

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2172001****Date:10/05/2019****Subject Name:Microcontrollers and Embedded Systems****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.

		MARKS
Q.1	(a) Define Embedded systems. Give examples.	03
	(b) Explain the logic operators in embedded C with examples.	04
	(c) Describe the hardware units of a generalized Embedded system.	07
Q.2	(a) Why is programming in C language preferred over assembly?	03
	(b) Explain the bit pattern of TCON SFR of 8051.	04
	(c) Explain RS-232 connections to Atmel 8051.	07
	OR	
	(c) Interface 7-segment LED with 8051 microcontroller.	07
Q.3	(a) Discuss polling vs interrupts & enlist the various interrupts found in 8051.	03
	(b) Explain the bit pattern of SCON SFR of 8051.	04
	(c) Draw & explain the working of H-bridge for DC motor interfacing.	07
	OR	
Q.3	(a) Explain the control signals involved in LCD interfacing.	03
	(b) Draw the interfacing diagram of ADC0809 with Atmel 8051.	04
	(c) WAP in C to toggle bit P2.7 every 20ms using Timer0.	07
Q.4	(a) Explain any 3 arithmetic instructions of PIC18F.	03
	(b) What is current sourcing & current sinking?	04
	(c) Draw & explain the memory organization of PIC18F.	07
	OR	
Q.4	(a) Draw the programming model of PIC18F.	03
	(b) Write an ALP to clear 10 RAM locations starting at location 60H.	04
	(c) Explain the stack operation in PIC18f with an example.	07
Q.5	(a) Differentiate between subroutine & macro.	03
	(b) Describe the bit pattern of IPR1 SFR in PIC18F.	04
	(c) Explain the different branch instructions of PIC18F with examples.	07
	OR	
Q.5	(a) Explain any 3 bit manipulation instructions of PIC18F.	03
	(b) Explain PORTB alternate functions.	04
	(c) Explain bit pattern of INTCON SFR in PIC18F.	07
