III B. Tech I Semester Regular Examinations, February-2022
MICROPROCESSORS AND MICROCONTROLLERS
(Electrical and Electronics Engineering)

Time: 3 hours   Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1. a) Draw and explain the register organization of 8086 and mention typical application of each register. [8M]
   b) Explain the various addressing modes of 8086 with examples. [7M]

(OR)

2. a) Explain in detail about the flag register of 8086 microprocessor. [8M]
   b) Explain the architecture of 80386 microprocessor with a neat sketch. [7M]

UNIT-II

3. a) Explain how an analog-to-digital converter is interfaced to 8086 microprocessor. [8M]
   b) Explain different modes of operation of 8255. [7M]

(OR)

4. a) Bring out the differences between static RAM and dynamic RAM. [8M]
   b) Design a stepper motor controller, and write an ALP to rotate the shaft of a 4-phase stepper motor with 200 rotor teeth, for rotations through an angle of 1350 in 2 seconds. [7M]

UNIT-III

5. a) Draw and discuss the internal architecture of 8259. [8M]
   b) Explain the functions of following signals of 8257: [7M]
      (i) HLDA
      (ii) AEN
   (iii) MARK

(OR)

6. a) Explain the operation of 8251 (USART). What are its various modes of operation? [8M]
   b) Discuss the properties of DMA request inputs of 8257. [7M]

UNIT-IV

7. a) Enlist the salient features of 8051 family of microcontrollers. [8M]
   b) Discuss any four signals description of 8051. [7M]

(OR)

8. a) List the applications of microcontrollers. And explain each of it briefly. [8M]
   b) What are the interrupts of 8051? Explain them briefly. [7M]
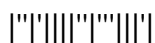
UNIT-V

9. a) Explain different I/O ports presented in PIC controller and draw the necessary diagram for it.　　　[8M]

　　b) Explain the features of ARM controller in detail.　　　[7M]

(OR)

10. a) Explain the different thumb programming model of ARM controller with suitable examples.　　　[8M]

　　b) Draw and explain different timers presented in PIC controller.　　　[7M]

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