Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– V EXAMINATION – SUMMER 2020

Subject Code: 2150306   **Date:28/10/2020**
Subject Name: MICROCONTROLLER & INTERFACING (BIOMEDICAL)
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)**	Give difference between microprocessor and microcontroller.	**03**
	(b)	Explain RAM organization.	**04**
	(c)	Write a short note on various types of Memory.	**07**
Q.2	**(a)**	Draw and explain oscillator circuit and timing diagram of the 8051.	**03**
	(b)	Draw control logic diagram of Timer 0 programming.	**04**
	(c)	Explain PORT2 with necessary diagram.	**07**
		OR	
	(c)	Draw and explain the architecture of 8051 microcontroller	**07**
Q.3	**(a)**	What is SFR? Which are bit addressable SFR?	**03**
	(b)	Explain Branching instructions.	**04**
	(c)	Explain serial communication in microcontroller.	**07**
		OR	
Q.3	**(a)**	Write a C Program to convert BCD number to ASCII.	**03**
	(b)	Explain in detail IE, TCON and TMOD special function registers.	**04**
	(c)	Describe interrupt interfacing in detail.	**07**
Q.4	**(a)**	What is the function of counter? What are the steps for implementing it in 8051 microcontroller?	**03**
	(b)	Write an Assembly Program to read the data from P2 and store them to memory location 20H.	**04**
	(c)	Write an 8051 C program to transfer the message 'MCI' serially at 9600 baud.	**07**
		OR	
Q.4	**(a)**	Explain different loops used in C Programming.	**03**
	(b)	Draw interfacing diagram of stepper motor with 8051.	**04**
	(c)	Write a program to toggle pin P3.4 every 1 msec continuously using interrupt service routine.	**07**
Q.5	**(a)**	Draw circuit to interface external 4K RAM memory with 8051.	**03**
	(b)	Explain 16-bit registers of 8051 microcontroller.	**04**
	(c)	Explain interfacing of ADC0808 with AT89C51 with necessary program.	**07**
		OR	
Q.5	**(a)**	List the factors to be considered for selection of microcontroller.	**03**
	(b)	Write an ALP (Assembly language program) to generate continuous square wave of 50% duty cycle using auto-reload mode.	**04**
	(c)	Design 8051 connection to LCD. Write a C program to display your name on LCD.	**07**

****