Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – IV • EXAMINATION – WINTER 2017

Subject Code: 140701 Date: 14/11/2017

Subject Name: Microprocessor and Interfacing

Time: 02.30PM 05.00PM 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)**	Explain the Addressing modes of 8085 by giving suitable examples.	**07**
	(b)	Draw and explain the block diagram of 8085 microprocessor architecture.	**07**
Q.2	**(a)**	Explain circuit diagram of interfacing of 8K EPROM and 4K RAM with 8085. Write address range for both the memory chips showing address decoding logic	**07**
	(b)	Answer the following: (i) Why is data bus bidirectional in 8085? (ii) Why Program Counter and Stack Pointer registers are 16-bits?	**07**
		OR	
	(b)	Explain the execution of STA 3000H instruction using Timing diagram.	**07**
Q.3	**(a)**	Explain interrupts available on 8085 with diagram.	**07**
	(b)	Write and ALP to add two 16 bit numbers stored in memory locations starting at XX30 H onwards. Stored the 16 bit results at memory locations XX50 and XX51 H.	**07**
		OR	
Q.3	**(a)**	A set of numbers are stored in memory locations starting from C050H. The end of the data string is indicated by the data byte 00H. Add the numbers. The answer may be larger than FFH. Store the result in the locations D070H and D071H.	**07**
	(b)	Write a note on status flag register. Also write the condition under which the flag bits affected.	**07**
Q.4	**(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)	What is stack and stack pointer? Explain working of PUSH and POP instruction with suitable example.	**07**
		OR	
Q.4	**(a)**	Write a program to generate a square wave with the period of 500 ms. Assume the system clock period is 325 ns. And use bit D0 to output the square wave.	**07**
	(b)	State the function of following instructions. (1) LHLD 16-bit (2) PUSH PSW (3) DAD H (4) RIM (5) XCHG (6) XTHL (7) PCHL	**07**
Q.5	**(a)**	List major components of the 8259A interrupt controller and explain their functions.	**07**
	(b)	Discuss in detail different working modes of IC 8254.	**07**
		OR	
Q.5	**(a)**	With the help of block diagram explain the internal architecture of IC 8255.	**07**
	(b)	Write short note on any one of the following. (1) 8237 DMA controller. (2) 8279 Keyboard / Display interface.	**07**

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