

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2019

Subject Code: 2150707

Date: 31/05/2019

Subject Name: Microprocessor and Interfacing

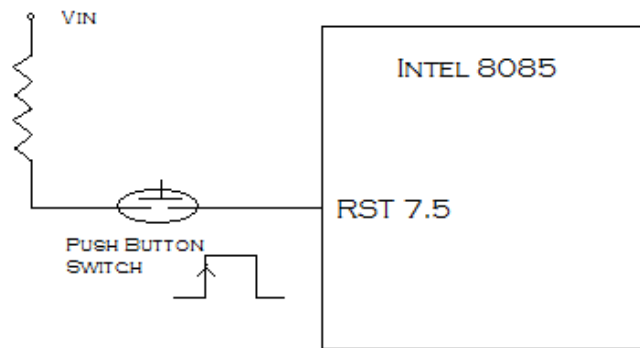
Time: 02:30 PM TO 05:00 PM

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	(a) Answer the following questions	03
	1. What is the use of ALE pin in 8085?	
	2. How much time 8085 will take to execute LDA 16bit instruction if the crystal frequency is 4MHz.	
	3. List down various segment registers of 8086 microprocessor.	
	(b) 1. Differentiate between hardware interrupts and software interrupts of 8085.	04
	2. Write 8085 instructions to store 00H in flag register.	
	(c) Draw and explain the internal block diagram of 8085 microprocessor.	07
Q.2	(a) Draw the timing diagram of MVI A, 8bit instruction of 8085 microprocessor.	03
	(b) Explain the following instructions of the 8085 microprocessor with suitable example: LHLD, SPHL, LDAX, XTHL	04
	(c) Write a program in 8085 to arrange the five numbers in ascending order. Assume numbers are available from 9000h to 9004h.	07
	OR	
	(c) An array of twenty data bytes is stored on memory locations 2000H onwards. Write an 8085 assembly language program to count the number of zeros, odd numbers and even numbers and store them on memory locations 3000H, 3001H and 3002H, respectively.	07
Q.3	(a) Enlist the sequence of steps occur when the interrupt request is placed on the INTR pin of the 8085 microprocessor.	03
	(b) Explain the functions of following instructions of 8085 – state its number of bytes occupied, number of Machine cycle required and T-states.	04
	1. MOV A,M	
	2. LXI H,1000H	
	3. DAA	
	4. IN 80H	
	(c) A set of ten packed BCD numbers are stored in memory location starting from XX50H. Write a program without subroutine to add these numbers in BCD. If carry is generated save in register B, and adjust it for BCD. The final sum will be less than 9999 _{BCD} .	07
	OR	
Q.3	(a) State the difference between the vectored and non-vectored interrupts. Explain vectored interrupts of the 8085 microprocessor.	03
	(b) Write a main program and interrupt service routine to count the number of times the key is pressed by the user and display the count on data field of output port at address 80H and 81H (2-7seg LED).	04



- (c) A BCD number between 0 and 99 is stored in a memory location named INBUF. Write a main program and a subroutine to convert the BCD number into its equivalent binary number. Store the result in a memory location called OUTBUF. **07**
- Q.4** (a) Define the concepts of stack and subroutine. Explain the PUSH and POP instructions of an 8085 microprocessor with example. **03**
- (b) Draw the interfacing of a 4KB EPROM having a starting address 2000h and two 4KB static RAMs having starting addresses 4000h and 8000h, respectively, with 8085 microprocessor. Use demultiplexed address/data lines and use 3-to-8 decoder (74LS138) **04**
- (c) Draw and explain the block diagram of the programmable peripheral interface (8255A). **07**
- OR**
- Q.4** (a) Explain the SIM and RIM instructions of the 8085 microprocessor. **03**
- (b) Design an 8085 microprocessor system with 74LS138 to interface eight number of push button switches at the port address 38H and common anode seven segment LED display at 3AH. **04**
- (c) Draw and explain programmable interrupt controller 8259A. **07**
- Q.5** (a) Discuss the features of ARM Processor. **03**
- (b) Differentiate between the real mode and protected mode of the 80286 microprocessor. **04**
- (c) Explain, in brief, various addressing modes of the 8086 microprocessor. **07**
- OR**
- Q.5** (a) Draw and explain architecture of SUN SPARC. **03**
- (b) What is a descriptor table? What is its use? Differentiate between GDT and LDT. **04**
- (c) Explain the paging mechanism in an 80386 microprocessor. **07**
