

Please check whether you have got the right question paper.

- N.B:
1. Question No. 1 is compulsory.
  2. Attempt any 3 questions out of remaining questions.
  3. All questions carry equal marks.
  4. Assume suitable data is necessary.



1. Attempt following. 20
  - a) Define embedded systems. Explain types of embedded systems and give example.
  - b) Explain function of following registers.
    - a) BSR
    - b) FST
    - c) W
    - d) PC
  - c) Explain following PIC 18 instructions.
    - a) BTFSC
    - b) TBLRD\*
  - d) Draw and explain interfacing of serial EEPROM with PIC 18 in SPI mode.
2.
  - a) Explain working of timer 1 of PIC 18 with prescaling feature in detail. 20
  - b) Write PIC 18 program to receive byte of data serially and put term on PORTB. Set the baud rate at 9600. 20
3.
  - a) Explain external interrupts of PIC 18 in detail. 10
  - b) Explain ADC module of PIC 18 in detail. 10
4.
  - a) Explain interfacing of DAC to PIC 18 and write a program to generate sawtooth waveform. 10
  - b) Interface a seven segment LED to PIC 18 and write a program to display decimal counter (0 to 9) on it. 10
5.
  - a) Interface D.C. motor to PIC 18. Write a program to rotate motor with 50% duty cycle using PWM mode of CCP module. 10
  - b) What is priority inversion? Explain with suitable example. 10
6. Write short notes on **any 4** 20
  - a) POPTB change interrupt
  - b) Interrupt latency
  - c) I<sup>2</sup> C module of PIC 18
  - d) Design challenges for embedded system
  - e) Memory organization of PIC 18