*Note: Late HW is **not** accepted! Put your "last name, first name," the course number (3701), and the HW number in the top right hand corner of the first page of **all** HW assignments. Also for **all** homework, use file name `HWx.pdf`. Do **NOT** put your social security number or your UF ID number on your HW.*

1. Complete the exercises in the *UF's DAD/NAD Waveforms 2015 Tutorial* (except you should skip the section "Digital Miscellaneous Functions"). Submit **screenshots** of each of the exercises. Note that you will need to use the DAD/NAD on each of your labs, starting with Lab 3.

2. Note: For every "new" part you use (like the 74'153), if you are not sure of a pins function, you should **verify its operation before** using it in a circuit. You have a 74'153 MUX in your lab kit. Most specifications sheets (including the one at https://mil.ufl.edu/3701/docs/74HC153_national.pdf) and Quartus show the select lines with labels A and B. Which select inputs correspond to A and B for you MUX?

   a) Use only your DAD/NAD with your 74'153 MUX chip to determine if $AB = S_1S_0$ or $AB = S_0S_1$, or more precisely, which pin is for S_1 and which pin is for S_0. Take a screen shot of the DAD/NAD output and explain why this screenshot proves your answer.

   b) Now document the total operation of one of the MUXes on the 74'153. Generate a 2.0 kHz (2000 Hz) 7-bit pattern for the inputs of the MUX using the signal generator (as discussed in the Pattern Generator section of the *DAD/NAD Waveforms 2015 Tutorial*). Use the generated signal from the DAD/NAD as inputs to your MUX circuit (with **NO** switches connected). Connect the DAD/NAD's DIO6 to one of the MUX chips enable pins, DIO5 and DIO4 to the same MUX's select lines (preferably DIO5 to S1 and DIO4 to S0, if you know which is which), and DIO3-DIO0 to the MUX's normal inputs (which may be named X3-X0 or similar). Now use the Logic Analyzer with the corresponding signal lines (e.g., DIO6 – DIO0) and the MUX's output. Attach Vcc and Gnd to your 74'153, connect the DAD/NAD to the appropriate 74'153 pins, and view the DAD/NAD's logic analyzer waveforms. Include a screen shot of the DAD/NAD's output in your homework document.