Course Code: 23EC6E08

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

III - B.Tech II-Semester Regular Examinations (BR23), MAY - 2026

MICROPROCESSORS & MICROCONTROLLERS (CSE-AI&DS, AI&ML)

Time: 3 hours Max. Marks: 70

Question Paper consists of Part-A and Part-B
*Answer **ALL** the question in **Part-A andPart-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	Define Register?	(2M)	CO1	BL1
b)	Explain the Following Pins of 8086 1. NMI 2. INTR	(2M)	CO1	BL2
c)	What is Interrupt Service Routine in 8086?	(2M)	CO2	BL1
d)	Explain the Following Instructions I. LOOP II. CALL	(2M)	CO2	BL2
e)	Explain the I/O Ports of 8255	(2M)	CO3	BL2
f)	Differentiate Between ROM & RAM	(2M)	CO3	BL1
g)	State the Features of 8051Microcontroller	(2M)	CO4	BL2
h)	What is Program Counter in 8051	(2M)	CO4	BL2
i)	What are the THUMB instructions in ARM	(2M)	CO5	BL3
j)	Mention two features of Cortex-M3	(2M)	CO5	BL2

PART–B (5X10 = 50M)

2a.	Explain the concept of a microprocessor-based system with a neat diagram.	(5M)	CO1	BL2
b	Explain the General BUS operation of 8086 with Suitable Diagrams	(5M)	CO1	BL2
	(OR)			
3a.	Compare Harvard and Von Neumann architectures with examples.	(5M)	CO1	BL2
b	Discuss the Register Organization of 8086	(5M)	CO1	BL2
4a.	Explain the assembler directives used in 8086 with examples.	(5M)	CO2	BL2
b.	Write an ALP for finding Factorial of a Number	(5M)	CO2	BL3
	(OR)			
5a.	Explain Data Transfer Instructions of 8086 with Examples	(5M)	CO2	BL2
b.	Explain the stack organization in 8086 with a neat diagram.	(5M)	CO2	BL2

6a.	Design an interface between 8086 CPU and two chips of 16K X 8 EPROM and two chips of 32K X 8 RAM. Select the starting address of EPROM suitably. The RAM address must start at 00000H.	(5M)	CO3	BL4
b	Write a short note on seven-segment display types and operation.	(5M)	CO3	BL3
	(OR)			
7a.	Draw & Explain the Architecture of 8255 PPI	(5M)	CO3	BL2
b	Discuss Serial Communication in 8251 USART	(5M)	CO3	BL2
8a.	Draw & Explain the Block diagram of 8051	(5M)	CO4	BL2
b	Explain Interfacing D/A Converter with 8051	(5M)	CO4	BL3
	(OR)			
9a.	Discuss Various Addressing Modes of 8051 with Example	(5M)	CO4	BL2
b	Explain the Interrupt Structure of Microcontroller	(5M)	CO4	BL2
10a	Describe the ARM Architecture & its key features	(5M)	CO5	BL2
b	Explain the Difference Between CISC & RISC with suitable examples	(5M)	CO5	BL2
	(OR)			
11a	Describe the Instruction Set Architecture of ARM Processor	(5M)	CO5	BL3
b	Explain the ARM Processor Families & their applications	(5M)	CO5	BL4

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