Total No. of Questions :10]

SEAT No. :

**P1708**

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## T.E. (Electrical)

## ADVANCED MICROCONTROLLER AND ITS APPLICATIONS

## (2012 Course) (End - Semester) (303141) (Semester - I)

*Time : 2½ Hours]* *[Max. Marks :70*

***Instructions to the candidates:***

1) ***Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

***Q1)*** a) Compare RISC and CISC architectures. **[6]**

b) Explain the function of Bank select register. **[4]**

OR

***Q2)*** a) Write a program to copy data from memory location 202H to WREG. **[6]**

b) Write a short note on any two data types used in embedded C Programming. **[4]**

***Q3)*** a) Explain the following addressing modes of PIC 18 microcontroller. **[6]**

i) Immediate addressing mode

ii) Register direct addressing mode

b) Write a short note on following: **[4]**

i) Assembler

ii) Simulator

OR

***P.T.O.***

***Q4)*** a) Explain Timer 0 (T0CON) control register in detail. **[6]**

b) Explain the following instructions in detail. **[4]**

i) MOVFF

ii) ADDLW

***Q5)*** a) Draw a neat diagram of interfacing an LED with PIC microcontroller. Write a program of blinking display of the LED. **[8]**

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

OR

***Q6)*** a) 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. **[8]**

b) With a neat diagram of interfacing of 4×4 keypad with PICI8F458. Using a flow chart explain the method of key press detection. **[8]**

***Q7)*** a) Explain the steps for programming the capture mode of CCP module in PIC 18 microcontroller for measuring period of pulse. **[8]**

b) Write a short note on speed control of DC motor using PIC 18 microcontroller. **[8]**

OR

***Q8)*** a) A stepper motor is interfaced with PIC 18 microcontroller through lower nibble of Port B (RD0-RD3). Write program to rotate the stepper motor in anticlockwise direction continuously. **[8]**

b) Explain compare mode of PIC18 and also explain SFR CCP1 CON register in detail. **[8]**

***Q9)*** a) Explain in detail the functions of the following special function registers ADCON0, ADCON1 of PIC18 microcontroller. **[9]**

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

OR

***Q10)***a) Explain the steps involved in programming of A/D converter in PIC18F458 microcontroller using method of polling. **[9]**

b) Write a short note on measurement of temperature using PIC 18 microcontroller. **[9]**