(b) Explain the function of each bit of status register of PIC16F877 microcontroller. **4**

Unit IV

7. Describe the features of ARM Processor. Discuss in detail, the ARM core architecture and organization. Explain the addressing modes of an ARM processor. What are the operating model of ARM processor ? **15**

8. (a) Draw the block diagram of AVR microcontroller and explain the contribution of each unit in its working. Discuss the I/O mapped registers associated with each port of AVR controller. **10**

(b) What are HSI and HSO units in 80196 microcontrollers ? Explain the role of watchdog timer. **5**

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18AA1052

M.Tech. EXAMINATION, May 2019

(First Semester)

(C. Scheme) (Re-appear)

EE(I&C)

MIC503C

MICROCONTROLLER BASED CONTROL AND INSTRUMENTATION

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the various modes of timer operation in 8051 microcontroller. Discuss the bit details of TMOD and TCON registers. **10**

(b) Compare Harvard and Van-Neumann Architecture. Name three addressing modes of 8051. Give examples of each. **5**

2. (a) Discuss, how interrupts are enabled or disabled in 8051 microcontroller. Explain the SFRs involved in the operation of interrupts. **8**

(b) Explain the various ports of 8051 microcontroller. Differentiate between Arduino and microcontrollers. **7**

Unit II

3. (a) Discuss with neat connection diagram, how an external memory can be interfaced with 8051 microcontroller. **10**

(b) Discuss the Arduino based speed control of DC motors. **5**

4. Explain with neat diagram, the interfacing of an LCD module to 8051. Write the assembly language program to display the message 'NO'. **15**

Unit III

5. (a) What are the advantages of PIC microcontrollers ? Draw the pin diagram of PIC16F877 and explain the function of important pins. **9**

(b) What are the various addressing modes in PIC16F877 microcontroller ? Explain the various reset conditions of PIC16F877 microcontroller. **6**

6. (a) Discuss the features of PIC16F877. What families of PIC microcontrollers are available ? Draw the block diagram of PIC16F877 microcontroller and explain each Unit. What are the criteria to select suitable PIC microcontroller for any given application ? **11**