Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022
Subject Code:2150306   **Date:20/06/2022**
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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	(a)	What is the purpose of EA pin in 8051 Microcontroller?	03
	(b)	Draw clock circuit of 8051 microcontroller.	04
	(c)	Explain difference between Microprocessor and Microcontroller.	07
Q.2	(a)	Explain how stack is implemented in 8051	03
	(b)	What is the function of ALE signal?	04
	(c)	Write an assembly language program to convert two ASCII value to packed BCD number for 8051 controller.	07
		OR	
	(c)	Explain the memory organization in 8051	07
Q.3	(a)	Mention the differences between RET and RETI instructions	03
	(b)	List out the directives of 8051 Microcontroller.	04
	(c)	Explain the different addressing modes of 8051. Give an example for each one of them	07
		OR	
Q.3	(a)	Write an ALP to find square root of a numbers and store in R0	03
	(b)	Find the sum of values 80H, F4H, E0H put the sum in R0 and R5	04
	(c)	Explain the different jump instruction in 8051.	07
Q.4	(a)	List two instructions related with external memory	03
	(b)	Explain IE and IP register formats	04
	(c)	Draw and explain interfacing of 4x4 matrix keyboard with 8051 microcontrollers. Write program to read switch	07
		OR	
Q.4	(a)	Develop ALP to multiply two 8-bit numbers stored at 20h and 24h in internal RAM. Store result in 21h and 22h.	03
	(b)	Develop ALP to find largest number out of ten number stored in internal RAM locations 41H onwards, store the result at 51H.	04
	(c)	Draw and explain interfacing diagram of DAC with 8051 microcontrollers. Write program to generate sine wave at the output of DAC.	07
Q.5	(a)	List out the data types used in C programming.	03
	(b)	Describe TCON register with its format.	04
	(c)	Draw and explain interfacing diagram of stepper motor with 8051 microcontrollers.	07
		OR	
Q.5	(a)	Explain the format of SCON register in details	03
	(b)	Explain the different steps to receive data serially using 8051	04
	(c)	Draw and explain interfacing of LCD with 8051 microcontrollers. Write a program to display "Biomedical" on LCD.	07

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