Seat No.: _____ Enrollment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III Regular / Remedial Examination December 2010

Subject code: 130704

Subject Name: Computer Organization and Architecture

Date: 18 /12 /2010 **Time: 10.30 am – 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.**

Q.1	**(a)**	Explain the Common Bus System with its diagram.	**07**
	(b)	Discuss the phases of Instruction Cycle with flowchart.	**07**
Q.2	**(a)**	What is the difference between microprocessor and micro program? Is it possible to design a microprocessor without a micro program? Are all micro programmed computers also microprocessors? Define micro operation, micro instruction, micro program and micro code in short.	**07**
	(b)	Derive the control gate structure associated with the Address Register (AR) in the basic computer.	**07**
		OR	
	(b)	Explain the following instructions: SPA, SNA, SZA, SZE.	**07**
Q.3	**(a)**	Explain the different addressing modes with suitable examples.	**07**
	(b)	Explain the basic working principle of the Control Unit of basic computer using diagram.	**07**
		OR	
Q.3	**(a)**	Explain the design of Accumulator logic.	**07**
	(b)	List all the three address, two address, one address, zero address and RISC instructions with its examples.	**07**
Q.4	**(a)**	Explain the working of Second Pass Assembler with its flowchart.	**07**
	(b)	Write the program to multiply two positive numbers. by a repeated addition method. For ex., to multiply 5 x 4 , the program evaluates the product by adding 5 four times, or 5+5+5+5.	**07**
		OR	
Q.4	**(a)**	Give the basic computer instruction format and explain Memory reference, Register reference and Input-output instructions.	**07**
	(b)	Write the program to logically OR the two numbers without using "OR" instruction.	**07**
Q.5	**(a)**	Explain the Booth Multiplication Algorithm in detail.	**07**
	(b)	Explain the Instruction Pipelining with example.	**07**
		OR	
Q.5	**(a)**	Explain the procedure for addition and subtraction with signed-magnitude data with the help of flowchart.	**07**
	(b)	Draw the diagram of Micro programmed sequencer for a control memory and explain it.	**07**

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