

# 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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