

[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.