GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– V (New) EXAMINATION – WINTER 2019

Subject Code: 2150306   **Date: 21/11/2019**

Subject Name: Microcontroller & Interfacing (Biomedical)

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.**

Q.1	**(a)**	Draw the Pin Diagram of 8051.	**03**
	(b)	Compare Microporcessor and Microcontroller.	**04**
	(c)	Draw the Programming model of 8051 and explain in detail.	**07**
Q.2	**(a)**	Write a program to copy the value 65H into RAM memory locations 20H to 21H using register indirect addressing mode.	**03**
	(b)	Explain Immediate and Register addressing mode with examples.	**04**
	(c)	Explain IP and IE register in detail.	**07**
		OR	
	(c)	Enlist various data types of 'C' Programming in 8051. Write an 8051 C program to convert packed BCD 0x78 to ASCII and display the bytes on P1 and P2.	**07**
Q.3	**(a)**	Explain PSW Register in detail.	**03**
	(b)	Write a program to check data stored in RAM location 20h to 24h for Sign. If number is negative store them in RAM location starting from 30h.	**04**
	(c)	Write program to arrange data in ascending order. Assume that data is stored in internal RAM location 40h to 44h.	**07**
		OR	
Q.3	**(a)**	Explain various CJNE instructions.	**03**
	(b)	Write a program to check string stored in memory location 50h to 55h is in palindrome or not. If yes, store 'Y' in memory location 56h else store 'N'.	**04**
	(c)	Explain any three assembly language directives. Write a subroutine to convert Packed BCD data to Hex data.	**07**
Q.4	**(a)**	Explain TMOD Register in detail.	**03**
	(b)	Write a program to generate delay of 1ms. Assume crystal frequency 12 MHz.	**04**
	(c)	Write a program in 'C' to receive data serially with 9600 baud rate and send it port P1. Assume 8 bit data and 1 stop bit.	**07**
		OR	
Q.4	**(a)**	Explain RS-232 DB9 in detail.	**03**
	(b)	Write a 'C' program to generate square wave with frequency of 1 Hz on pin P2.0.	**04**
	(c)	Write a program to transmit 'Y' serially with 9600 baud rate. Assume 8 bit data and 1 stop bit.	**07**

Q.5	**(a)**	Draw the interfacing circuit to interface DAC 0808.	**03**
	(b)	Write a program to read status of switch connected with Port 0 and turn ON respective LEDs connected on Port 2.	**04**
	(c)	Explain how to interface Program ROM and Data ROM with neat circuit.	**07**

OR

Q.5	**(a)**	Draw the interfacing circuit to interface 16x2 LCD.	**03**
	(b)	Explain each pin of RTC DS12887 .	**04**
	(c)	Interface ADC 0804 and LEDs with Port P1 and P2 of 8051 respectively. Write a program to read data of ADC and display it on LEDs.	**07**

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