

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- V EXAMINATION-SUMMER 2023****Subject Code: 2150907****Date: 28/06/2023****Subject Name: Microprocessor and Microcontroller Architecture & Interfacing****Time: 02:30 PM TO 05:00 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) Explain all the bits of the flag register in 8085.	03
	(b) Describe the functions of the following 8085 pins: HLDA, TRAP, READY, ALE	04
	(c) Discuss the addressing modes of 8051 with suitable examples.	07
Q.2	(a) Compare Microprocessor and Microcontroller.	03
	(b) Draw and analyze the timing diagram of STA instruction wrt 8085.	04
	(c) Draw the pin diagram and explain the pin functions of 8051.	07
	OR	
	(c) Draw and explain the architecture diagram of 8085.	07
Q.3	(a) Discuss the Assembler Directives of 8051.	03
	(b) Differentiate between the 8051 instructions (i) XCH and XCHD (ii) MOVC and MOVX	04
	(c) Explain all the bits of TMOD register & hence find the control word for selecting timer1 in mode 1.	07
	OR	
Q.3	(a) Define: (i) Instruction cycle (ii) Machine cycle (iii) T-state	03
	(b) List the bit addressable special function registers of 8051.	04
	(c) With suitable examples, discuss the execution of rotate instructions for 8051.	07
Q.4	(a) Write an 8051 ALP to swap the upper and lower nibble of 40H.	03
	(b) Write an ALP for 8051 to subtract a 16 bit no. stored in 41H - 42H from a 16 bit no. stored in 51H - 52H and store the results in 61H and 62H. (The LSB is stored in the lower address and the MSB is stored in the higher address). Store 00H in 63H if result is positive, else store 01H in 63H.	04
	(c) Compare (i) Von-Neumann & Harvard architecture (ii) CISC & RISC processors	07

OR

- Q.4 (a) Discuss the advantage of IDE. 03
- (b) Describe the steps during execution of interrupt in 8051. 04
- (c) Compare the AJMP, LJMP and SJMP instructions. 07
- Q.5 (a) List the alternate functions of port 3 of 8051. 03
- (b) Distinguish between vectored and non vectored interrupts. 04
- (c) Assume an oscillator running at 11.0592MHz controls an 8051. Write a 'C' program to generate 1kHz square wave from port 1.1 using Timer 0. 07

OR

- Q.5 (a) List the features of Timer 0 and Timer 1. 03
- (b) Discuss the merits and demerits of parallel and serial communication. 04
- (c) Explain the role of SCON & SBUF in serial communication. 07
