

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**
