

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2150907

Date:03/02/2021

Subject Name:Microprocessor and Microcontroller Architecture & Interfacing

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) Draw timing diagram for OUT 20h instruction with brief description.	03
	(b) Compare Microprocessor and Microcontroller.	04
	(c) Explain RAM structure of 8051 in detail.	07
Q.2	(a) Compare Van Neumann and Harvard Architecture.	03
	(b) Explain demultiplexing of Address/data lines in 8085.	04
	(c) Draw and explain architectural block diagram of 8051.	07
Q.3	(a) Explain the functions of READY, SOD and ALE pins of 8085.	03
	(b) Describe significance of flag register in 8085.	04
	(c) Explain special function registers SCON and SBUF in 8051 serial communication	07
Q.4	(a) Explain PUSH and POP instructions of 8051.	03
	(b) Describe direct addressing mode and register indirect addressing mode of 8051 with example.	04
	(c) Write an 8051 C program to transfer “WELCOME “serially at 9600 baud rate, 8-bit data, 1 stop bit.	07
Q.5	(a) Describe 8051 assembler directives.	03
	(b) Write an 8051 assembly language program to divide the data in RAM location 3Eh by the number 12h; put the quotient in R4 and the remainder in R5.	04
	(c) Draw Timer 1 hardware and explain mode 2 operation of Timer 1.	07
Q.6	(a) Explain Interrupt Vs. Polling and polling sequence in brief.	03
	(b) List tri state logic devices used in bus oriented system with significance of each.	04
	(c) Draw and explain interfacing of seven segments LED with 8051.	07
Q.7	(a) Write the reasons for writing program in C instead of assembly language.	03
	(b) Explain bit pattern of TMOD and TCON registers.	04
	(c) Give a complete scheme to interface an 8 bit DAC to 8051.	07
Q.8	(a) Explain rotate instructions of 8051.	03
	(b) Explain Physical structure of PORT 0.	04
	(c) Explain interfacing circuit of 4x4 matrix keyboard connected to port 1 of 8051.	07
