sem-VI

Application of Micro Controller / INST | 08-12-15

Q.P. Code : **6396**

(3 Hours) [Total Marks : 80

N.B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **three** questions from question no. 2 to 6.
(3) **Assume** suitable **data** if **necessary**.

1. (a) Define embedded systems. Give examples of embedded systems. What are   5
the types of embedded systems.
   (b) Interface and LED to PIC18F microcontroller. Explain interfacing circuit.   5
Write a program to blink LED at regular interval.
   (c) List the features of PIC18F microcontroller.   5
   (d) Explain priority inversion with suitable example.   5

2. (a) Explain Port A pin structure of PIC18F microcontroller. Write a program to   10
configure port A & B as input and Port C and D as output.
   (b) Write a program to convert 8 bit binary no. to BCD.   10

3. (a) Explain PIC18F serial port in brief. Write a program to transmit "INSTRU"   10
serially at 9600 bits per second. Assume suitable clock frequency.
   (b) Interface 16 x 2 LCD module to PIC18F MCU. explain the same. Write a   10
program to display "INSTRUMENTATION" on first line & "ENGINEERING"
on second line.

4. (a) Interface four 7-segment displays to PIC18F MCU. Write a program to display   10
"1234" on it.
   (b) What is task scheduling in RTOS ? Explain various task scheduling algorithms.   10

5. (a) Explain on-chip ADC module of PIC18F MCU. Write a program to Read   10
channel no.0 and display it on port B(lower byte) and port C (HB).
   (b) Write a program to generate 100 Hz square wave using timer on RB0 pin.   10
Assume clock frequency is 16MHz.

6. (a) Explain design challenges of Embedded system.   10
   (b) Write a short note on (**any two**)   10
      (i) I²C communication protocol
      (ii) Explain instruction
            (a) BCF   (b) ANDLW
      (iii) Interrupt latency

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MD-Con. 10380-15.