Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2018

Subject Code:2152006 **Date:20/11/2018**

Subject Name:Basics of Micro Computer Systems

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)**	What is Bus? Why is Data bus bidirectional and Address Bus unidirectional?	**03**
	(b)	Give the difference between High Level Language and Low level Language with appropriate example.	**04**
	(c)	Draw the timing diagram of the instruction: LXI D, 2555H. Explain all the stages of instruction execution.	**07**
Q.2	**(a)**	Explain the difference between Absolute Decoding and Partial Decoding.	**03**
	(b)	For the microprocessor 8085, explain De-multiplexing of Address Bus.	**04**
	(c)	Explain the Architecture of 8085 with a neat diagram.	**07**
		OR	
	(c)	Write an 8085 assembly language program to count the number of bytes that are greater than 20H and lesser than 40H from an array of ten bytes stored on memory locations 3000H onwards. Store such numbers on memory locations 3500H onwards.	**07**
Q.3	**(a)**	Write an 8085 ALP to add two 8-bit numbers stored in memory locations 3000H and 3100H respectively. Store the answer in the memory locations of your choice.	**03**
	(b)	Explain the differences between microprocessors and microcontrollers.	**04**
	(c)	Explain architecture of the microcontroller 8051 using suitable block diagram.	**07**
		OR	
Q.3	**(a)**	Explain the difference between polling and interrupt.	**03**
	(b)	Write an 8085 assembly language program to convert a two-digit BCD number into its equivalent hexadecimal number.	**04**
	(c)	For the microcontroller 8051, explain register banks and switching of register banks using PSW register.	**07**
Q.4	**(a)**	What is an ISR? Differentiate between a Subroutine and an ISR.	**03**
	(b)	List the alternate functions of all the ports of 8051.	**04**
	(c)	Using suitable diagram, explain operation of timer 1 in mode 0.	**07**
		OR	
Q.4	**(a)**	For the microcontroller 8051, give the list of all the interrupts with their vector address.	**03**
	(b)	For microcontroller 8051, how different modes of timer operations can be selected? Explain in detail.	**04**
	(c)	Using suitable diagram, explain port structure of port 3 of the microcontroller 8051.	**07**

Q.5	**(a)**	For the microcontroller 8051, explain the instruction DIV AB using suitable example.	**03**
	(b)	An 8-bit Hex number is stored in ROM memory location 20F0H. Write an ALP for the microcontroller 8051 to get 2's complement of this number and store the result in internal RAM memory location 40H.	**04**
	(c)	Write an ALP for the microcontroller 8051 to add ten bytes stored in internal RAM locations 50H onwards. Store the result in register R7 of register bank 1 and store the carry of the answer in register R7 of register bank 0.	**07**

OR

Q.5	**(a)**	For the microcontroller 8051, explain the instruction MOVX A,@DPTR using suitable example.	**03**
	(b)	For the microcontroller 8051, explain the execution of PUSH and POP instructions.	**04**
	(c)	For the microcontroller 8051, write an assembly language program to generate a square wave of 10KHz frequency at P1.7 using Timer 0 in Mode 2 with crystal frequency of 12 MHz. Show the calculations of time delay generation.	**07**

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