Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV EXAMINATION – SUMMER 2025

Subject Code: 3140707 Date:15-05-2025

Subject Name: Computer Organization & Architecture

Time: 10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain the Register Transfer Language with block diagram.	**03**
	(b)	Explain three state bus buffer.	**04**
	(c)	Explain shift micro operations and draw 4-bit combinational circuit shifter.	**07**
Q.2	**(a)**	List and explain any three register reference instruction.	**03**
	(b)	Explain instruction format with its types.	**04**
	(c)	Draw and explain Common Bus System for basic computer register.	**07**
		OR	
	(c)	Explain the basic working principle of the Control Unit with timing diagram.	**07**
Q.3	**(a)**	List out any three register of basic computer.	**03**
	(b)	State various phases of instruction cycle.	**04**
	(c)	Write an assembly level program to find average of 10 numbers stored at consecutive location in memory.	**07**
		OR	
Q.3	**(a)**	Convert following hexadecimal number into decimal, octal and binary. 1) 4A	**03**
	(b)	Explain any 4 addressing modes with example.	**04**
	(c)	What is an Interrupt Cycle? Draw and explain flow chart of it.	**07**
Q.4	**(a)**	Explain register stack.	**03**
	(b)	Write an assembly language program to Add two double precision numbers.	**04**
	(c)	Explain the working of Second Pass Assembler with its flowchart.	**07**
		OR	
Q.4	**(a)**	What is address sequencing?	**03**
	(b)	Write short note on subroutine.	**04**
	(c)	Draw and explain flow chart for multiplication program.	**07**
Q.5	**(a)**	Explain various types of interrupts.	**03**
	(b)	What are status register bits? Draw and explain the block diagram showing all status registers.	**04**
	(c)	Write a note on asynchronous data transfer.	**07**
		OR	
Q.5	**(a)**	What is Memory Interleaving?	**03**
	(b)	Differentiate RISC and CISC.	**04**
	(c)	Explain Flynn’s classification for computers.	**07**

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