

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
III B. Tech II Semester Regular/Supplementary Examinations, April -2025
MICROPROCESSORS AND MICROCONTROLLERS
 (ELECTRICAL & ELECTRONICS ENGINEERING)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
 All Questions Carry Equal Marks

		<u>UNIT-I</u>	
1.	a)	Explain the functional blocks of 8086 and describe the role of Bus Interface Unit (BIU) and Execution Unit (EU).	[7M]
	b)	Illustrate and explain the memory segmentation scheme in 8086 microprocessor.	[7M]
		(OR)	
2.	a)	Compare the key architectural features of 8086, 80286, and 80386 processors.	[7M]
	b)	With a neat diagram, explain the flag register and general-purpose registers of 8086..	[7M]
		<u>UNIT-II</u>	
3.	a)	With a neat diagram, explain the flag register and general-purpose registers of 8086.	[7M]
	b)	Write an Assembly Language Program (ALP) to find the factorial of a given number using 8086.	[7M]
		(OR)	
4.	a)	Explain different addressing modes of 8086 with suitable examples.	[7M]
	b)	Draw the timing diagram for I/O read operation in minimum mode of 8086.	[7M]
		<u>UNIT-III</u>	
5.	a)	Draw and explain the architecture of 8255 Programmable Peripheral Interface.	[7M]
	b)	Write an ALP to interface a DC motor with 8086 using 8255 and control its direction of rotation. [[7M]
		(OR)	
6.	a)	With a neat sketch, explain the internal architecture of 8259 Programmable Interrupt Controller.	[7M]
	b)	Describe the working principle and interfacing of 8257 DMA controller with 8086.	[7M]
		<u>UNIT-IV</u>	
7.	a)	Draw and explain the pin configuration and memory organization of 8051 microcontroller.	[7M]
	b)	Explain the serial communication modes available in 8051 with suitable examples.	[7M]
		(OR)	
8.	a)	Write an ALP to generate a square wave on port pin P2.1 using Timer 1 in Mode 2 of 8051.	[7M]
	b)	Discuss the different types of interrupts supported by 8051 and their priority levels.	[7M]
		<u>UNIT-V</u>	
9.	a)	Explain the architecture and salient features of PIC16F877A microcontroller.	[7M]
	b)	Write a C program to toggle an LED connected to PORTB, pin 0 of PIC18F4550.	[7M]
		(OR)	
10.	a)	Describe various data types, control structures, and arithmetic operations used in PIC C programming.	[7M]

	b)	Explain the functioning of ADC and PWM modules in PIC microcontrollers with suitable applications.	[7M]
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