

GUJARAT TECHNOLOGICAL UNIVERSITY
BCA/MCA INTEGRATED – SEMESTER I- EXAMINATION –SUMMER-2026

Subject Code: BC01001011

Date: 12/05/2026

Subject Name: Fundamental of Computer Organization

Time:02:30 PM TO 05:00 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)	List out all types of logic gates. Explain in brief.	07
	(b)	Solve following conversion.	07
		I) $(010101010)_2 = ()_8$	
		II) $(125)_{10} = ()_2$	
		III) $(AF238)_{16} = ()_2$	
		IV) (101011111) 1's complement	
Q.2	(a)	What is Bus? Explain Bus structure.	07
	(b)	Explain Error detection code with its methods.	07
OR			
	(b)	What is computer? Explain types of computer.	07
Q.3	(a)	List out all types of addressing mode and Explain any two addressing mode in brief.	07
	(b)	Explain bus transfer memory with three state buffer.	07
OR			
Q.3	(a)	Explain Memory reference instruction , register reference instruction and I/O instruction	07
	(b)	Explain types of shift micro-operation.	07
Q.4	(a)	Explain addition and subtraction algorithm.	07
	(b)	Explain floating point Arithmetic micro operations	07
OR			
Q.4	(a)	Explain Booth's Algorithm	07
	(b)	Explain Division Algorithm.	07
Q.5	(a)	What is virtual memory? Explain its brief.	07
	(b)	Difference between Primary memory and secondary memory .	07
OR			
Q.5	(a)	Explain RAID	07
	(b)	Explain Cache memory .	07

Enrolment No. /Seat No.: _____

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

Subject Code: BC01001011

Date: 31/05/2025

Subject Name: Fundamental of Computer Organization

Time:02:30 PM TO 05:00 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)	Explain all Logic Gates.	07
	(b)	Convert following decimal value to binary, octal and hexadecimal:	07
		(i) $(960)_{10}$ (ii) $(1228)_{10}$	
Q.2	(a)	Explain Functional Units of Computer.	07
	(b)	Write a short note on Pipeline.	07
OR			
	(b)	What is bus? Explain Bus structure.	07
Q.3	(a)	Explain Arithmetic Micro Operation and Logic Micro Operation.	07
	(b)	Explain Instruction Cycle and Addressing Modes.	07
OR			
Q.3	(a)	Explain Shift Micro Operation.	07
	(b)	Explain Memory - Reference Instruction and Input - Output Instruction.	07
Q.4	(a)	Explain Half Adder and Full Adder.	07
	(b)	Draw flowchart of multiplication algorithm and explain it.	07
OR			
Q.4	(a)	Compare RISC & CISC processor	07
	(b)	Explain Half Subtractor and Full Subtractor.	07
Q.5	(a)	Write a short note on RAID.	07
	(b)	Write a short note on semiconductor RAM memories.	07
OR			
Q.5	(a)	Define ROM. Explain various types of ROMs.	07
	(b)	Write a short note on Virtual Memory	07

GUJARAT TECHNOLOGICAL UNIVERSITY

BCA/MCA INTEGRATED – SEMESTER I- EXAMINATION –WINTER-2024

Subject Code: BC01001011

Date: 31/12/2024

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) Ans the following.(One marks each)	07
1. Convert $(1101.01101)_2$ to Decimal	
2. Convert $(42.75)_{10}$ to Binary	
3. Convert $(1011011001)_2$ to Octal	
4. Convert $(54.6)_8$ to Decimal	
5. Convert $(D2E.8)_{16}$ to Binary	
6. Perform BCD Addition : $789.6 + 516.8$	
7. Convert $(101100.0101)_2$ to Hexadecimal	
(b) Explain the difference between AND, OR, and NOT gates in terms of their truth tables.	07
Q.2 (a) Draw logical gate circuit and truth table for: $F=(A+B+C)*(A'+B'+C)*(A+B'+C)$	07
(b) Explain single bus structure and double bus structure with diagram advantage and disadvantage?	07
OR	
(b) Explain the Instruction cycle? Describe the steps any two Instruction cycle.	07
Q.3 (a) Explain the concept of Fixed Point Representation. Write the difference between fixed point and floating point representations?	07
(b) Write a short note multiplication Algorithms and Division Algorithms provide example with diagram?	07
OR	
Q.3 (a) Why use shift register? Explain its working with proper circuit diagram	07
(b) Write the following floating–point Arithmetic operations with diagram?	07
Q.4 (a) Why use logic micro operations? Write a $R1 \rightarrow R2$ Logic Micro operations with diagram and truth table.	07
(b) Define the Register Transfer Language? Write the three types of register transfer operations with diagram.	07
OR	
Q.4 (a) Why use Error Detection codes? Which three type of Error Detection code write a anyone type with example ?	07

- (b) Explain ROM? Describe the various types of ROM (ROM, PROM, EPROM, and EEPROM). 07
- Q.5 (a) Explain the concept of virtual memory and cache memory with secondary storage. Discuss its advantage and disadvantages. 07
- (b) What is Semiconductor Memory? Explain types of Semiconductor Memory with advantage and disadvantage? 07
- OR**
- Q.5 (a) Write a decimal arithmetic unit with BCD adder with example? 07
- (b) What is a memory? Explain the primary memory and secondary memory with advantage and disadvantage? 07

Enrollment No./Seat No.:

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. $(BCA)_{16} = (\text{_____})_2$	
2. $(10001011)_2 = (\text{_____})_8$	
3. $(452)_8 = (\text{_____})_{16}$	
4. $(1AF)_{16} = (\text{_____})_{10}$	
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

OR

(a) Write a note on virtual memory.

07

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

07
