R19

III B. TECH I SEMESTER REGULAR EXAMINATIONS, FEB-2022
MICROPROCESSORS AND MICROCONTROLLERS
(Electronics and Communication Engineering)

Time: 3 Hours   **Max. Marks: 60**

Note: Answer **ONE** question from each unit (**5 × 12 = 60 Marks**)
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UNIT-I

1. a) Draw the internal architecture of 8086 microprocessor and explain its operation in detail. [6M]

   b) Draw the timing diagram of minimum mode read operation and explain it operation. [6M]

(OR)

2. a) How 8086 enters into its maximum mode of operation? Discuss the use of maximum mode of operation of 8086. [6M]

   b) List the addressing modes of 8086 with an example of each. [6M]

UNIT-II

3. a) Explain any three string manipulation instructions of 8086 with example. [6M]

   b) Write an assembly language program in 8086 to arrange the given array of 16-bit hexadecimal numbers in descending order. [6M]

(OR)

4. a) Write an assembly language program (ALP) which counts the number of A's and a's in a string of characters. [6M]

   b) List out the shift and rotate instructions of 8086 microprocessor with examples. [6M]

UNIT-III

5. a) Explain the briefly the different modes operation of 8255 PPI. [6M]

   b) Describe the operation of stepper motor interfacing. [6M]

(OR)

6. a) With a neat block diagram, explain the operation of ADC 0808. [6M]

   b) Interface digital to analog controller DAC AD7523 with an 8086 operating at 8MHz and write an assembly language program to generate a triangular waveform of period 2ms with V_{max} 5V. [6M]

UNIT-IV

7. a) Draw the pin Diagram of 8051 microcontroller and explain the function of each pin in detail. [6M]

   b) Draw the internal RAM organization of 8051 microcontroller and explain it. [6M]

8. a) List out the different instruction sets of 8051 microcontroller [6M]
   and explain with examples.

   b) Explain the interfacing of a seven segment display to 8051 [6M]
   microcontroller.

UNIT-V

9. a) Discuss salient features of ARM Processor Families. [6M]

   b) Compare differences between ARM and PIC Microcontrollers. [6M]

(OR)

10. a) Draw and Explain Functional diagram of ARM Processor. [6M]

    b) What are the advantages of ARM Cortex-M series? [6M]

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