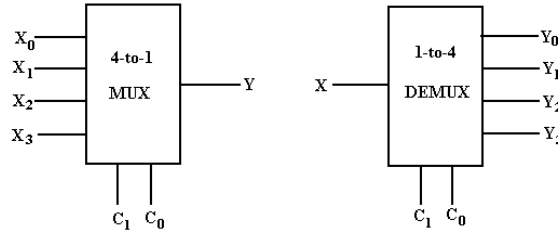


(40 pts) Approx. 3 days

The second part of our unit focuses on Multiplexers (MUX) and Demultiplexers (DEMUX). In short, a multiplexer is a digital electronics tool (an IC chip) that takes multiple inputs and combines them into fewer outputs. The opposite is a demultiplexer that takes few (often only 1) inputs and converts them into multiple outputs. Two examples are below:



This part of the unit gives us exposure to these two tools, and then gives us some practice using mostly DEMUX in the creation of some circuits with 7-segment displays. Put together, these tools make a lot of cool things possible!

1. Start by watching all four (4) presentations on the website *MUX/DEMUX Overview*, *MUX/DEMUX Signals*, *Multiplexers*, and *Demultiplexers*. Take at least a full page of notes on these topics. You might add to these notes later as our practice circuits will use some examples of MUX/DEMUX and you could add a diagram of how those get used.
2. Complete the *MUX/DEMUX Assignment*. Build all the requested circuits in Multisim and use them to complete the corresponding truth tables. Pay extra close attention to how the MUX/DEMUX chips are helping control the attached 7-segment displays.
3. Build the necessary circuits in Multisim as part of the MUX/DEMUX Assignment. As you do so, be sure to save them to your jump drive!

Part 1: Tasks	10 points	8-6 points	5-0 points
MUX/DEMUX Notes	+ Watch the <i>MUX/DEMUX Overview</i> , <i>MUX/DEMUX Signals</i> , <i>Multiplexers</i> , and <i>Demultiplexers</i> presentations. + Take at least a full page of notes on these topics including details about how MUX and DEMUX function, and when they might be useful.	- Less than a full page of notes on MUX/DEMUX - Notes are missing important parts	- Very brief or no notes in your engineering notebook
MUX/DEMUX Assignment	+ Complete the <i>MUX/DEMUX Assignment</i> + You showed your work where appropriate and completed the parts in your engineering notebook + You completed the appropriate truth tables	- Assignment incomplete - Nothing in your engineering notebook - Truth tables not complete	- Assignment missing - Assignment totally incomplete - No work shown
Multisim Circuits	+ You completed the Multisim circuit for the basic 7-segment display + You completed the Multisim circuit for the display driver	- Your simulations are not complete - Your simulations are not correct	- You only simulated 1 circuit - You did not simulate any circuits

