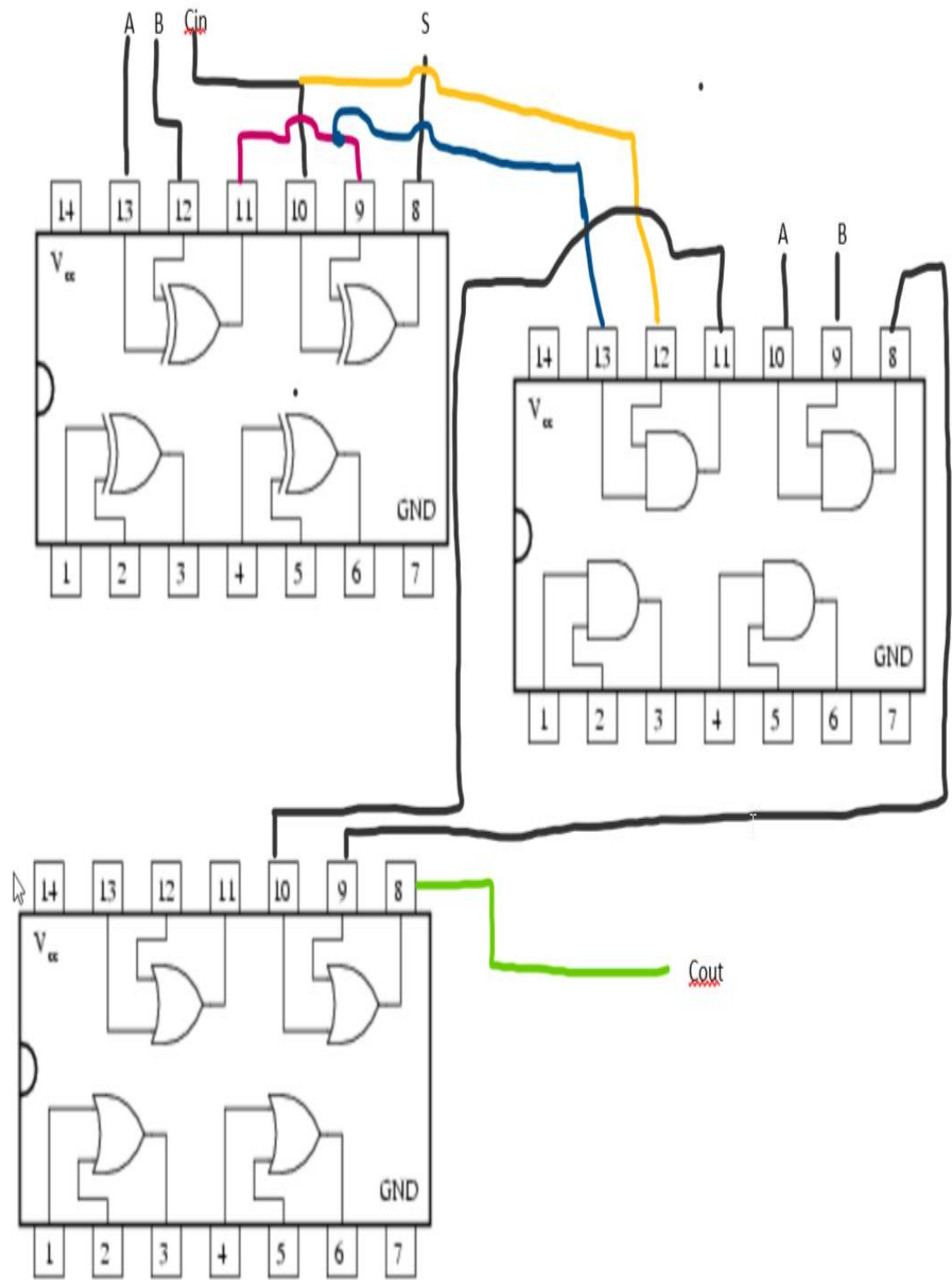
c) Build a 3x8 Decoder (active low) using basic gates.

d) Build an 8x1 Multiplexer using basic gates.

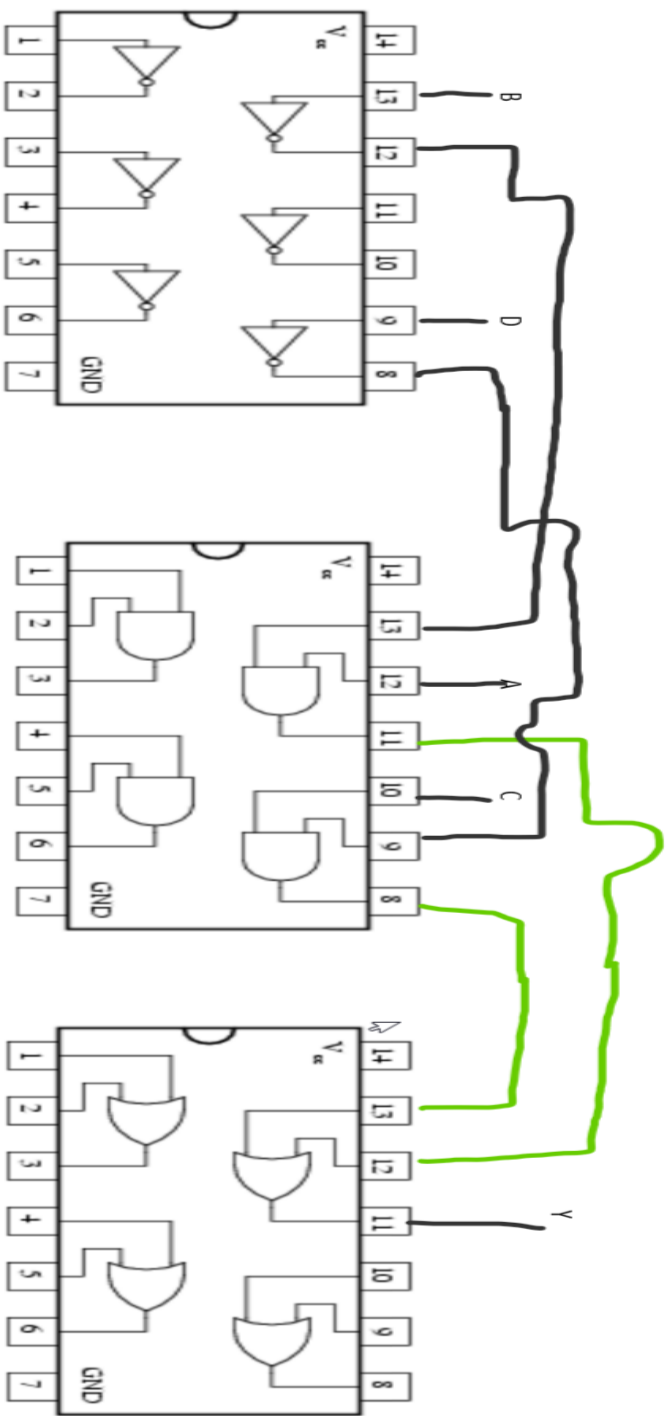
e) Use the just constructed 4x1 multiplexer to design a three inputs network that gives 1 if the majority of its inputs are 1 and outputs a zero otherwise.

f) Use the 2x4 decoder to implement a 2 inputs function that acts like an equivalence gate (XNOR): gives 1 on the output if both inputs are equal.

a)

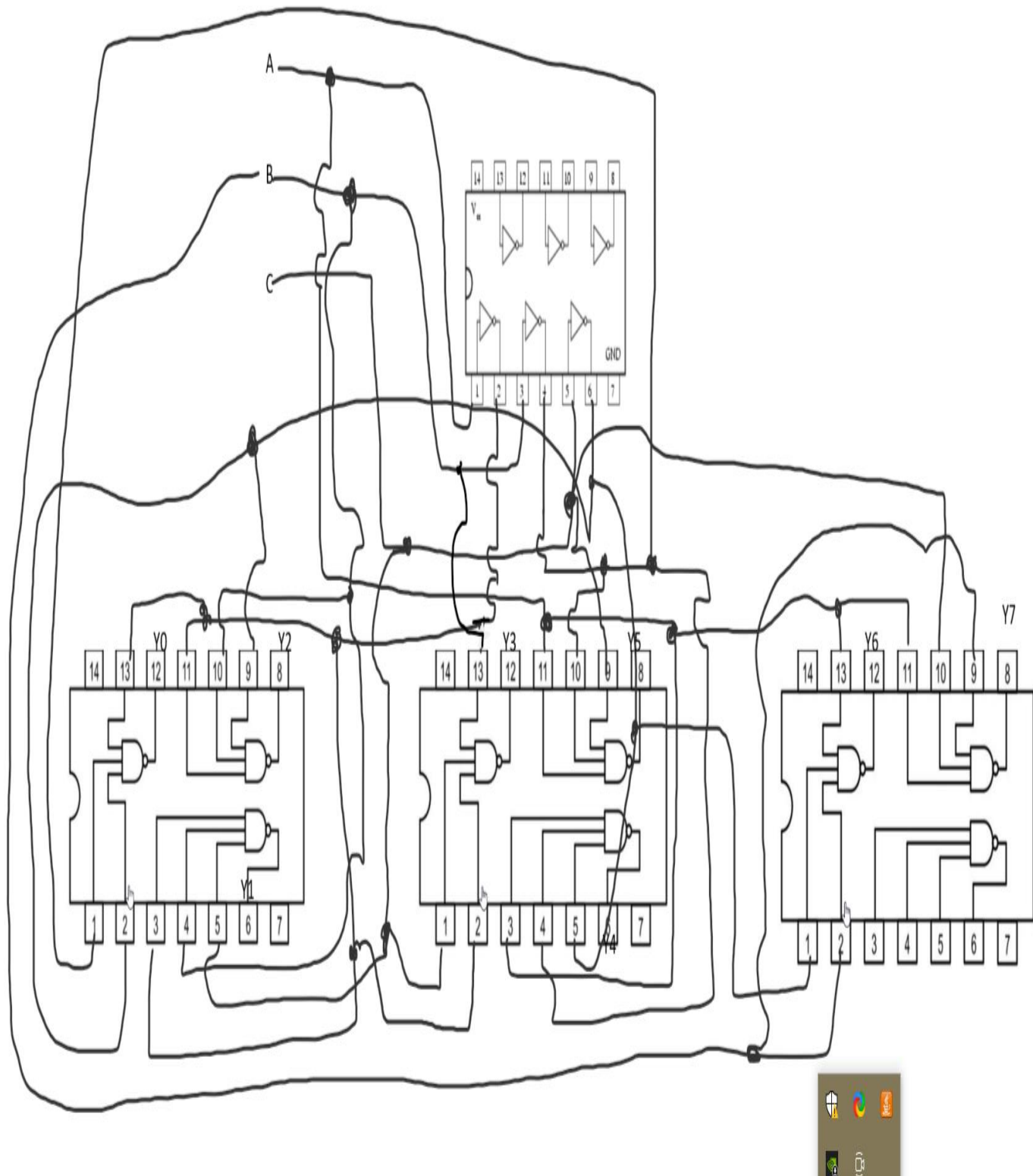




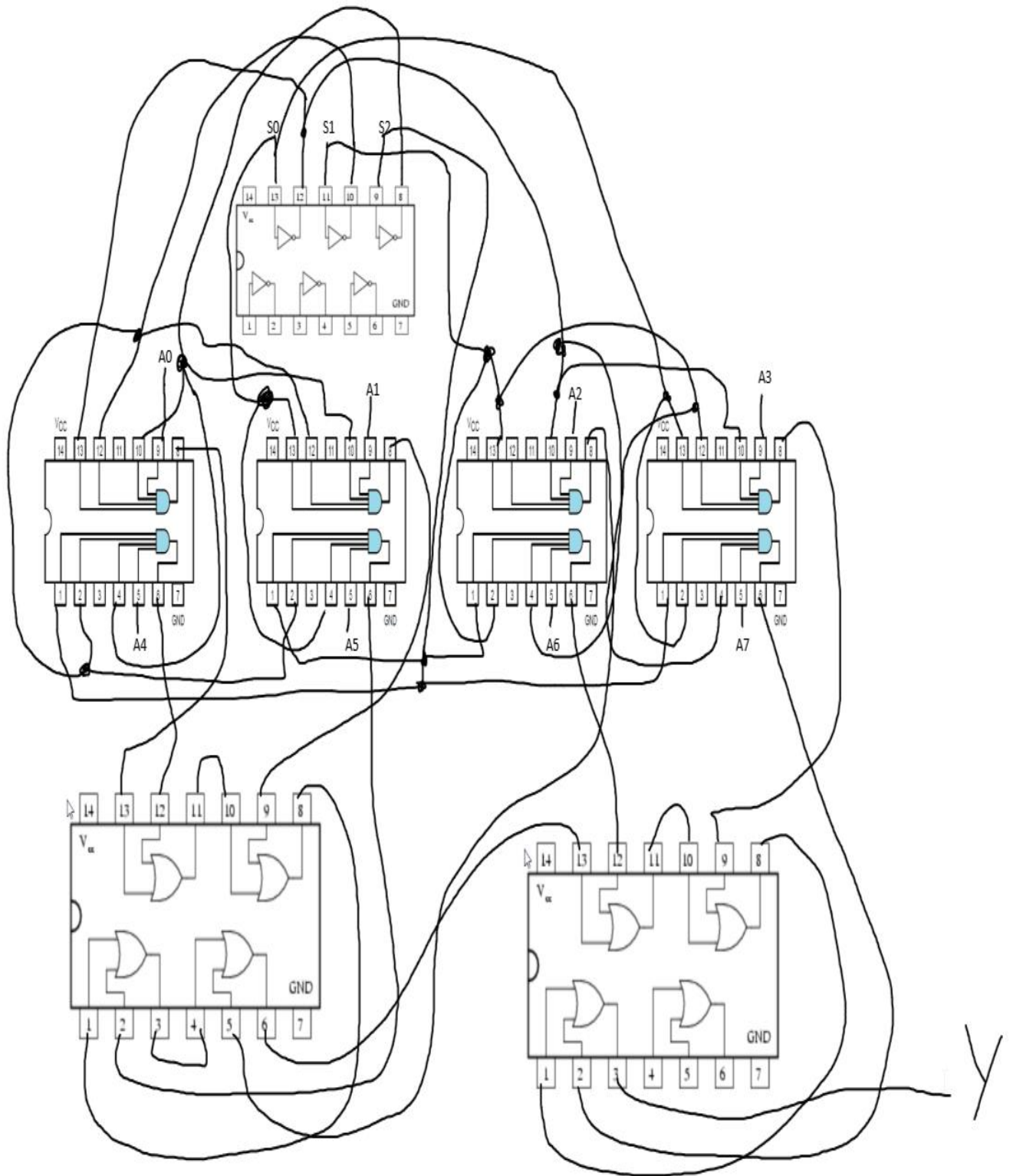


b)

c)



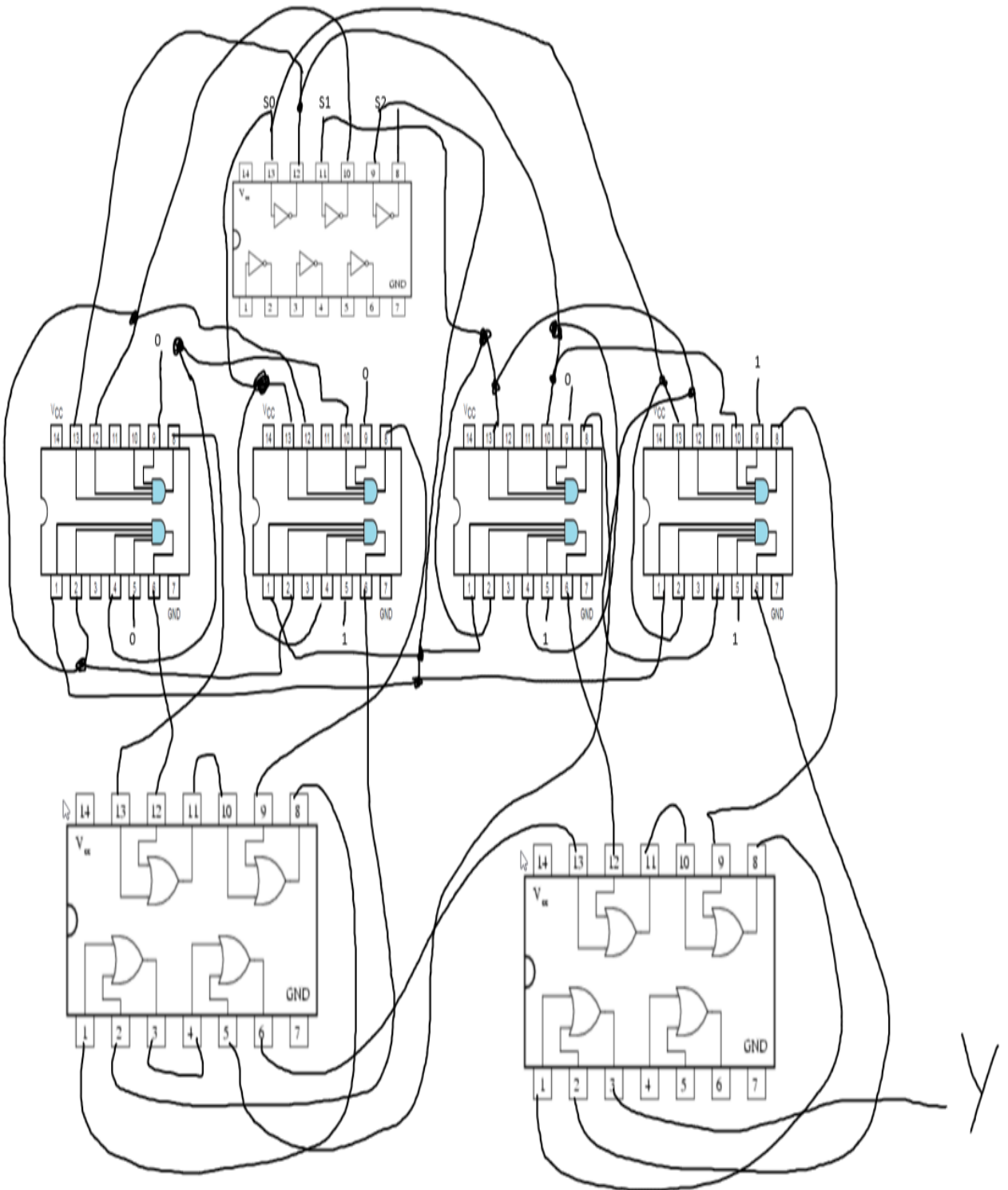
d)

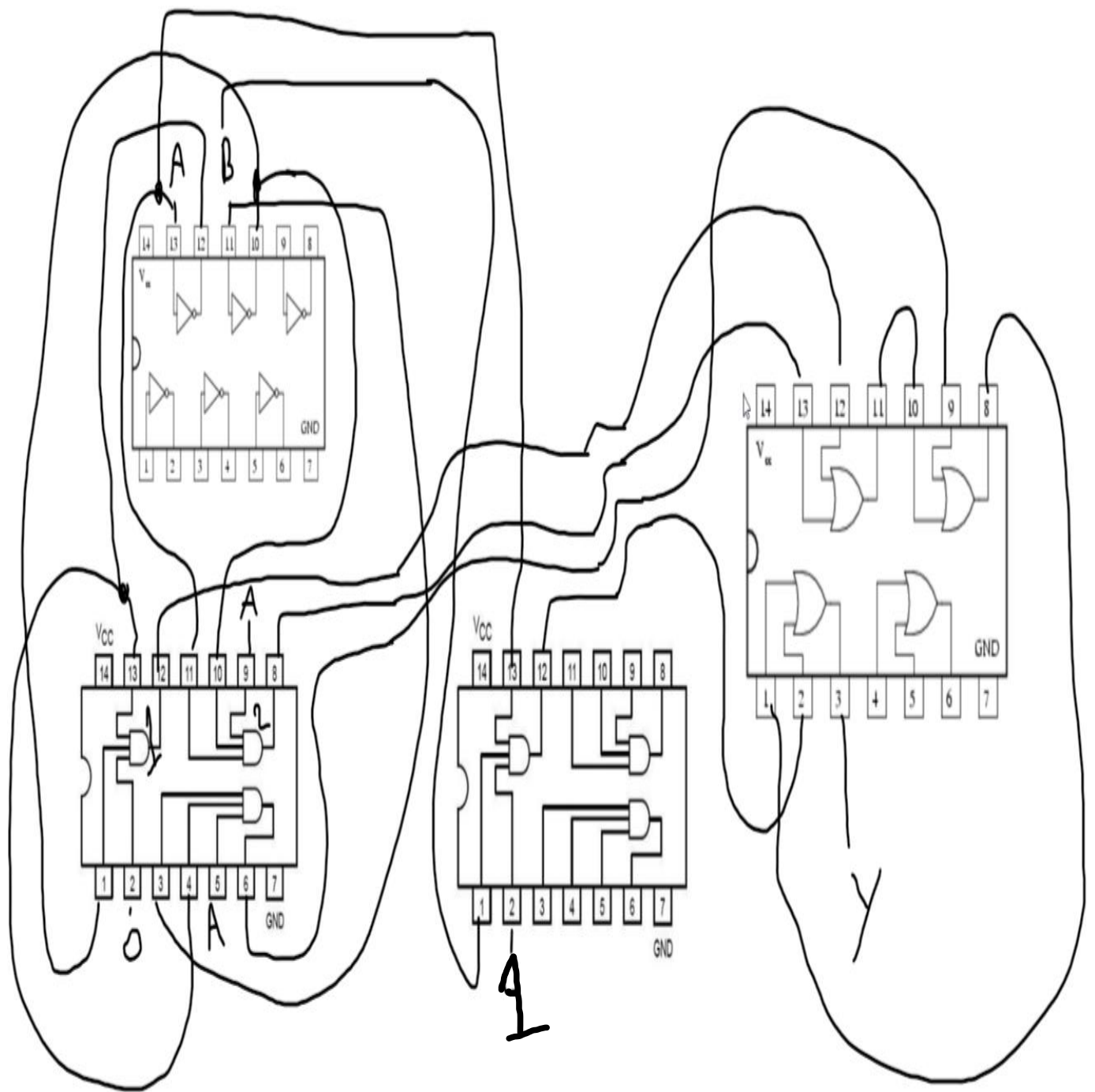


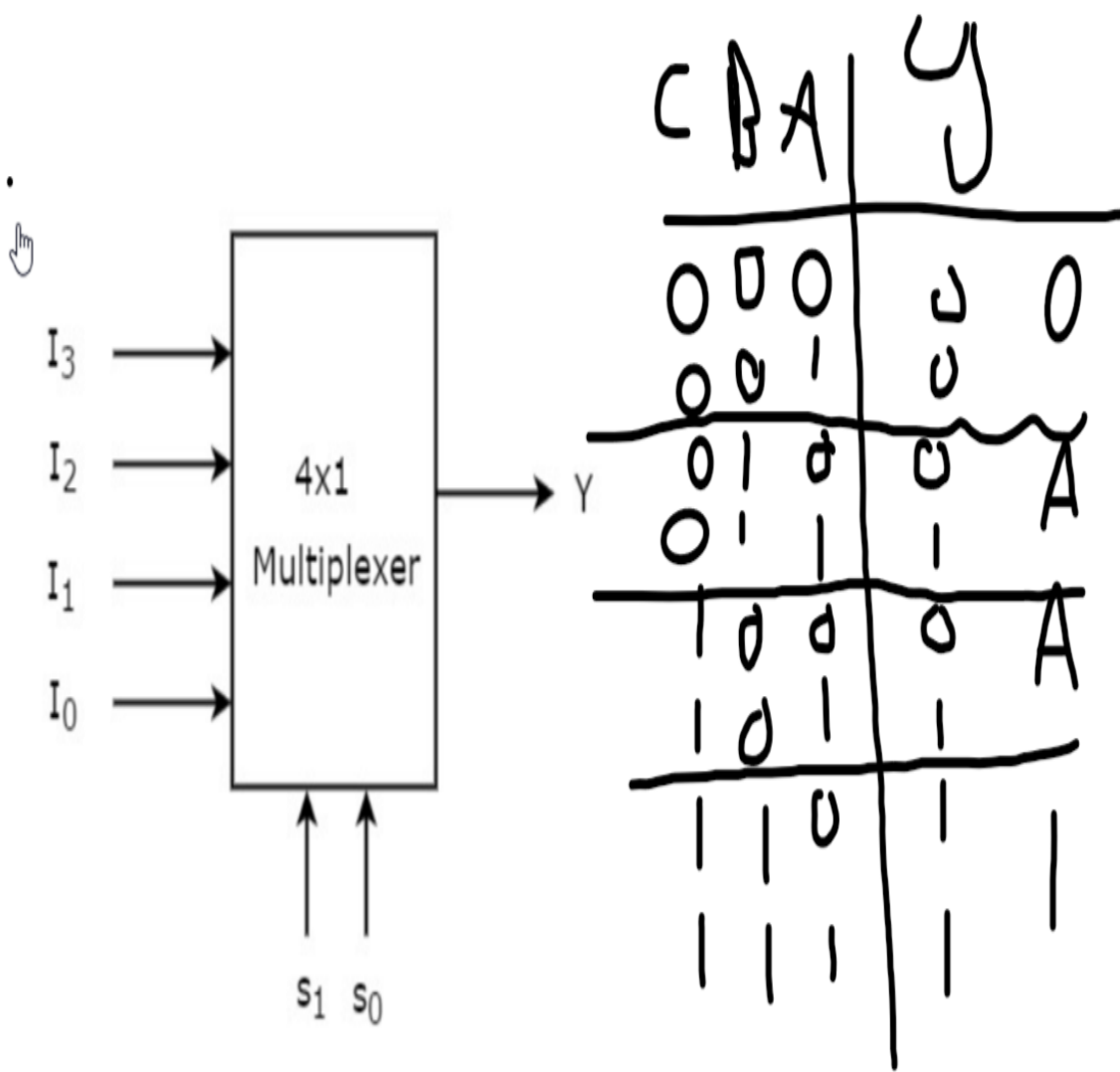




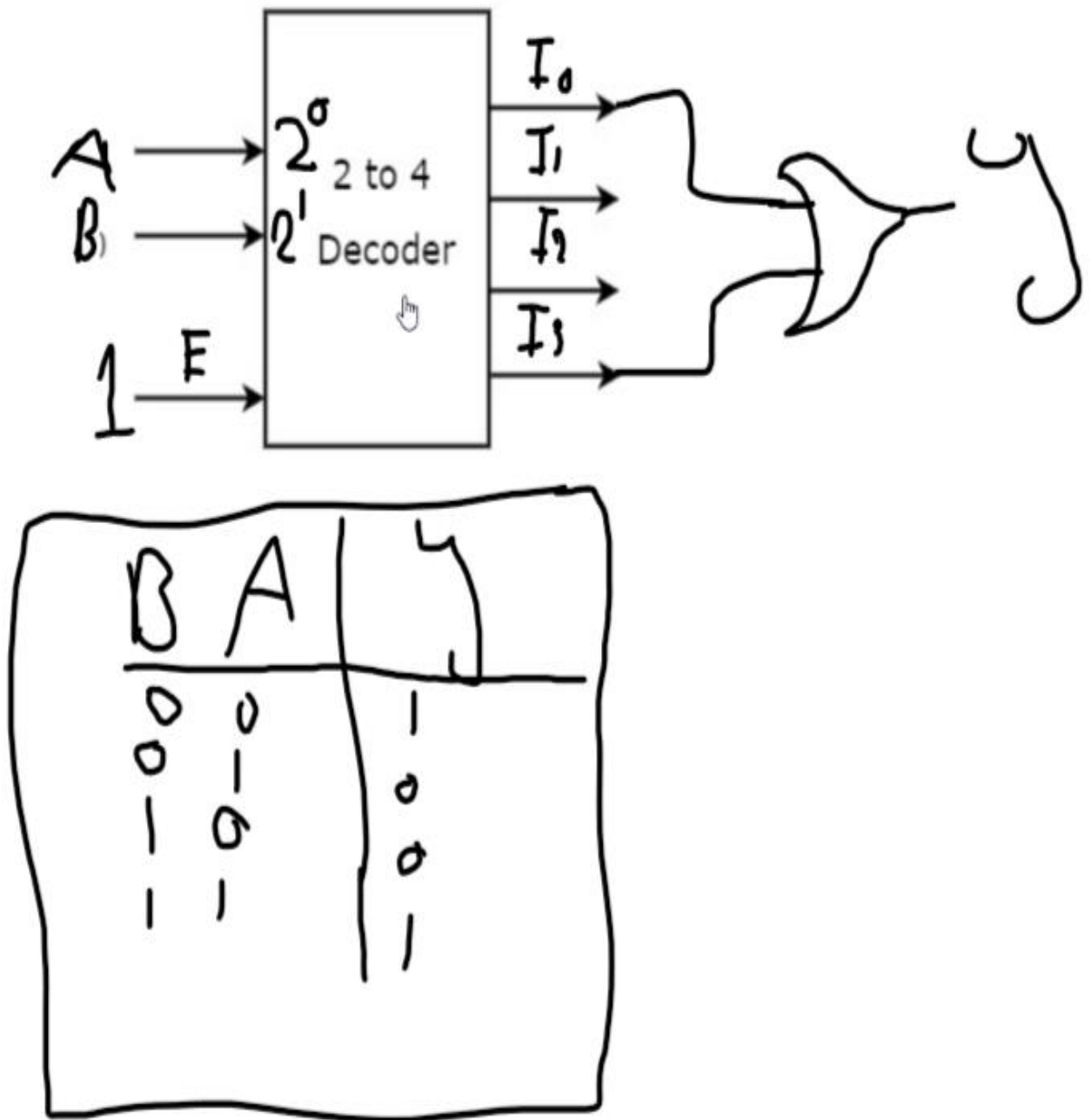
e)  $S_0, S_1, S_2 = ABC$







f)



In e I didn't understand what is required so I did multiple answers.