Microcontroller Based Design: EL-319
Spring 2010

Programming Assignment 1

Date April 2, 2010
Due Date: April 12, 2010

Please email all the answers to hasan@qau.edu.pk
You will not get any credit for submitting code without comments. All the programs must compile and run successfully on the 68HC11 simulator. Each student is required to work independently.

1. Connect two LEDs with a 68HC11 on any general purpose I/O port pins. Write a program to toggle these LEDs with different frequencies. The time period should be programmable by setting some initial values in the program.

2. Load an accumulator with value $80. With the help of shift/rotate operations move the only bit set in the data right or left without losing any bits. Insert a one second delay between each shift/rotate operation and display the data using eight LEDs connected to an I/O port.

3. Design a signal generator which can generate sine, square, and triangular wave of different frequencies. The users should have the flexibility to change the time period and/or duty cycle of the generated wave. Connect the output to the oscilloscope available in the 68HC11 simulator to verify your results. You are not required to cover a wide range of frequency band.