(T) Roll No. .....

PAPER ID—21142

B. Tech. EXAMINATION, 2025

(Fourth Semester)

COMPUTER SCIENCE & ENGINEERING

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.

1. (a) Describe the function of 8086 queue.

   (b) What is the main advantage of a top-down design approach to solving a programming problem ?

(c) Why is 8284 clock generator connected to the 8086 CLK pin ?

(d) When the 8086 microprocessor is in the minimum mode and maximum mode.

(e) State the applications of Programmable Interval Timer.

(f) How the selection of particular register bank is done in 8051 ?

(g) What happens in power down mode of 8051 microcontroller ? 2×7=14

Unit I

2. (a) Discuss different types of interrupts in 8086. 7

(b) Explain different addressing modes of 8086 with the help of suitable examples. 7

3. (a) With the help of neat diagram explain the internal architecture of 8086 microprocessor. 7

(b) Write an assembly language program to arrange an array of 8 bit numbers in ascending order. 7

Unit II

4. (a) Explain the maximum mode signals of 8086 microprocessor in detail. 7

   (b) With the help of a neat diagram explain the 8086 bus activity during a write machine cycle. 7

5. (a) Write a short note on coprocessor. 7

   (b) What do you understand by closely coupled and loosely coupled configurations ? Explain. 7

Unit III

6. With the neat block diagram explain the 8255 Programmable Peripheral Interface and its operating modes. 14

7. Explain the 8259 Interrupt controller with neat block diagram. Also explain ICWs and OCWs 14

Unit IV

8. (a) Explain the pin diagram of 8051 in detail. 7

   (b) Discuss all the data transfer instructions of 8051 microcontroller. Use suitable examples. 7

9. (a) Discuss various addressing modes of 8051 taking a suitable example. 7

   (b) Write shortly on the various operating modes for timer of 8051 microcontroller. 7

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