

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2022****Subject Code:2150907****Date:13-01-2023****Subject Name:Microprocessor and Microcontroller Architecture & Interfacing****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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Compare Van Neumann and Harvard Architecture.	03
(b) What is the function of following pins in 8085: TRAP & HLDA	04
(c) Draw and explain timing diagram for instruction MOV A, C.	07
Q.2 (a) With the help of PSW register, explain bank switching in 8051.	03
(b) Illustrate execution of PUSH and POP instruction for 8051 μ c.	04
(c) Explain RAM structure of 8051 in detail.	07
OR	
(c) Draw & explain physical structure of port 0.	07
Q.3 (a) Differentiate between RET & RETI, SJMP & LJMP instruction in 8051.	03
(b) Discuss various addressing modes of 8051 microcontroller assembly language programming.	04
(c) Write an Assembly language program to find number of 1's and 0's from a given 8 bit data.	07
OR	
Q.3 (a) Differentiate between MOVX & MOVC instructions	03
(b) List different modes of Timers and show bit structure of TMOD and TCON register.	04
(c) Draw Timer 1 hardware and explain mode 2 operation of Timer 1	07
Q.4 (a) Explain how priorities of interrupts can be set & changed in 8051	03
(b) What will be effect of following instructions? (i) SETB 8EH (ii) MOV TMOD, #11010101B	04
(c) Write an 8051 μ c 'C' program to toggle all the bits of P0 and P2 continuously with a 150 ms delay.	07
OR	
Q.4 (a) Explain IE and IP register in brief	03
(b) How baud rate can be set in 8051 microcontroller for serial communication?	04
(c) Write a short note on interrupts available in 8051.	07
Q.5 (a) Explain editor, assembler, compiler and linker.	03
(b) List the C data types available in 8051.	04
(c) Discuss how the speed and direction of DC motor can be controlled using microcontroller.	07
OR	
Q.5 (a) Explain the special function register SCON	03
(b) Draw the interfacing of 8 KB data ROM with 8051	04
(c) Draw & explain interfacing of seven segment LED display with 8051	07
