Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV EXAMINATION – SUMMER 2020

Subject Code: 3141710 Date:02/11/2020

Subject Name: Microprocessor and Interfacing

Time: 10:30 AM TO 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.**

			Marks
Q.1	**(a)**	Explain the difference between machine language and assembly language with example.	**03**
	(b)	Draw the programming model for 8085 Microprocessor and explain them in brief.	**04**
	(c)	If 8bytes of data are stored at the memory location starting from C050H; write an ALP to arrange them in ascending order.	**07**
Q.2	**(a)**	Specify the contents of accumulator and flag when the following instructions are executed. MVI A, C5H ORA A RAL RRC	**03**
	(c)	Draw the timing diagram of MOV C, A having an opcode 4FH. Also find the total time to execute this instruction by MPU.	**07**
		OR	
	(c)	Draw the data flow for MOV C,A instruction execution by MPU and describe the steps of execution in brief.	**07**
Q.3	**(a)**	Draw the schematic for latching low order address bus of 8085 microprocessor.	**03**
	(b)	1) Register B contains 32H.Copy the contents of B to memory location 8000H using indirect addressing. 2) The accumulator has FAH. Copy the content of accumulator into memory location 8050H using direct addressing.	**04**
	(c)	Draw the interfacing scheme for connecting 8155 memory RAM of 256 bytes size with 8085. Show the decoding logic using 3 to 8 decoder and also mention the memory map of it.	**07**
		OR	
Q.3	**(a)**	Explain how the foldback memory space is generated while using partial decoding scheme while interfacing memory or I/O with 8085.	**03**
	(b)	Draw the block diagram of 8254 programmable timer/counter and write the steps needed to program to initialize the counter.	**04**
	(c)	Draw the interfacing scheme for connecting 2732 EPROM of 4096 bytes size with 8085. Show the absolute decoding logic using 3 to 8 decoder and also mention the memory map of it.	**07**
Q.4	**(a)**	Explain the concept of Nesting and Multiple Ending subroutines using Call instruction.	**03**

	(b)	Write three different instructions to transfer the data from memory to microprocessor 8085 with graphical representation showing register contents and flow of data from memory to MPU.	**04**
	(c)	Write the necessary steps for interfacing I/O device with 8085 and draw the block diagram of I/O interface requirements.	**07**

OR

Q.4	**(a)**	Specify the output at PORT 1 after execution of following program.
		
		MVI B,82H
		MOV A,B
		MOV C,A
		MVI D,37H
		OUT PORT1
		HLT
			03

	(b)	Explain the following instruction with effect on flags in different condition of comparison. CMP M CPI 8bit	**04**
	(c)	Show the complete drawing to interface common anode seven segment LED with 8085. Write the program to display digit 7 at the output of it.	**07**
Q.5	**(a)**	List the various interrupts of 8085 MP with its vector locations.	**03**
	(b)	Draw the flow chart for key check subroutine, if keyboard connected with 8085 is pressed.	**04**
	(c)	Write an ALP program to 1) transfer the byte to accumulator 2) separate the two nibbles of accumulator content 3) Call the subroutine to convert each nibble into ASCII Hex code. 4) Store the ASCII code in memory locations 2000H and 2001H.	**07**

OR

Q.5	**(a)**	Explain the SIM instruction.	**03**
	(b)	Show the hardware way for key debouncing technique.	**04**
	(c)	Write a program for hexadecimal counter.	**07**