

Total No. of Questions : 8]

SEAT No. :

P4789

[Total No. of Pages : 2

[5560]-153

T.E. (E&TC)

MICROCONTROLLERS AND APPLICATIONS

(2012 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Use of Calculator is allowed.
- 5) Assume Suitable data if necessary.

- Q1)** a) Compare Microcontroller family and explain the limitations of 8-Bit Microcontroller. [6]
b) Explain the operational diagram of Timer/Counter of 8051 in detail. [7]
c) State features of PIC and draw the block diagram of PIC 18F. [7]

OR

- Q2)** a) Compare the RS232 and RS 485 communication protocol. [6]
b) Explain the different addressing modes with examples of 8051. [7]
c) Draw and explain the Data memory organization of PIC 18F. [7]

- Q3)** a) Draw and explain the Timer 0, 8bit operation in details. [8]
b) Draw an interfacing diagram of LED connected to Port C and write and embedded C program for flashing alternately. [8]

OR

- Q4)** a) Draw an interfacing diagram to display the Uni-PUNE on LCD, also write C program. [8]
b) Write a program for 2.5 KHz and 75 % duty cycle PWM generation with $N = 4$. $F_{osc} = 10\text{MHz}$. [8]

P.T.O.

- Q5) a)** Draw and explain the SPI mode of MSSP structure in detail. [8]
b) State four important features of RTC and draw an interfacing diagram with PIC 18F. [8]

OR

- Q6) a)** Draw and explain the Transmitter block diagram of UART in detail. [8]
b) Explain the internal block diagram of ADC in PIC and explain the conversion steps. [8]
- Q7) a)** Design a PIC test board using LED, keypad, buzzer and relay connected to ports with control using keys and draw a flowchart for testing with S1 pressed LED ON and S2 pressed relay and buzzer ON. [8]
b) Explain with flowchart and algorithm design of DMM using PIC18F. [10]

OR

- Q8) a)** State features of DAS, Draw and explain generalized block diagram of DAS. [8]
b) Design a frequency counter with display on LCD using PIC18F, make provision of Alarm if exceed the set count. [10]

