Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(OLD) • EXAMINATION – WINTER 2016

Subject Code:130704 **Date:11/01/2017**

Subject Name:Computer Organization and Architecture

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.**

Q.1	**(a)**	Differentiate registration transfer instructions and memory reference instructions with four instructions in each type.	**07**
	(b)	List and Explain different types of shift micro-operation.	**07**
Q.2	**(a)**	Explain the common bus system with its diagram.	**07**
	(b)	Draw the block diagram of control unit of basic computer. Explain in detail with control timing diagrams.	**07**
		OR	
	(b)	Explain micro-program sequencer for a control memory with a diagram.	**07**
Q.3	**(a)**	What is the basic functionality of an assembler? Draw and explain its first pass.	**07**
	(b)	Explain four-segment instruction pipeline with diagram.	**07**
		OR	
Q.3	**(a)**	Explain organization of memory stack with related operations.	**07**
	(b)	Write an assembly language program for finding two's complement of an 8 bit number.	**07**
Q.4	**(a)**	Describe the microinstruction format for the control memory.	**07**
	(b)	Explain the difference between hardwired control and micro-programmed Control. Is it possible to have a hardwired control associated with a control memory?	**07**
		OR	
Q.4	**(a)**	Define the program interrupt and its operation with diagram.	**07**
	(b)	Describe the addressing modes. How many different types of addressing mode are there? Show general instruction format.	**07**
Q.5	**(a)**	What are CISC and RISC architecture? How do they differ from each other?	**07**
	(b)	Multiply the (+15) with (+13) using Booth's algorithm. Give each step.	**07**
		OR	
Q.5	**(a)**	What is vector processing? What is the use of vector processing?	**07**
	(b)	What is the use of booth multiplication algorithm? Describe hardware for booth algorithm.	**07**

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