Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2173203 **Date:19/01/2021**

Subject Name:Microprocessor and Microcontroller

Time:10:30 AM TO 12:30 PM **Total Marks: 56**

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	Write an AVR C program to get a byte of data from Port C. If it is less than 100, send it to Port B; otherwise, send it to Port D.	**03**
	(b)	Explain and Draw the control signal generation in 8085 Microprocessor.	**04**
	(c)	List out the addressing modes for the AVR Controller and explain any two of them.	**07**
Q.2	**(a)**	Write an AVR C program to toggle all the pins of Port B continuously by Using the Ex-OR operator.	**03**
	(b)	Explain Flag register PSW of 8085 Microprocessor.	**04**
	(c)	Write a program to toggle all the bits of the I/O register PORT D every 2 s. Assume that the crystal frequency is 8MHz and system is using an ATmega32.	**07**
Q.3	**(a)**	Explain AVR status register in detail.	**03**
	(b)	A switch is connected to pin PB5. Write a program to monitor the status of the SW and perform the following. 1. If SW = 0, send the letter 'B' to PORT C. 2. If SW = 1, send the letter 'Y' to PORT C.	**04**
	(c)	Explain architecture of the 8051 microcontroller.	**07**
Q.4	**(a)**	With Fosc =8 MHz, Find the UBRR value needed to have the following baud rates. 1. 9600 2. 4800	**03**
	(b)	List out features of RISC and give comparison between RISC & CISC processors.	**04**
	(c)	Explain the Pin Diagram of the 8085 microprocessor.	**07**
Q.5	**(a)**	Explain Logical Instruction with example for the AVR Controller.	**03**
	(b)	Design 16*8 register using 4*8 register chips for the microprocessor 8085.	**04**
	(c)	Write a C program to toggle only the PORT B.4 bit continuously every 70 µs. Use Timer 0, Normal mode and 1:8 prescaler to create the delay. Assume XTAL=8MHz.	**07**

Q.6	**(a)**	Write down different steps in executing an Interrupt.	**03**
	(b)	Write a Program to (a) load the PORT B register with value 0×55, and (b) Complement PORT B 300 times.	**04**
	(c)	With diagram explain architecture of AVR microcontroller and also draw and explain the Harvard architecture in the AVR.	**07**
Q.7	**(a)**	Explain criteria for choosing a microcontroller.	**03**
	(b)	Draw and explain TIFR register in AVR.	**04**
	(c)	Explain interfacing of LCD with AVR using program to display “GOOD LUCK” on LCD for AVR controller.	**07**
Q.8	**(a)**	Write a short note on AVR Family.	**03**
	(b)	Write a program to transmit the message “YES” serially at 9600 baud, 8 bit data and 1 stop bit. Do this forever.	**04**
	(c)	Draw & Explain the RTC interfacing diagram with AVR Microcontroller.	**07**

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