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.	06
		 What is a microprocessor? List its internal sections with the major functions. 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?	
	(b)	Answer the following.	08
		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.	
0.2	(a)	How many machine cycles are required to execute LDA 3050h instruction?	07
Q.2	(a)	Draw compete timing diagram with each machine cycle and briefly explain it.	
	(b)	Explain following pin functions of 8085.	07
		ALE, READY, X1 and X2, CLKOUT	
	(b)	OR Explain the working of rotate instructions of 8085 with proper example in each case.	07
	(D)	Explain the working of rotate instructions of 5065 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	07
		numbers. Number is odd, if it's LSB = 1. Store your answer in ACC.	
	(b)	Write an 8085 program to copy block of ten numbers starting from location	07
		2050h to locations starting from 3050h.	
		OR	
Q.3	(a)	Write an 8085 program to reverse a string stored as series of ASCII characters	07
	(l-)	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
		of to numbers starting from 5050n.	
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
