

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
III B. Tech I Semester Regular/Supplementary Examinations, April/May -2025
COMPUTER ARCHITECTURE AND ORGANIZATION
 (ELECTRONICS AND COMMUNICATION 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)	Discuss the major components of a computer system and their functions.	[7M]
	b)	Explain the concept of instruction set architecture (ISA). Describe different ISA types.	[7M]
		(OR)	
2.	a)	Explain the different phases of the instruction cycle with a neat diagram.	[7M]
	b)	Describe the various data types used in computer systems.	[7M]
		<u>UNIT-II</u>	
3.	a)	Explain the purpose and operations of different types of registers in a CPU.	[7M]
	b)	Describe different techniques for performing input/output communication.	[7M]
		(OR)	
4.	a)	Explain the function and implementation of arithmetic shift, logical shift, and circular shift operations.	[7M]
	b)	Discuss the factors to be considered when choosing an appropriate addressing mode for an instruction.	[7M]
		<u>UNIT-III</u>	
5.	a)	Define exception. Differentiate between interrupts and exceptions.	[7M]
	b)	Explain different DMA transfer modes.	[7M]
		(OR)	
6.	a)	Describe the mechanisms for prioritizing and handling multiple interrupts.	[7M]
	b)	Explain the key features and advantages of the PCI Express bus.	[7M]
		<u>UNIT-IV</u>	
7.	a)	Explain the concept of cache coherence and discuss different cache coherence protocols.	[7M]
	b)	Compare and contrast different types of ROM.	[7M]
		(OR)	
8.	a)	Describe the characteristics and access methods of various auxiliary memory devices.	[7M]
	b)	Explain different memory interleaving techniques and their impact on memory access time.	[7M]
		<u>UNIT-V</u>	
9.	a)	Explain the different types of micro-operations involved in instruction execution.	[7M]
	b)	Describe the algorithms for performing floating-point addition and subtraction.	[7M]
		(OR)	
10.	a)	Explain the concept of microprogrammed control and discuss the advantages and disadvantages of microprogrammed control vs. hardwired control.	[7M]
	b)	Write a short note on branch prediction techniques.	[7M]
