

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

B.Tech. II Year II Semester Regular & Supplementary Examinations March/April-2026
MICROPROCESSORS AND MICROCONTROLLERS
(CSE with Specialization in IoT & Automation)

Time: 3 Hours**Max. Marks: 70****PART-A**

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

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|---|---|---|-----|----|----|
| 1 | a | What is the size of address bus and data bus in 8086? | CO1 | L1 | 2M |
| | b | Mention various types of Interrupts. | CO1 | L1 | 2M |
| | c | Define op-code and operand. | CO2 | L1 | 2M |
| | d | Describe assembler directives. | CO2 | L2 | 2M |
| | e | What is key bouncing? | CO3 | L1 | 2M |
| | f | Define an interrupt. | CO3 | L1 | 2M |
| | g | List various I/O ports of 8051. | CO4 | L1 | 2M |
| | h | State the use of NOP Instruction of 8051. | CO4 | L1 | 2M |
| | i | What is barrel shifter? | CO5 | L1 | 2M |
| | j | Define ARM Controller. | CO5 | L1 | 2M |

PART-B

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

UNIT-I

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|---|---|---|-----|----|----|
| 2 | a | Explain Harvard and Von Neumann architectures with examples | CO1 | L4 | 5M |
| | b | Draw and explain the minimum mode configuration of 8086. | CO1 | L4 | 5M |

OR

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|---|--|--|-----|----|-----|
| 3 | | Illustrate the internal architecture of the 8086 with a neat functional block diagram. | CO1 | L4 | 10M |
|---|--|--|-----|----|-----|

UNIT-II

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| 4 | a | Describe the Logical instructions of the 8086 microprocessor with example. | CO2 | L2 | 5M |
| | b | Write simple assembly language program to find the smallest of the given series of numbers. | CO2 | L3 | 5M |

OR

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| 5 | | Illustrate the uses of various assembly language development tools like editor, assembler, linker, locator and debugger. | CO2 | L4 | 10M |
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UNIT-III

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| 6 | a | Discuss about software and hardware interrupt applications. | CO3 | L2 | 5M |
| | b | Write the differences between static RAM and dynamic RAM. | CO3 | L2 | 5M |

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| 7 | | Explain in detail how LEDs interface with the 8086 microprocessor using the 8255 PPI. | CO3 | L4 | 10M |
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UNIT-IV

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|---|---|--|-----|----|----|
| 8 | a | Draw the internal architecture of 8051 microcontroller and explain the function of each. | CO4 | L4 | 5M |
| | b | Explain the interfacing of 16x2 LCD Module to 8051. | CO4 | L4 | 5M |

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| 9 | | Draw and explain the A/D converter and D/A converter circuit in 8051. | CO4 | L4 | 10M |
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UNIT-V

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| 10 | a | Write a delay program in ALP for cortex-M3. | CO5 | L3 | 5M |
| | b | Explain the data processing instructions with an example. | CO5 | L4 | 5M |

OR

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|----|--|--|-----|----|-----|
| 11 | | Explain the Nested Vectored Interrupt Controller (NVIC) with neat diagram. Also describe the NVIC programmers model. | CO5 | L4 | 10M |
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