Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 162002 **Date: 26/10/2016**

Subject Name: Micro Processors & Micro Controllers

Time: 02:30 AM 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.**

Q.1 **(a)** Draw the function block diagram of 8085 microprocessor. Explain briefly the various blocks of the system. **07**

(b) What is addressing mode? Give two examples for each of the following types of instructions and indicate what each of these instructions do: **07**

a) Instructions with implied addressing.

b) ALU type of instructions.

c) Instructions addressing memory indirectly through any register pair.

Q.2 **(a)** Differentiate between I/O mapped I/O and Memory mapped I/O interfacing. **07**

(b) What is the significance of RAEDY, HOLD, TRAP and X1&X2 pins in 8085 microprocessor? **07**

OR

(b) Enlist the instructions related to interrupt in 8085 microprocessor. Explain how to set interrupt mask and read interrupt mask in 8085 microprocessor. **07**

Q.3 **(a)** Draw and explain the timing diagram for the instruction STA 526AH located at 41FFH memory location. (Opcode for IN instruction is 32H.) **07**

(b) A set of 20 readings (bytes) is stored in memory location starting from 2050H. The readings are expected to be positive (≤7FH). Write an assembly level program for the 8085 to add all positive readings. Store the lower byte of the sum in memory location 2070H and higher byte of the sum in memory location 2071H. **07**

OR

Q.3 **(a)** What is a Machine cycle? Draw and explain the timing diagram for Opcode fetch and Memory write machine cycle. **07**

(b) Write an assembly language program to find the largest number in an array of ten numbers of elements stored at 8100H and sore your answer at 8105H using 8085 instruction set. **07**

Q.4 **(a)** Design an 8085 microprocessor system such that it should contain 16KByte of EPROM and 4KByte of RAM using two 8KByte of EPROMs (2764) and two 2KByte of RAMs (6116) with starting addresses 0000H and 4000H respectively using IC 74LS138. **07**

(b) Draw and Explain function block diagram of 8051 microcontroller. **07**

OR

Q.4 **(a)** Explain register banks, register bank switching and Stack of 8051 microcontroller. **07**

	(b)	Draw and explain the interfacing between 8031 microcontroller and an external memory configuration consisting of 16Kbyte of EPROM AND 8Kbyte of RAM.	**07**
Q.5	**(a)**	What is a subroutine? Explain Short Jump, Absolute Jump and Long Jump in 8051 microcontroller with suitable examples and application.	**07**
	(b)	In 8051 microcontroller assume that bit P2.3 is an input and represents the condition of an oven. If it goes high, it means that the oven is hot. Monitor the bit continuously. Whenever it goes high, send a high-to-low pulse to port P1.5 to turn on a buzzer.	**07**

OR

Q.5	**(a)**	What is the Interrupt Priority in the 8051 microcontroller and Explain Interrupt Priority Register of 8051.	**07**
	(b)	Assume that five numbers of BCD numbers are stored in RAM locations starting at 40H. Write a program to find the sum of all the numbers. The result must be in BCD.	**07**

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