

III B. Tech I Semester Supplementary Examinations, June/July-2022**MICROPROCESSORS AND MICROCONTROLLERS**

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) What are the functions of Bus Interface Unit (BIU) and Execution Unit (EU) in 8086? [8M]
- b) Define a microprocessor. Explain in detail the evolution of microprocessor in microprocessor age from 4004 MP to core-2 system. [7M]

(OR)

2. a) Evaluate system bus timing with neat block diagram. [8M]
- b) Differentiate between microprocessor unit and microcontroller unit. [7M]

UNIT-II

3. a) Outline the use of the following assembler directives: [8M]
DD, ASSUME, EQU and LABEL.
- b) Write 8086 program to add the content of one segment to another segment. [7M]

(OR)

4. a) Write 8086 program to find the square root of a perfect square root number. [8M]
- b) Discuss the program development steps and instructions for 8086 programming. [7M]

UNIT-III

5. a) Define DMA. Generalize the concepts of DMA based data transfer using DMA controller. [8M]
- b) How do you interface a seven-segment display? Explain. [7M]

(OR)

6. a) Describe the need for 8259 programmable interrupt controllers. [8M]
- b) With a neat sketch, explain the function of DMA controller. [7M]

UNIT-IV

7. a) With the necessary diagram of control word format, explain the various operating modes of timer in 8051 microcontroller. [8M]
- b) Write the algorithm and ALP for traffic light control system. [7M]



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(OR)

8. a) Write a program to multiply the given number 48H and 30H using 8051. [8M]
b) Explain the stepper motor interface using 8051 microcontroller. [7M]

UNIT-V

9. a) Illustrate the Functional Diagram of ARM Cortex-M3 Processor and explain the development units. [8M]
b) Describe the loops, subroutines and parameter passing of ARM cortex-M3 programming. [7M]

(OR)

10. a) Describe the special functions and interfaces in ARM processor. [8M]
b) Discuss the instruction set, system address map and bit banking of programmer's model. [7M]

