Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- IVth SEMESTER–EXAMINATION – MAY/JUNE- 2012

Subject code: 140701 Date: 23/05/2012

Subject Name: Microprocessor and Interfacing

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)**	Answer the following questions in brief. 1. What is a microprocessor? List its internal sections with the major functions. 2. What is system bus? Give its role. 3. Why does opcode fetch cycle need 4-T states although it is similar to memory read cycle?	**06**
	(b)	Answer the following. 1. What are the control signals? How do we generate them? Give their importance. 2. Compare memory mapped I/O and peripheral mapped I/O.	**08**
Q.2	**(a)**	How many machine cycles are required to execute LDA 3050h instruction? Draw compete timing diagram with each machine cycle and briefly explain it.	**07**
	(b)	Explain following pin functions of 8085. ALE, READY, X1 and X2, CLKOUT	**07**
		OR	
	(b)	Explain the working of rotate instructions of 8085 with proper example in each case.	**07**
Q.3	**(a)**	Write an 8085 program to count the number of odd numbers in a block of five numbers. Number is odd, if it's LSB = 1. Store your answer in ACC.	**07**
	(b)	Write an 8085 program to copy block of ten numbers starting from location 2050h to locations starting from 3050h.	**07**
		OR	
Q.3	**(a)**	Write an 8085 program to reverse a string stored as series of ASCII characters starting from location 3050h and ended with 0Dh using stack.	**07**
	(b)	Write an 8085 subroutine to exchange two numbers. Use it to reverse an array of 10 numbers starting from 3050h.	**07**
Q.4	**(a)**	What is an input port? Explain the design of input port with an example.	**07**
	(b)	Give the control word of 8255 and explain the mode 1 Input operation in detail.	**07**
		OR	
Q.4	**(a)**	What is an output port? Explain the design of output port with an example.	**07**
	(b)	Explain the initialization of 8259 interrupt controller.	**07**
Q.5	**(a)**	Draw and explain the logical block diagram of the 8253 with functions of each block.	**07**
	(b)	Explain the functions of DMA controller with proper diagrams.	**07**
		OR	
Q.5	**(a)**	Draw and explain the logical block diagram of the 8251 with functions of each block.	**07**
	(b)	What is A-to-D conversion? How does it happen? Explain with example.	**07**

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