Total No. of Questions : 8]

SEAT No. : [ ]

P1477

[Total No. of Pages : 2

[5460]-153
T.E. (E & TC)
MICROCONTROLLER AND APPLICATIONS
(2012 Pattern) (Semester - I) (End Sem.) (304183)

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) Explain the factors for selecting the Microcontroller for the particular application. **[6]**

b) Explain the operational diagram of Timer/Counter of 8051 in detail. **[6]**

c) Explain with example function of ALU in PIC for transfer of data. **[8]**

OR

Q2) a) With the help of neat block diagram explain the operation of Logic analyzer. **[6]**

b) Explain the operational diagram of Interrupt with vector locations of 8051 in detail. **[6]**

c) State features of PIC and explain BOD and Power down modes of PIC. **[8]**

Q3) a) Draw and explain the interrupt structure of PIC with reasons of causing Interrupts. **[8]**

b) Draw an interfacing diagram 4*4 key pad and write C program to accept the key. **[8]**

OR

Q4) a) Draw an interfacing Diagram to display the hex counter on LED and write C program to start up count when key 1 is pressed and down count when key 2 is pressed. **[8]**

b) Write an Embedded C program to generate PWM waveform of period = 200 μs and Duty cycle of 10% using CCPx on port pin of PIC Microcontroller. **[8]**

P.T.O.

Q5) a) Draw and explain the I2C diagram of MSSP structure in detail. **[8]**

b) Draw an interfacing diagram to interface EEPROM using SPI protocol. **[8]**

OR

Q6) a) Write an Embedded C program to toggle the bits of port C after every 10 ms using interrupt. **[8]**

b) Explain the internal block diagram of ADC in PIC and explain the ADC conversion steps. **[8]**

Q7) a) Explain with flowchart and algorithm design of DMM using PIC18. **[8]**

b) Design a data acquisition system, to senses, process and display the Temp, Humidity, and air pressure. **[10]**

OR

Q8) a) Design a Home alarm system considering the parameters of door safety using sensors for detection of person and its movements, Display warning on LCD. **[8]**

b) Draw and explain Design of frequency counter with display on LCD using PIC18 Microcontroller. **[10]**

⌘⌘⌘