Assignment #9 – Serial Output and Computers

Objectives
- Students will be able to wire a circuit according to a datasheet.
- Students will be able to send information to a computer.

Goal
Use the printf command and a MAX202 chip to communicate to a computer.

Materials
- Breadboard – wire w/ 5V power regulator, switch, and LED
- PIC18F45K22
- Computer w/ PICBasic Pro
- PICkit 3
- Oscilloscope
- Documentation for the MAX202 - http://datasheets.maximintegrated.com/en/ds/MAX200-MAX213.pdf
- ? – 0.1 µF electrolytic capacitor(s)
- RSR232 9-pin connector
- Digi X-CTU (Serial terminal)

Directions
- You will be documenting your work in your lab notebook.
- Wire the MAX202 and connect (Do not forget to document this in the lab notebook)
- Task 1: Write a program that will display "Hello Computer" once every second to the computer. Have Mr. Evans check this off.
- Task 2: Write a program that will display a character of your choosing to the computer.
    - What character did you output? _____
        - What is the ASCII decimal number for your characters? _____
        - What is the binary number for you characters? _____
    - Use an oscilloscope to record the character from the transmit pin of the PIC18F45K22 and the transmit pin of the MAX202.
        - Answer the following questions in your lab notebook.
        - What is the voltage swing of the signal from the PIC?
        - What is the voltage swing of the signal from the MAX202?
        - What are the differences between the signals?
- Task 3: Write a program that will display "Counter = " and the numbers 0 through 100 to the computer. Have Mr. Evans check this off.
- Time permitting have the PIC display on an LCD, something that the computer transmits to the PIC.

Grading
- When functioning as planned, have Mr. Evans inspect.
- Task 1: _____ (*2 points*)
- Task 2: _____ (*5 points*)
- Task 3: _____ (*3 points*)
- Wiring: _____ (*5 points*)
- Lab notebook: _____ _____ (*10 points*)