

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Regular/Supplementary Examinations OCT/NOV 2025
FUNDAMENTALS OF MICROPROCESSORS AND MICROCONTROLLERS
(OPEN ELECTIVE)

Time: 3 hours

Max. Marks: 70

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

All Questions Carry Equal Marks

UNIT-I

1. a) Explain the functional block diagram of 8085 microprocessor and describe its working with neat sketch. [7M]
b) Discuss the memory organization and I/O data transfer techniques in 8085. [7M]
(OR)
2. a) Draw and explain the pin diagram of 8086 and describe the function of each pin. [7M]
b) Explain the minimum mode configuration of 8086 with timing diagrams. [7M]

UNIT-II

3. a) Define assembler directive and analyze working of any three assembler directive with suitable example? [7M]
b) Describe different addressing modes of 8086 with examples. [7M]
(OR)
4. a) Write an 8086-assembly language program to find the largest number in an array. [7M]
b) Explain the use of debugging and assembly language tools in 8086 program development. [7M]

UNIT-III

5. a) Explain the architecture and operation of Intel 8255 programmable peripheral interface (PPI). [7M]
b) Describe interfacing of seven-segment display 8086. [7M]
(OR)
6. a) Explain the architecture and working of Intel 8251 USART and its interfacing with 8086. [7M]
b) Draw and discuss 8259 PIC with neat block diagrams. [7M]

UNIT-IV

7. a) Explain the architecture and pin configuration of 8051 microcontroller. [7M]
b) Describe internal memory organization in 8051. [7M]
(OR)
8. a) Discuss the data transfer instructions of 8051 with examples. [7M]
b) Write an assembly language program (ALP) for 8051 to find sum of n numbers. [7M]

UNIT-V

9. a) Write a program to interface keyboard and display using 8051 microcontroller. [7M]
b) Explain the control of servo motor and stepper motor using 8051. [7M]
(OR)
10. a) Discuss the applications of microcontrollers in automation systems. [7M]
b) Explain the interfacing of a servo motor with the 8051 microcontroller. Write an assembly language program (ALP) to rotate the servo motor by 90 degrees. [7M]
