

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3172001****Date: 28/06/2023****Subject Name: Microcontrollers and Embedded Systems****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) Give classification of embedded system and explain any two.	03
	(b) Differentiate between RISC & CISC architecture.	04
	(c) Draw the block diagram for any embedded application & explain briefly.	07
Q.2	(a) Give difference between C programming and Embedded C programming.	03
	(b) Compare microprocessor and microcontroller.	04
	(c) Explain pin diagram of 8051.	07
	OR	
	(c) Explain architecture block diagram of 8051.	07
Q.3	(a) For the microcontroller 8051, write the dual role of Port 3.	03
	(b) Write & explain the wave driven sequence for stepper motor control.	04
	(c) Interface any multichannel ADC with 8051.	07
	OR	
Q.3	(a) What is interrupt and polling? Explain	03
	(b) How do you control speed of DC motor using PWM?	04
	(c) Write a C program for LED blinking on PORT1.0 at the regular interval.	07
Q.4	(a) State different types of buses and their functions in PIC18F4xx.	03
	(b) Explain PIC18F Interrupts in brief.	04
	(c) Interface 7-segment display with PIC18F4xx.	07
	OR	
Q.4	(a) Explain H-bridge concept for DC motor control.	03
	(b) Draw and explain memory organization in PIC18F4xx microcontroller.	04
	(c) Draw & explain the memory organization in PIC18F4xx.	07
Q.5	(a) State & explain any 3 machine control instructions.	03
	(b) For PIC18F4xx microcontroller, explain PUSH & POP instructions with a programming example.	04
	(c) Write an Assembly language program to move a memory block of 10 bytes stored at address starting from 0x100 to 0x200.	07
	OR	
Q.5	(a) Explain current sourcing & sinking with example.	03
	(b) State & explain any 4 logical instructions.	04
	(c) Explain bit configuration of INTCON1 register.	07