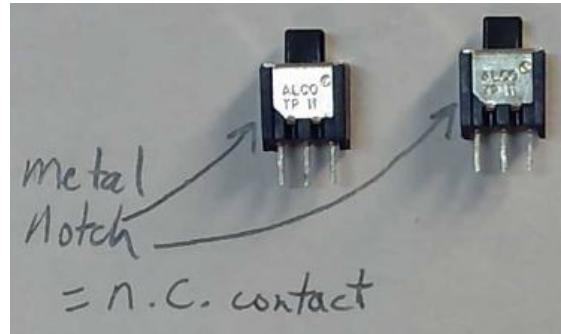
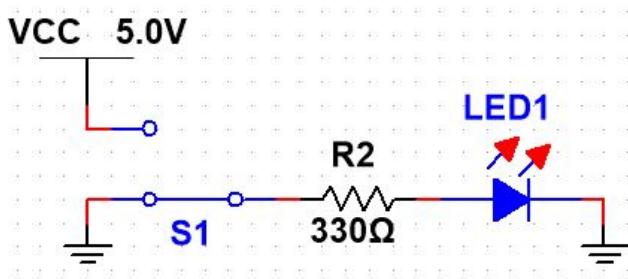


Question 1

Not yet answered

Marked out of 1.00

Use a single-pole double-throw momentary pushbutton switch (SPDT-M) switch to wire up the following circuit on your breadboard. The "normally closed" contact is marked with a notch in the metal of the switch: connect the normally closed contact to ground, as shown. The middle pin will be your output to the rest of the circuit. This circuit generates "hard" outputs, and cannot be bussed together with other switches.



The LED in this circuit operates when the switch is

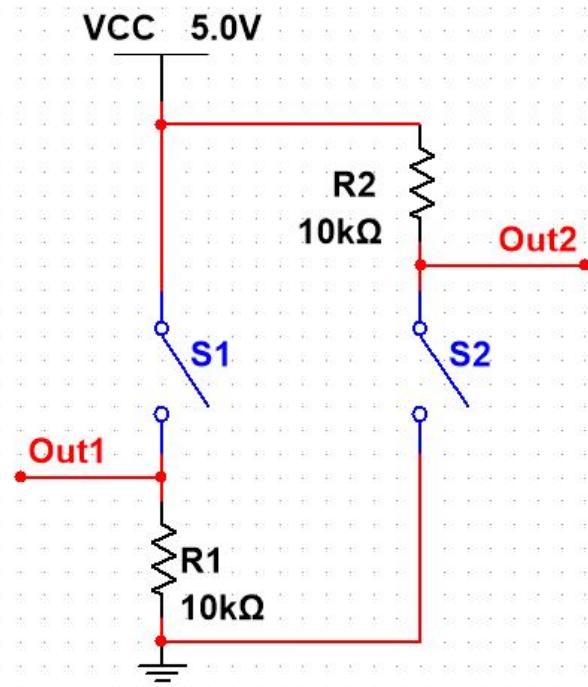
- a. pressed
- b. released

Question 2

Not yet answered

Marked out of 6.00

Use two of the switches in an 8-position DIP switch to wire up the following circuits on your breadboard. One is Active Low, the other is Active High.



Use two channels of an oscilloscope, DC coupled, to determine the logic levels of Out1 and Out2. Fill in the following table:

SPST Logic Switches

Switch	Output when Open	Output when Closed
S1	Choose...	Choose...
S2	Choose...	Choose...

TRUE/FALSE: The outputs of these two logic switches could be connected together to form a Wired-OR bus without potentially damaging the power supply. TRUE FALSE .

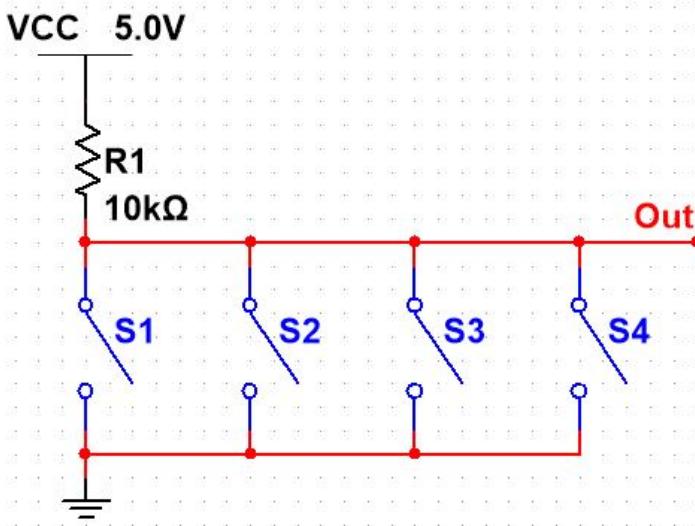
In answering the previous question, the switch condition requiring careful consideration would be Choose... .

Question 3

Not yet answered

Marked out of 8.00

Use four switches in an 8-position DIP switch to wire up the following circuit.



Use an oscilloscope channel or Digital Multimeter (DMM) to observe the voltage at "Out".

With all four switches open, the output is Choose... .

Open and close S1 but leave S2, S3, and S4 open. The output follows the activity of S1:

TRUE FALSE .

Now, close S3, and again attempt to use S1 to communicate on the bus. The output follows the activity of S1:

TRUE FALSE .

Verify that all four of the switches can communicate independently on the bus when the bus is "free" (i.e. not held by any of the outputs), not just S1.

Temporarily remove the resistor, and leave its location open. (If you short it, you could damage your power supply!) Open S1, S2, and S3. The output follows the activity of S4:

TRUE FALSE .

APPLICATION QUESTION: You have a number of I²C components connected to a microcontroller, but none of them respond to microcontroller requests. Arrange the troubleshooting steps in the list into the most helpful order. First, in your software, you should

Choose... .

If that checks out,

Choose... .

If no activity is observed at this stage

Choose... .

If not,

Choose... .

.

[◀ SA01 \(printable\)](#)

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