LAB # 10

INTERFACING LCD TO THE PIC18F4321 USING C

1. **Title:** Interfacing LCD to the PIC18F4321

2. **Objective:** The purpose of this lab is to interface the PIC18F4321 chip to an LCD display and then write a C-program to display the message ‘PIC18F’.

3. **Prelab:**

   Assume the PIC18F4321- Hitachi HD44780 interface of the above figure. It is desired to display the phrase “PIC18F” on the LCD as soon as the four input switches connected to PORT C are all HIGH. Write a C language program to accomplish this.

4. **Equipment, Software, and Components required:**
   - Microchip’s MPLAB assembler /Debugger
   - Parts List:
     - PICKit3 and PIC18F4321 chip from Microchip
Push button, DIP switches and 20KΩ potentiometer
- Breadboard
- Resistors
- Power Supply
- Hitachi HD44780 LCD display
- Wires and Clip leads

5. **Description (corresponding topics covered in the textbook):**
   Four DIP switches are connected to Port C, and the Hitachi HD44780 LCD is connected to Port D. A C-program is written to display the phrase “PIC18F” when all switches are HIGH. (Example 9.4 on Pages 254-259)

6. **Prerequisites:** Section 9.3 on Pages 252-254

7. **Procedure:**
   - Compile the C language program using the MPLAB.
   - Download the compiled program into the PIC18F4321 on the breadboard from your Personal Computer or Laptop using the PICKit3™ and MPLAB following the steps provided in Appendix H of the book.
   - Use the default clock of the PIC18F4321 and connect the appropriate RESET circuit to the PIC18F4321 MCLR pin.
   - Connect the hardware to the PIC18F4321, and demonstrate the lab as a PIC18F4321-based stand-alone system.

8. **Deliverables:**
   i) **Postlab**
      - Write a PIC18F assembly language program to accomplish the Prelab.

   ii) **Lab report**
- Submit a final Lab report (Staple Signed prelab, postlab, and the schematic (if any) using Word, p-spice, Wordpro or other software tools, at the end of the quarter or semester).

9. **Concluding remarks:**
- Complete each prelab before coming to the lab. Please get it signed.