

Uva Wellassa University, Sri Lanka
End Semester Examination – June/July 2010
CST 381-2
Device Interfacing and Embedded System Laboratory



Time: Two (02) hours

Answer all questions

1.

You are required to design LED pattern controller that has 4 LEDs. The speed of the led pattern is set by a computer. Computer has Graphical User Interface (GUI) with buttons to switch on the LED's and to switch off the LED's. The speed of the pattern of LED's is controlled by a value set in a text box of the GUI. LED's are connected to the PORTB of a PIC 16F877 microcontroller. When the micro-controller receives the start signal from the computer it will light on LEDs from side to side in a "Knight Rider" sequence.

- i. Explain whether to use parallel communication or serial communication to interface the computer to the microcontroller. Give reasons for your selection.

(Marks 5)

- ii. Using a Circuit diagram explain how you can interface the micro controller to the computer using the communication method proposed in question (i).

(Marks 15)

- iii. Draw the complete circuit diagram for the above system.

(Marks 20)

- iv. Using CCS compiler write a complete program to achieve task explained in the description.

(Marks 30)

- v. Draw the PCB Layout for the circuit.

(Marks 30)