Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VI EXAMINATION – SUMMER 2026

Subject Code:3160914 Date:08-06-2026

Subject Name: Microprocessors and Microcontrollers

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 RISC Processor with CISC Processor.	**03**
	(b)	Explain How address and data bus can be demultiplexed in 8085.	**04**
	(c)	Describe 8085 microprocessor architecture with neat diagram.	**07**
Q.2	**(a)**	Draw pin diagram of 8051 microcontroller.	**03**
	(b)	Explain Flag register in detail for 8085 microprocessor	**04**
	(c)	Describe generation of control signals for 8085 microprocessor.	**07**
		OR	
	(c)	List out various Hardware and software interrupts of 8085. Describe vectored and non-vectored Interrupts for 8085 microprocessor.	**07**
Q.3	**(a)**	Write full name of instructions of machine control: EI, DI, NOP, HLT, SIM, RIM.	**03**
	(b)	Draw timing diagrams for instructions MOV A, B.	**04**
	(c)	Explain interfacing of 8051 with ADC 0808.	**07**
		OR	
Q.3	**(a)**	Find the time duration for one machine cycle if a 16 MHz crystal is connected to 8051.	**03**
	(b)	Explain the function of following pins in 8085 μp: HLDA, HOLD, TXD, EA.	**04**
	(c)	Draw and explain timing diagram of instruction STA 2000H of 8085.	**07**
Q.4	**(a)**	Give the priority level of the interrupt sources of 8051.	**03**
	(b)	Explain in brief : Program Counter, Stake Pointer.	**04**
	(c)	Explain the working of timer in 8051 using the configuration of TCON and TMOD registers. Explain the timer operation in mode 0 and mode 1.	**07**
		OR	
Q.4	**(a)**	List out various features of Arm processor.	**03**
	(b)	Explain the role of SBUF & SCON registers in serial transfer in 8051.	**04**
	(c)	Explain how to interface 7-segment LED display with 8051.	**07**
Q.5	**(a)**	Compare basic differences of Van neuman and Harvard architecture.	**03**
	(b)	Compare Microprocessor, Microcontroller, and ARM Processors.	**04**
	(c)	Draw and explain an interfacing diagram to interface 4 x 4 matrix keyboard with 8051 microcontroller.	**07**
		OR	

Q.5	**(a)**	List various processing modes of ARM processors with classification.	**03**
	(b)	Write a program to add any two 16-bit data using 8051.	**04**
	(c)	Draw the bit pattern of program status word of 8051 and explain the significance of each bit with examples.	**07**

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