Total No. of Questions : 8]

SEAT No. :

**P2398**

[Total No. of Pages : 2

**[4758]-559**

# T.E. (Electronics Engineering)

## MICROCONTROLLER AND APPLICATIONS

## (2012 Course) (End - Semester ) (304203) (Semester - I)

*Time : 3 Hours]* *[Max. Marks :70*

***Instructions to the candidates:***

1) ***Answer Q.No.1 or 2, Q.No.3 or 4, Q.No.5 or 6, Q.No.7 or 8.***
2) ***Answer any four questions.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of calculator is allowed.***
6) ***Assume suitable data, if necessary.***

***Q1)*** a) Explain the Limitations of 8 bit microcontroller. **[4]**

b) Draw & explain the Internal RAM organization 8051 microcontroller. **[8]**

c) Explain the addressing modes of PIC 18FXXX Microcontroller with example. **[8]**

OR

***Q2)*** a) Explain the Logic Analyzer. **[4]**

b) Explain any three addressing modes of 8051 microcontroller. **[8]**

c) Explain the memory organization of PIC 18FXX Microntroller. **[8]**

***Q3)*** a) Draw an interfacing diagram and write an Embedded C Program to interface 16x2 LCD with PIC 18FXX Microcontroller to display the "WELCOME" message. **[8]**

b) Draw and Explain the interrupt structure for the PIC 18FXX microcontroller.. **[8]**

OR

***P.T.O.***

***Q4)*** a) Write an embedded C program to get a byte of data from port C. If it is less than 100, send it to port B otherwise send it to port D. **[8]**

b) Write a C18 program to toggle only the PORTB.4 bit continuously every 50ms. Use timer 0, 16 bit mode, the 1:4 prescaler to create the delay. Assume that XTAL = 10MHZ. **[8]**

***Q5)*** a) Draw and explain Interfacing of RTC with PIC18FXXX? Also write embedded C Program to update date. **[8]**

b) Explain the MSSP with 12C master mode. **[8]**

OR

***Q6)*** a) Explain the EEPROM with PIC 18FXX using SPI Protocol. **[8]**

b) Explain the MSSP with SPI mode. **[8]**

***Q7)*** a) Explain in brief various steps involved in designing data acquisition system. **[10]**

b) Design a voltmeter to display range between 0v to 50v using internal ADC of PIC18FXXX. **[8]**

OR

***Q8)*** a) Design frequency counter using PIC18FXXX for following specifications Frequency range Dc to 5 MHz. Design and draw interfacing circuit. Also explain required flow chart. **[12]**

b) Explain how the speed of the DC motor controlled by PWM. **[6]**

*EEE*