

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech (Sixth Semester - Regular) Examinations, April 2026

23BCSPC36003/23BCMPC36003/23BCDPC36003– Microprocessors and Microcontroller (CSE/CSE(AIML)/CSE(DS))

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right-hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- | | CO # | Blooms Level |
|---|------|--------------|
| a. Describe the role of ALE signal in 8085. | CO1 | K2 |
| b. Explain the need for instruction pipelining in 8086. | CO2 | K2 |
| c. Differentiate between program memory and data memory in 8051 | CO3 | K2 |
| d. Explain how physical address is calculated in 8086. | CO4 | K3 |
| e. Explain the working principle of 8255 in Mode 0. | CO5 | K2 |

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

- | | Marks | CO # | Blooms Level |
|--|-------|------|--------------|
| 2. a. Explain the architecture of 8085 microprocessor with neat diagram. | 5 | CO1 | K2 |
| b. Describe the following instruction with proper example:
(i) DAD (ii) ADC (iii) STA (iv) LHL (v) SBI
(OR) | 5 | CO2 | K3 |
| c. Classify and illustrate different addressing modes of 8085 with examples. | 5 | CO1 | K4 |
| d. Examine the interrupt structure of 8085. | 5 | CO1 | K4 |
| 3.a. Explain the architecture of 8086 microprocessor. | 5 | CO2 | K2 |
| b. Analyze the concept of memory segmentation in 8086.
(OR) | 5 | CO3 | K3 |
| c. Illustrate maximum modes of 8086 operation. | 5 | CO2 | K4 |
| d. Discuss various addressing modes of 8086 with examples. | 5 | CO2 | K1 |
| 4.a. Explain the architecture of 8051 microcontroller with neat sketch. | 5 | CO3 | K3 |
| b. Analyze the structure of I/O ports in 8051.
(OR) | 5 | CO4 | K2 |
| c. Describe the memory organization of 8051. | 5 | CO3 | K3 |
| d. Explain following instructions of 8051 microcontroller:
i) SWAP A ii) LJMPL iii) DIV AB iv) MUL AB
v) ACALL SUBR | 5 | CO4 | K2 |
| 5.a. Explain addressing modes of 8051 with examples. | 5 | CO4 | K2 |
| b. Interface an 2KB Memory with 8085 Microprocessor
(OR) | 5 | CO5 | K5 |
| c. Explain branching and bit manipulation instructions in 8051 with examples. | 5 | CO4 | K2 |
| d. Explain various flags of 8086 microprocessor and their significance in arithmetic and logical operations | 5 | CO5 | K2 |
| 6.a. Describe the operation of 8255 Programmable Peripheral Interface. | 5 | CO6 | K2 |
| b. Explain the operation of 8254 timer with suitable diagram.
(OR) | 5 | CO6 | K2 |
| c. Analyze DMA controller 8257 operation. | 5 | CO6 | K3 |
| d. Explain BUS Organisation of 8085 with suitable diagram. | 5 | CO4 | K2 |

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