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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