Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – SUMMER 2022

Subject Code:2140707 Date:02-07-2022

Subject Name:Computer Organization

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)**	Draw diagram of Control Unit of a Basic Computer.	**03**
	(b)	State the differences between register stack and memory. stack.	**04**
	(c)	What is assembler? Draw and explain second pass assembler with its flowchart.	**07**
Q.2	**(a)**	Design a digital circuit for 4-bit binary adder.	**03**
	(b)	Explain following instruction with example: BUN LDA	**04**
	(c)	What is RISC processor? What are advantages of RISC architecture over traditional CISC architecture? State important characteristics of RISC processor.dd	**07**
		OR	
	(c)	Develop an algorithm for multiplication of two binary numbers, which are stored as per floating point representation.	**07**
Q.3	**(a)**	Explain the following: 1)Cache Memory 2)Virtual Memory	**03**
	(b)	Draw and explain 20 bits microinstruction code format.	**04**
	(c)	Explain Booth's algorithm with flowchart.	**07**
		OR	
Q.3	**(a)**	In zero-address instruction format, how data from memory is accessed? Explain with example.	**03**
	(b)	Differentiate between tightly coupled and loosely coupled systems.	**04**
	(c)	What is virtual memory? Explain relation between address space and memory space in virtual memory system.	**07**
Q.4	**(a)**	Explain Grey code.	**03**
	(b)	Explain different types of Interrupts.	**04**
	(c)	Explain different addressing modes with example.	**07**
		OR	
Q.4	**(a)**	State the difference between hardwired control and micro programmed control.	**03**
	(b)	Explain the DMA operation.	**04**
	(c)	Explain one-address, two-address and three-address instructions with example.	**07**
Q.5	**(a)**	What are the advantages of serial data transmission?	**03**

	(b)	What is cache memory? Explain how it enhances speed of accessing data?	**04**
	(c)	What is asynchronous data transfer? Differentiate between strobe control method and handshaking method.	**07**

OR

Q.5	**(a)**	Explain Vector Processing.	**03**
	(b)	What is cache coherence? Explain it.	**04**
	(c)	Explain how Input / Output can be performed using interrupts.	**07**

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