Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – WINTER 2018

Subject Code:2140707 Date:05/12/2018

Subject Name: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.**

			MARKS
Q.1	**(a)**	Represent $(8620)_{10}$ in (1) binary (2) Excess-3 code and (3) 2421 code.	**03**
	(b)	Explain 4-bit adder-subtractor with diagram.	**04**
	(c)	Explain four types of instruction formats.	**07**
Q.2	**(a)**	Explain selective set, selective complement and selective clear.	**03**
	(b)	Explain error detection with odd parity bit.	**04**
	(c)	Draw the block diagram of 4-bit arithmetic circuit and explain it in detail.	**07**
		OR	
	(c)	Explain flow chart of Interrupt Cycle with diagram.	**07**
Q.3	**(a)**	Explain logical shift, circular shift and arithmetic shift micro operations.	**03**
	(b)	Explain following instructions: (1) AND (2) BUN (3) STA (4) ISZ	**04**
	(c)	What is register stack? Explain push and pop micro-operations.	**07**
		OR	
Q.3	**(a)**	Explain Three-state bus buffer.	**03**
	(b)	Explain Direct and Indirect Addressing.	**04**
	(c)	Explain second pass of an assembler with diagram.	**07**
Q.4	**(a)**	Write brief note on subroutine call and return	**03**
	(b)	Draw space-time diagram for 4-segment pipeline with 8 tasks.	**04**
	(c)	Write an assembly program to multiply two positive numbers.	**07**
		OR	
Q.4	**(a)**	Write brief note on RISC.	**03**
	(b)	Explain Booth Multiplication Algorithm.	**04**
	(c)	Write an assembly program to add 10 numbers from memory.	**07**
Q.5	**(a)**	Describe SIMD array processor.	**03**
	(b)	Explain BCD adder in brief.	**04**
	(c)	How main memory is useful in computer system? Explain the memory address map of RAM and ROM.	**07**
		OR	
Q.5	**(a)**	Describe the followings : 1) Data dependency 2) Pseudo instruction 3) Effective address	**03**
	(b)	Explain Daisy chain priority interrupt.	**04**
	(c)	Discuss associative mapping and direct mapping in organization of cache memory.	**07**

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