

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
<b>Q.1</b>	(a) Explain all Logic Gates.	<b>07</b>
	(b) Convert following decimal value to binary, octal and hexadecimal: (i) $(960)_{10}$ (ii) $(1228)_{10}$	<b>07</b>
<b>Q.2</b>	(a) Explain Functional Units of Computer.	<b>07</b>
	(b) Write a short note on Pipeline.	<b>07</b>
<b>OR</b>		
	(b) What is bus? Explain Bus structure.	<b>07</b>
<b>Q.3</b>	(a) Explain Arithmetic Micro Operation and Logic Micro Operation.	<b>07</b>
	(b) Explain Instruction Cycle and Addressing Modes.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Explain Shift Micro Operation.	<b>07</b>
	(b) Explain Memory - Reference Instruction and Input - Output Instruction.	<b>07</b>
<b>Q.4</b>	(a) Explain Half Adder and Full Adder.	<b>07</b>
	(b) Draw flowchart of multiplication algorithm and explain it.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Compare RISC & CISC processor	<b>07</b>
	(b) Explain Half Subtractor and Full Subtractor.	<b>07</b>
<b>Q.5</b>	(a) Write a short note on RAID.	<b>07</b>
	(b) Write a short note on semiconductor RAM memories.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Define ROM. Explain various types of ROMs.	<b>07</b>
	(b) Write a short note on Virtual Memory	<b>07</b>

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# 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
<b>Q.1 (a)</b> Ans the following.(One marks each)	<b>07</b>
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>(b)</b> Explain the difference between AND, OR, and NOT gates in terms of their truth tables.	<b>07</b>
<b>Q.2 (a)</b> Draw logical gate circuit and truth table for: $F=(A+B+C)*(A'+B'+C)*(A+B'+C)$	<b>07</b>
<b>(b)</b> Explain single bus structure and double bus structure with diagram advantage and disadvantage?	<b>07</b>
<b>OR</b>	
<b>(b)</b> Explain the Instruction cycle? Describe the steps any two Instruction cycle.	<b>07</b>
<b>Q.3 (a)</b> Explain the concept of Fixed Point Representation. Write the difference between fixed point and floating point representations?	<b>07</b>
<b>(b)</b> Write a short note multiplication Algorithms and Division Algorithms provide example with diagram?	<b>07</b>
<b>OR</b>	
<b>Q.3 (a)</b> Why use shift register? Explain its working with proper circuit diagram	<b>07</b>
<b>(b)</b> Write the following floating–point Arithmetic operations with diagram?	<b>07</b>
<b>Q.4 (a)</b> Why use logic micro operations? Write a $R1 \rightarrow R2$ Logic Micro operations with diagram and truth table.	<b>07</b>
<b>(b)</b> Define the Register Transfer Language? Write the three types of register transfer operations with diagram.	<b>07</b>
<b>OR</b>	
<b>Q.4 (a)</b> Why use Error Detection codes? Which three type of Error Detection code write a anyone type with example ?	<b>07</b>

- (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

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**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.**

	<b>Marks</b>
<b>Q.1 (a)</b> Do as directed.	<b>07</b>
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>(b)</b> Which gates are known as basic gates? Explain their working with help of truth table.	<b>07</b>
<b>Q.2 (a)</b> Which gates are known as universal gate? Explain in detail.	<b>07</b>
<b>(b)</b> Explain addition and subtraction in sign bit representation using 2' complement in binary number system.	<b>07</b>
<b>OR</b>	
<b>(b)</b> Explain Functional Units.	<b>07</b>
<b>Q.3 (a)</b> Write a note on Error Detection codes.	<b>07</b>
<b>(b)</b> What is Bus? List and explain any two types of Buses.	<b>07</b>
<b>OR</b>	
<b>(a)</b> Explain the concept of shift operations with its types.	<b>07</b>
<b>(b)</b> What is addressing mode? List and explain any three types of addressing modes.	<b>07</b>
<b>Q.4 (a)</b> Explain various Instruction Word Formats in detail.	<b>07</b>
<b>(b)</b> Explain Arithmetic Micro-Operations.	<b>07</b>
<b>OR</b>	
<b>(a)</b> Write a decimal arithmetic unit with BCD adder with example?	<b>07</b>
<b>(b)</b> What is half adder? Draw the half adder circuit with truth table.	<b>07</b>
<b>Q.5 (a)</b> What is RAM? List and explain different types of RAM.	<b>07</b>

**(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**

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