Course Code: 23EC6E08

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

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

MICROPROCESSORS AND MICROCONTROLLERS

Common to CSE-AIDS & AIML

Time: 3 hours Max. Marks: 70

Question Paper consists of Part-A and Part-B

*Answer **ALL** the question in **Part-A and Part-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	Explain the microprocessor based system with neat diagram.	(2M)	CO1	BL2
b)	Write the uses of memory segmentation in 8086.	(2M)	CO1	BL2
c)	Define the given assembler directives: i) EXTRN ii) ASSUME	(2M)	CO2	BL2
d)	Explain the PUSH and POP operations of 8086.	(2M)	CO2	BL2
e)	What is static RAM and Dynamic RAM? Mention one difference between them.	(2M)	CO3	BL2
f)	Write the asynchronous mode instruction format of 8251.	(2M)	CO3	BL2
g)	Write any two differences between microprocessor and microcontroller.	(2M)	CO4	BL2
h)	List out the special function registers in 8051 Microcontroller.	(2M)	CO4	BL2
i)	Write any two differences between CISC and RISC architecture.	(2M)	CO5	BL2
j)	Write the applications of ARM processors.	(2M)	CO5	BL2

PART–B (5X10 = 50M)

2a.	Compare the Harvard and Von Neumann architectures with suitable examples.	5(M)	CO1	BL3
b.	Explain about 8086system timing diagrams of read and write cycles.	5(M)	CO1	BL2
	(OR)			
3.	Draw and explain the internal architecture of 8086 processor.	10(M)	CO1	BL2

4a.	Discuss the addressing modes of 8086 with suitable examples.	5(M)	CO2	BL2
b.	Write an ALP to add first 100 natural numbers.	5(M)	CO2	BL3
	(OR)			
5a.	Discuss the use of software interrupts in 8086 programming.	5(M)	CO2	BL2
b.	Write an ALP to multiply two 8-bit numbers using MUL instruction.	5(M)	CO2	BL3

6a.	Explain with neat diagram 8255 PPI operating modes and control word register.	10(M)	CO3	BL2
	(OR)			
7a.	Explain with neat diagram seven segment display interface including ALP.	10(M)	CO3	BL3

8a.	Explain the memory organisation of 8051.	5(M)	CO4	BL2
b.	Explain the operation of counters/timers in 8051.	5(M)	CO4	BL2
	(OR)			
9a.	Explain in details about I/O ports in 8051.	5(M)	CO4	BL2
b.	Discuss in detail about each bit in PSWR with suitable example.	5(M)	CO4	BL3
10.	Explain the architecture and organisation of ARM 7 processor.	10(M)	CO5	BL2
	(OR)			
11a.	Explain the functional description of the ARM Cortex-M3 processor.	5(M)	CO5	BL2
b.	Discuss the ARM instruction pipeline and its benefits.	5(M)	CO5	BL2

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Hamika

Faculty Signature