GUJARAT TECHNOLOGICAL UNIVERSITY
BCA/MCA INTEGRATED - SEMESTER - I EXAMINATION - WINTER 2025

Subject Code: BC01001011   **Date: 09-12-2025**

Subject Name: Fundamental of 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. Use of simple calculators and non-programmable scientific calculators are permitted.

		Marks
Q.1	**(a)** Do as directed.	**07**

1. $(BCA)_{16} = ($ _____ $)_2$
2. $(10001011)_2 = ($ _____ $)_8$
3. $(452)_8 = ($ _____ $)_{16}$
4. $(1AF)_{16} = ($ _____ $)_{10}$
5. Full Form of ALU.
6. Full Form of ROM.
7. Full Form of CPU.

(b)	Which gates are known as basic gates? Explain their working with help of truth table.	**07**
Q.2 (a)	Which gates are known as universal gate? Explain in detail.	**07**
(b)	Explain addition and subtraction in sign bit representation using 2' complement in binary number system.	**07**

OR

(b)	Explain Functional Units.	**07**
Q.3 (a)	Write a note on Error Detection codes.	**07**
(b)	What is Bus? List and explain any two types of Buses.	**07**

OR

(a)	Explain the concept of shift operations with its types.	**07**
(b)	What is addressing mode? List and explain any three types of addressing modes.	**07**
Q.4 (a)	Explain various Instruction Word Formats in detail.	**07**
(b)	Explain Arithmetic Micro-Operations.	**07**

OR

(a)	Write a decimal arithmetic unit with BCD adder with example?	**07**
(b)	What is half adder? Draw the half adder circuit with truth table.	**07**
Q.5 (a)	What is RAM? List and explain different types of RAM.	**07**

(b) Explain about Cache memory.   **07**

<div align="center">**OR**</div>

(a) Write a note on virtual memory.   **07**

(b) What is Semiconductor Memory? Explain types of Semiconductor Memory.   **07**

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