

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. III Year I Semester Regular Examinations December-2025

MICROPROCESSORS AND MICROCONTROLLERS

(Common to ECE, CSE, CCC & CSIT)

Time: 3 Hours

Max. Marks: 70

PART-A

(Answer all the Questions 10 x 2 = 20 Marks)

- | | | | | |
|-----|---|-----|----|----|
| 1 a | If a DS register holds the address of 1000H and data reference contains an address of 0031H, find the physical address? | CO1 | L1 | 2M |
| b | Describe the function of Stack Pointer in 8086. | CO1 | L1 | 2M |
| c | Give the instruction format used by 8086 microprocessor. | CO3 | L1 | 2M |
| d | What are the assembly language program development tools? | CO3 | L1 | 2M |
| e | Define a RAM and ROM | CO4 | L1 | 2M |
| f | List the applications of a stepper motor | CO4 | L4 | 2M |
| g | Discuss about Data Pointer | CO2 | L6 | 2M |
| h | Explain about the function of a program counter. | CO2 | L2 | 2M |
| i | Define TMOD register in 8051 | CO2 | L1 | 2M |
| j | What is an Interrupt Service Routine (ISR)? | CO2 | L1 | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

- | | | | | |
|-----|--|-----|----|----|
| 2 a | Explain in detail about the signals used in minimum mode of operation. | CO1 | L5 | 5M |
| b | Explain in detail about the signals used in maximum mode of operation. | CO1 | L2 | 5M |

OR

- | | | | | |
|------|---|-----|----|----|
| 3 a | Define an Interrupt. Explain the series of actions that an 8086 microprocessor does in response to an when an interrupt | CO1 | L1 | 5M |
| b | Explain about the following: | CO1 | L1 | 5M |
| i) | Pointer and Index Registers | | | |
| ii) | Segment Registers | | | |
| iii) | Instruction byte Queue | | | |

UNIT-II

- | | | | | |
|---|---|-----|----|-----|
| 4 | What are data copy instructions? Explain any five data copy instructions with examples. | CO3 | L1 | 10M |
|---|---|-----|----|-----|

OR

- | | | | | |
|-----|---|-----|----|----|
| 5 a | Describe about assembler directives. | CO3 | L1 | 5M |
| b | Write an assembly language program to find factorial of a given number. | CO3 | L3 | 5M |

UNIT-III

- | | | | | |
|---|---|-----|----|-----|
| 6 | Illustrate the interfacing of RAM and ROM with 8086 microprocessors with a neat diagram and address decoding. | CO4 | L3 | 10M |
|---|---|-----|----|-----|

OR

- | | | | | |
|-----|---|-----|----|----|
| 7 a | With neat sketch discuss about stepper motor. | CO4 | L6 | 6M |
| b | Draw the internal architecture of 8259 Programmable Interrupt Controller and explain its operation. | CO4 | L2 | 4M |

UNIT-IV

- | | | | | |
|-----|--|-----|----|----|
| 8 a | Discuss about various functions of 8051 ports. | CO2 | L6 | 6M |
| b | Explain about Special Function Registers of 8051 | CO2 | L5 | 4M |

OR

- | | | | | |
|---|--|-----|----|-----|
| 9 | Describe the different types of addressing modes supported by 8051 with suitable examples. | CO3 | L2 | 10M |
|---|--|-----|----|-----|

UNIT-V

- | | | | | |
|------|--|-----|----|----|
| 10 a | What is an Interrupt? Explain about Interrupt Enable register. | CO3 | L2 | 5M |
| b | Describe about Interrupt Priority register. | CO3 | L1 | 5M |

OR

- | | | | | |
|----|---|-----|----|-----|
| 11 | With a neat sketch, explain the interfacing of two 2KB of EPROMs and two 4K bytes of static RAMs with 8051. | CO6 | L5 | 10M |
|----|---|-----|----|-----|

*** END ***