

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) I² C module of PIC 18
 - d) Design challenges for embedded system
 - e) Memory organization of PIC 18
