Total No. of Questions : 10]

SEAT No. :

P3367

[Total No. of Pages : 3

[5353] - 561

TE. (Electrical)

Advanced Microcontroller and its Applications

(2015 Pattern) (Semester - I)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q4, Q.5 or Q.6, Q.7 or Q8, Q.9 or Q10.***

2) ***Figures to the right side indicate full marks.***

Q1) a) Write an assembly language program for PIC 18 microcontroller to add contents of location 0 × 200 and 0 × 300 in internal data memory and store the result in internal data memory location 0 × 400. **[6]**

b) Draw the status register for the PIC microcontroller and explain the function of Digit Carry flag. **[4]**

OR

Q2) a) Explain the following instructions **[6]**

i) MOVF 0 × 04,0,1

ii) MOVFF fs,fd

iii) BSF PORTD,0

b) Write a program in C language to configure bits RD0 and RB0 as input bits. **[4]**

Q3) a) Explain any three addressing modes used in PIC 18 microcontroller. **[6]**

b) With reference timers explain the terms pre scalar and post scalar. **[4]**

OR

P.T.O.

Q4) a) Draw T0CON register and explain function of individual bits of T0CON register. **[6]**

b) Find timer clock frequency and timer period for a PIC 18 microcontroller with a crystal frequency of 16MHz. Assume a pre scalar of 64 is used. **[4]**

Q5) a) Using PWM mode of CCP module, write a program in C language for PIC18 microcontroller to create a 2.5kHz PWM wave form with a duty cycle of 75% on CCP1 pin. **[8]**

b) Draw CCP1CON and list the steps involved in programming PIC microcontroller in Compare mode. **[8]**

OR

Q6) a) Using compare mode, write program in C language to generate a square waveform with 40 ms time period and 50% duty cycle on CCP1 pin using compare mode. **[8]**

b) Draw CCP1CON and list the steps involved in programming PIC microcontroller in capture mode. **[8]**

Q7) a) List the steps for reading Busy flag and explain following pins of LCD (16 × 2) **[8]**

i) Register select (RS)

ii) Enable (E)

b) Using interrupt programming method write a program in C language to toggle an LED connected to pin RB7 on occurrence of an interrupt INT0. **[9]**

OR

Q8) a) Explain in detail the functions of following flags related to onboard ADC of PIC microcontroller **[8]**

i) ADIF

ii) Go/Done

iii) ADFM

iv) ADON

b) Write a program for PIC 18 microcontroller to transfer a letter 'T' serially and continuously at a baud rate of 9600. Use BRGH = 0. Assume crystal frequency =10MHz. **[9]**

Q9) a) With the help on interfacing diagram and flowchart explain how PIC18 microcontroller can be used to measure temperature using LM35 sensor.**[8]**

b) Explain with a neat diagram, interfacing of DAC 0808 with PIC microcontroller and write a program in C language for generation of Square waveform using DAC interfaced with PIC microcontroller through Port B. Use suitable delay. Assume the crystal frequency to be 10MHz.**[9]**

OR

Q10)a) With the help of a neat interfacing diagram explain interfacing of an opto isolator with a PIC 18 microcontroller. **[8]**

b) Using interrupt programming method write a program in C to read value from channel 0 (RA0) of ADC and display the result on PORT C and PORT D. **[9]**