

sem-VI
Application of microcontroller / 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.

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| 1. (a) | Define embedded systems. Give examples of embedded systems. What are the types of embedded systems. muADDA.com | 5 |
| (b) | Interface and LED to PIC18F microcontroller. Explain interfacing circuit. Write a program to blink LED at regular interval. | 5 |
| (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 configure port A & B as input and Port C and D as output. | 10 |
| (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" serially at 9600 bits per second. Assume suitable clock frequency. | 10 |
| (b) | Interface 16 x 2 LCD module to PIC18F MCU. explain the same. Write a program to display "INSTRUMENTATION" on first line & "ENGINEERING" on second line. | 10 |
| 4. (a) | Interface four 7-segment displays to PIC18F MCU. Write a program to display "1234" on it. | 10 |
| (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 channel no.0 and display it on port B(lower byte) and port C (HB). | 10 |
| (b) | Write a program to generate 100 Hz square wave using timer on RBO pin. Assume clock frequency is 16MHz. muADDA.com | 10 |
| 6. (a) | Explain design challenges of Embedded system. | 10 |
| (b) | Write a short note on (any two) | 10 |
| | (i) I ² C communication protocol | |
| | (ii) Explain instruction | |
| | (a) BCF (b) ANDLW | |
| | (iii) Interrupt latency | |

MD-Con. 10380-15.