

[3 Hours]

[Total Marks: 80]

- N.B:
1. Question.No.1 is compulsory.
 2. Attempt any three from the rest.
 3. Make any suitable assumption wherever required

- 1 Answer any four.
- (a) What are the different interrupt sources? (05)
 - (b) What is timer rollover in PIC 18. What happens after rollover? (05)
 - (c) Explain status register and BSR register of PIC 18. (05)
 - (d) Explain machine cycle and instruction cycle in Microcontroller. (05)
 - (e) Explain the difference between interrupt and polling? (05)
- 2.
- (a) Explain the memory organization (Program and Data Memory) of PIC 18 Microcontroller. (10)
 - (b) Explain the different types of instruction sets and mention two examples of each set. (10)
- 3.
- (a) Write a C18 program using Timer 0 to generate a square wave of 50 Hz frequency on Port B pin RB0. Use 16 bit programming technique with 128 prescaler. The internal frequency is 10 MHz. (10)
 - (b) Which are the steps taken by microcontroller when interrupt occurs and hence explain the interrupt vector. (10)
- 4.
- (a) Explain the SPBRG, TXSTA and RCSTA registers used in serial communication. (10)
 - (b) Explain stack and subroutine. Also explain all the instructions associated with them. (10)
- 5.
- (a) Draw and explain LCD interfacing with PIC 18 Microcontroller. (10)
 - (b) Write a C 18 program to send the message "University of Mumbai" to the serial port continuously whenever a switch (SW) connected to pin RB2 is on. Monitor its status and set the baud rate as follows:
If SW = 0, Baud rate = 6900
If SW = 1, Baud rate = 38400. Assume crystal frequency = 10 MHz
6. Write a short note on any two
- a) Draw the interfacing diagram of seven segment LED and explain the programming technique Using PIC 18 Microcontroller.
 - b) Stepper Motor interfacing with PIC 18 Microcontroller.
 - c) ADC interfacing with PIC 18 Microcontroller.