

(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.
- Q.1** Answer any four.
- (a) What is timer roll over in PIC 18? What happens after roll over? 5M
 - (b) Explain the Status Register of PIC18 Microcontroller. 5M
 - (c) Explain the pipelining concept in PIC18 Microcontroller 5M
 - (d) What is the difference between interrupt and polling? 5M
 - (e) What are the steps taken by the microcontroller when an interrupt is activated? 5M
- Q.2**
- (a) Which are the different addressing modes of PIC18 Microcontroller? 10M
 - (b) Explain the memory organization (Program and Data Memory) of PIC18 Microcontroller. 10M
- Q.3**
- (a) Explain stack and subroutine. Also explain the instructions associated with them. 10M
 - (b) Write a C18 program to transmit message "YES" serially at 9600 baud rate, 8 bit data and 1 stop bit. Do this continuously. 10M
- Q.4**
- (a) Explain the following terminology related to PIC18 10M
 - 1) USART
 - 2) SPBRG
 - 3) TXSTA
 - 4) RCSTA
 - (b) Write an Assembly language program using Timer 0 to generate a square wave of 200Hz frequency on Port A pin RA0. Use 16 bit programming technique with 64 prescaler. The internal frequency is 10MHz. 10M
- Q.5**
- (a) Explain Global Interrupt Enable (GIE) and Peripheral Interrupt Enable (PEIE) concept with appropriate logical diagram. Also explain INTCON register. 10M
 - (b) Write an Assembly language program to rotate the stepper Motor by monitoring the status of switch connected to pin RC2 and do the following 10M
 - (1) If switch = 0, the stepper motor moves clockwise.
 - (2) If switch = 1, the stepper motor moves anticlockwise.
 Also draw the interfacing diagram.
- Q.6** Write a short note on any two
- (a) Seven segment LED interfacing with PIC 18 Microcontroller. 10M
 - (b) LCD interfacing with PIC 18 Microcontroller. 10M
 - (c) CCP modules of PIC 18 Microcontroller. 10M
