Unit IV

8. Describe format and main components of an 8051 assembly language program. Illustrate the explanation with suitable examples, such as programs for addition and multiplication of two numbers. **14**

9. Explain interfacing of an ADC with 8051 microcontroller. Describe the working principle and write a program to read analog data. **14**

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(T) Roll No. .....

PAPER ID—21142

B.Tech. EXAMINATION, 2026

(Fourth Semester)

MICROPROCESSOR AND MICROCONTROLLER

Time : 3 *Hours* *Maximum Marks :* 70

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 *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks. Assume any missing data appropriately.

1. (a) Define bit and byte.

   (b) What is the function of MOVS instruction ?

   (c) What is the difference between a macro and a procedure ?

   (d) What is a programmable timer ?

   (e) How many total pins of 8051 ? What is the role of Port 0 ?

   (f) What are arithmetic instructions and logical instructions in 8051 ?

   (g) How does a stepper motor work with 8051 microcontroller ? **7×2=14**

Unit I

2. Explain addressing modes of 8086 microprocessor with suitable examples and discuss their importance in assembly language programming. **14**

3. Describe interrupts in 8086 microprocessor, their types, interrupt vector table, and working of an Interrupt Service Routine. **14**

Unit II

4. Explain signals of 8086 microprocessor, classify them according to their functions and describe signals used in minimum mode and maximum mode operations. **14**

5. Describe evolution of advanced microprocessors, their features compared to early processors like 8086, and discuss their applications. **14**

Unit III

6. Explain interfacing of ADC and DAC with a microprocessor and discuss their applications. **14**

7. Describe working of DMA controller and programmable interrupt controller in microprocessor systems, and discuss their functions and advantages over programmed I/O and basic interrupt handling. **14**