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. Fosc = 10MHz. **[8]**

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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]**

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