Roll No.

Total No. of Pages: 02

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M.Tech. (Microelectronics) (Sem.-1)

## ADVANCED MICROPROCESSOR AND EMBEDDED SYSTEM

Subject Code: ME-815 M.Code: 38413

Time: 3 Hrs. Max. Marks: 100

## **INSTRUCTIONS TO CANDIDATES:**

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWENTY marks.
- 1. a) Draw and explain the architecture of 8086 microprocessor.
  - b) Explain the classification of the instruction set of 8086 microprocessor with suitable examples.
- 2. a) Write an assembly language program for 8086 microprocessor to find out the largest number in a series of 20 numbers stored in consecutive memory locations.
  - b) Explain the following instructions of 8086 with suitable example.
    - i) AAA
    - ii) CBW
    - iii) IDIV Source
    - iv) LOOP Label
    - v) CMC
- 3. a) Discuss the different types of addressing mode with suitable examples in 8086.
  - b) Give the flag register description for 8086 microprocessor and state the uses of individual flags.
- 4. a) Identify the addressing mode used in the following 8086 instructions:
  - i) MOV AL, [1000H]
  - ii) MOV CL, [BX]
  - iii) MOV AX, [BX +SI]
  - iv) MOV AL, 50H

b) Explain the concept of Segmented Memory. What are its advantages? Discuss the physical address formation in 8086.

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- 5. a) What is interfacing? Discuss peripheral mapped I/O and memory mapped I/O interfacing techniques with suitable example and also compares their characteristics.
  - b) Draw and explain the Internal Architecture of 80186 with neat block diagram.
- 6. a) Design a complete interface diagram of DMA (8237) with 8086 processor. Assume the address for channel 0 is 3500H.
  - b) Write an assembly language program to find out the count of positive numbers and negative numbers from a given series of signed numbers in 8086.
- 7. a) Draw and explain the Internal Architecture of 8251 (USART).
  - b) Draw the Interfacing Diagram of 8 bit DAC with the 8086 through 8255. Also write a program to generate a square wave of 1kHz. Assume the frequency of microprocessor is 5MHz.
- 8. Write short notes on the following:
  - a) Assembler Directives
  - b) Pentium Architecture
  - c) Interrupt Handling in 8086

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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