

Code No: **R204104O**

R20

SET - 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Advanced Supplementary Examinations March 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 functional blocks of 8085 processor with a neat Hardware architecture. [7M]
b) Compare 8085 and 8086 Processors? [7M]
(OR)
2. a) Explain the concept of Interrupts in 8085 processor. [7M]
b) Draw the minimum mode pin diagram and explain the function of each pin in detail. [7M]

UNIT-II

3. a) What are addressing modes in 8086? Explain each with an example. [7M]
b) Write an Assemble language program to add two 16-bit Hexa decimal numbers in 8086. [7M]
(OR)
4. a) Explain the following instructions : [7M]
i)HLT (ii)LOCK (iii)CLI (iv)XLAT V) PUSH VI) POP
b) Write a recursive procedure to find out factorial of the given number. [7M]

UNIT-III

5. a) Explain the operation of each block of 8251 USART with a neat architecture. [7M]
b) Explain the need of DMA. Discuss in detail about DMA data transfer method. [7M]
(OR)
6. a) Describe the internal architecture of 8255 and its registers? [7M]
b) Explain in detail about semiconductor memory Interfacing. [7M]

UNIT-IV

7. a) Draw the pin diagram of 8051 microcontroller and explain the Input /Output lines in Detail. [7M]
b) What are the interrupts of 8051? Explain them briefly. [7M]
(OR)
8. a) Draw and discuss the internal architecture of 8051 family of microcontrollers. [7M]
b) What is the purpose of using I/O ports of 8051? Classify and explain them in detail? [7M]

UNIT-V

9. a) Explain keyboard interfacing with 8051. [7M]
b) Write an assembly language program using 8051 microcontroller instructions to generate a square wave at port 1, pin 0 (i.e., P 1.0). The frequency of the generated square wave is to be 1 kHz. [7M]
(OR)
10. a) Analyze an 8051 subroutine to control the 7-segment display operation? [7M]
b) Write an assembly language program using 8051 to control the servo motor? [7M]
