Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) • EXAMINATION – WINTER 2016

Subject Code:2140707 **Date:22/11/2016**

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		**Short Questions**	**14**
	.1	What does this mean: R2 ← R1?	01
	.2	What does this mean: T0: R4 ← R0?	01
	.3	What is a Bus?	01
	.4	What is a Three-State-Buffer?	01
	.5	What is a Logical Shift?	01
	.6	What is an Arithmetic Shift?	01
	.7	What is a Program Counter?	01
	.8	What is an Accumulator?	01
	.9	What is an ALU?	01
	.10	What is an Instruction Register?	01
	.11	What do you understand by Memory Address?	01
	.12	What is a Carry Falg?	01
	.13	Explain Instrction Fetch.	01
	.14	Explain Instrction Decode.	01
Q.2	(a)	Draw diagram of Control Unit of a Basic Computer.	**03**
	(b)	With the help of diagram of Q: 2(a), explain the Instruction Execution.	**04**
	(c)	For the basic computer shown at Q: 2(a), explain following instructions: 1. LDA 2. ADD 3. AND 4. CLA	**07**
		OR	
	(c)	For the basic computer shown at Q: 2(a), explain following instructions: 1. BUN 2. BSA 3. CIL 4. SZE	**07**
Q.3	(a)	Explain with clear diagrams, how data can be input to the computer using INP instruction.	**03**
	(b)	Explain the DMA operation.	**04**
	(c)	Explain how Input/Output can be performed using interrupts.	**07**
		OR	

Q.3	**(a)**	What do you understand by Addressing Modes?	**03**
	(b)	List different types of addresing modes and explain the one which refers to the memory indirectly, with diagrams.	**04**
	(c)	What is an Assembeler? With clear flow-charts for first and second pass, explain its working.	**07**
Q.4	**(a)**	Explain what do you understand by: 1. Cache Memories 2. Virtual Memories	**03**
	(b)	For Cache Memories explain: 1. Direct Mapping Algorithm 2. Set Associative Mapping	**04**
	(c)	Explain with the help of a diagram the working of a basic computer, which uses Micro-Programmed Control.	**07**
		OR	
Q.4	**(a)**	Explain Pipelining. How does it enhace the CPU performance?	**03**
	(b)	Develop an algorithm for multiplication of two binary numbers, which are stored as per floating point representation.	**04**
	(c)	What are RISC processors? What are advanatges of RISC architecture over traditinal CISC architecture? State important characterstics of RISC processors.	**07**
Q.5	**(a)**	Explain Vector Processing.	**03**
	(b)	Explain Flynn's taxonomy for classifying parallel processors. Explain each class.	**04**
	(c)	Explain any two interconnection structures that make it possible to form a multiprocessor system, with diagrams.	**07**
		OR	
Q.5	**(a)**	What are advantages of Serial Data Transmission of data?	**03**
	(b)	Explain what is Cache Coherence?	**04**
	(c)	Explain clearly Inter-processor Communication and Synchronization in the context of Multiprocessors.	**07**

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