

Total No. of Questions :8]

SEAT No. :

P2865

[Total No. of Pages :2

[4958] - 1054

T. E. (Electronics)

MICROCONTROLLERS AND APPLICATION

(2012 Pattern) (304203)

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Answer the Q.1 OR Q.2 and Q.3 OR Q.4 and Q.5 OR Q.6 and Q.7 OR Q.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) Describe in detail. Assembler and compiler and emulator. [8]
b) Explain different branch instructions of 8051 microcontroller. [6]
c) Write features of PIC18FXX Microcontroller over PIC16FXXX. [6]

OR

- Q2)** a) What is the role of microcontroller in embedded System? [4]
b) Draw and explain port structure of PIC 18FXXX Microcontroller. [8]
c) Explain Counter operation in 8051 microcontroller. [8]



- Q3)** a) What is peripheral interrupt, IVT and ISR? Draw and Explain the interrupt structure for the PIC 18FXX microcontroller. [8]
b) Write a Embedded C program for blinking LED's interfaced to PORTD of PIC18FXXX. [8]

OR

P.T.O.

- Q4)** a) Draw an interfacing diagram and write an Embedded C program to interface 16×2 LCD with PIC 18FXX Microcontroller to display the “SPPU PUNE” message. Use 4 bit interface mode with busy flag. [8]
- b) Explain Timer0 control register in details. Also calculate the TMRCON0, TMR0H, TMR0L value to generate 1 second delay using Timer0? Assume that XTAL = 8MHZ. [8]

- Q5)** a) Explain the UART operation in PIC 18FXX with example. [8]
- b) What are the advantages of SPI BUS over 12C BUS? Draw the RTC interfacing with PIC18FXXX. [8]

OR

- Q6)** a) Explain the 12C protocol with the help of MSSP module used in master mode. [8]
- b) Write a Embedded C program for reading single analog input (range 0 to 5V) and display it on LCD. [8]

- Q7)** a) Draw interfacing diagram and write a program to read frequency (range 0-500KHz). [10]
- b) Describe the algorithm for voltmeter with interfacing diagram. [8]

OR

- Q8)** a) Design Speed control of DC motor with the help of variable register as input using a PWM. [10]
- b) Explain different steps involved in designing of data acquisition system. [8]

