

## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM

## III B. Tech II Semester Supplementary Examinations, November -2025

## MICRO PROCESSORS AND MICRO CONTROLLERS

(ELECTRONICS &amp; COMMUNICATION ENGINEERING)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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		<b>UNIT-I</b>	
1.	a)	Discuss the bus interfacing unit and execution unit of 8086 architecture.	[7M]
	b)	Draw the flag register of 8086 microprocessor and explain the function of each flag with a suitable example.	[7M]
		(OR)	
2.	a)	Explain the differences between CISC and RISC architecture.	[7M]
	b)	Draw the timing diagrams of minimum mode write operation and explain in detail.	[7M]
		<b>UNIT-II</b>	
3.	a)	Explain machine language instruction formats of 8086.	[7M]
	b)	Develop an assembly language program to find squares of numbers from 1 to 30.	[7M]
		(OR)	
4.	a)	Explain the following instructions ( i) AAD ( ii) DAS (iii) CALL (iv) RET	[7M]
	b)	Write an 8086-assembly language program to sort an array of data in descending order.	[7M]
		<b>UNIT-III</b>	
5.	a)	Draw the internal block diagram of 8259 PIC and explain its operation.	[7M]
	b)	Explain different modes of operation of 8255 Programmable Peripheral I/O.	[7M]
		(OR)	
6.	a)	Draw the 8251 USART architecture and explain the operation of each block in it.	[7M]
	b)	Draw the Block diagram of 8237 DMA controller and explain its operations.	[7M]
		<b>UNIT-IV</b>	
7.	a)	List and explain various addressing modes of 8051 microcontroller	[7M]
	b)	Write an assembly language program using 8051 microcontroller instructions to generate a square wave at port 1, pin 0 (i.e., P 1.0). The frequency of the generated square wave is to be 2 kHz.	[7M]
		(OR)	
8.	a)	Write an ALP to count the number of even numbers stored in internal RAM between 20H and 60H.	[7M]

	b)	Explain in detail timer modes of operation with necessary registers in 8051.	[7M]
		<b>UNIT-V</b>	
9.	a)	Explain ARM Cortex-M Series Family in detail.	[7M]
	b)	What is NVIC? Explain its programmers' model.	[7M]
		(OR)	
10.	a)	Explain the Programmers Models of ARM processor in detail.	[7M]
	b)	Explain the following ARM Cortex M# instructions with examples i) LDR ii) STR iii) BIC iv) BFI v) SBFX vi) REVSH	[7M]

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