Total No. of Questions : 10]

SEAT No. :

P2438

[Total No. of Pages : 2

[5253] - 161
T.E. (Electrical)
ADVANCED MICRO CONTROLLER AND ITS 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, Q7 or Q8, Q9 or Q10.***
2) ***Neat diagram must be drawn whenever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain the use of File Select Registers. **[4]**

b) Explain the functions of following SFR's related to the ports of PIC18 microcontroller PORTx,TRISx and LATx. **[6]**

OR

Q2) a) Explain the status of the flags in status register if the PIC18 MPU adds the following two numbers 0xFF and 0x0l. **[6]**

b) Explain the function of Bank select register. Write an instruction in assembly language which will select BANK 2. **[4]**

Q3) a) Explain the CALL and RETURN instructions in PIC18 microcontroller. **[6]**

b) Write a program in C to configure PORT C as input port and PORT D as output port. **[4]**

OR

Q4) a) Draw the interrupt vector table for PIC18 microcontroller. Explain the steps taken by controller in execution of interrupt. **[6]**

b) Write a program in C language to load Timer 0 by a data FFAA H. **[4]**

Q5) a) Explain the steps to be followed while sending Data to LCD. **[8]**

b) With a neat diagram of interfacing of 4x4 keypad with PIC18F458. Using a flow chart explain the method of key press detection. **[8]**

OR

P.T.O.

Q6) a) Write a program for PIC 18 microcontroller in C to tor receive bytes of data serially and place the received data in WREG register continuously. Set the baud rate of 9600, 8 bit data,1 stop bit . XTAL=10 MHz. **[8]**

b) Write short note on SPI protocol. **[8]**

Q7) a) Using compare mode, write a C program for generation of square waveform with a period of 40ms. Use Timer 1 as timing resource with a pre-scalar of 1:1 **[9]**

b) With a flow chart explain speed control DC motor using PIC microcontroller. **[8]**

OR

Q8) a) A stepper motor is interfaced with PIC18 microcontroller through lower nibble of Port B (RBO- RB3). Write program in C language to rotate the stepper motor in anticlockwise direction. Assume the step angle of 1.8 degree's. and oscillator frequency = 10 MHz **[9]**

b) Explain how time period and duty cycle is set for generation of a waveform using PWM mode in CCP module in PIC 18 microcontroller. **[8]**

Q9) a) Explain with a neat diagram, interfacing of DAC 0808 with PIC microcontroller and write a program for TRIANGLAR waveform generation using DAC interfaced with PIC microcontroller through Port B. Assume the crystal frequency to be 10MHz **[8]**

b) Explain in detail the functions of the following special function registers ADCONO, ADRESH and ADRESL of PIC18 microcontroller. **[9]**

OR

Q10)a) Explain the steps involved in programming of A/D converter in PIC18F458 microcontroller using method of polling. **[8]**

b) With a flow chart explain interfacing of LM35 with PIC 18F458 for measurement of temperature. **[9]**