

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:3152409****Date:13/09/2021****Subject Name:Microcontrollers Architecture, Interefacing and Applications****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 comparison of microcontroller and microprocessor.	03
	(b) Draw block diagram of 8051 microcontroller architecture explaining RAM & ROM organization.	04
	(c) Explain importance of PSW register with its each bit significance.	07
Q.2	(a) List 16-bit registers of 8051.	03
	(b) Explain any two assembler directives.	04
	(c) Describe addressing modes of 8051 in detail with example.	07
OR		
Q.3	(c) Draw complete pin diagram of 8051.	07
	(a) What are the buses of microcontroller or microprocessor ?	03
	(b) Explain any two arithmetic instruction of 8051.	04
	(c) List branching instruction of 8051 and explain any one of them with example.	07
OR		
Q.3	(a) Why delay are required in programming?	03
	(b) Write assembly language program for delay.	04
	(c) Give calculation of how long delay could be created by single loop with 16MHz crystal connected to 8051 uC.	07
Q.4	(a) List logical instruction of 8051 and explain any one of them.	03
	(b) Explain interfacing of LED to 8051.	04
	(c) Explain interfacing of 7-segment LED display to 8051.	07
OR		
Q.4	(a) Explain function of stack in brief.	03
	(b) What are interrupts? List the interrupts of 8051 uC.	04
	(c) Explain 8051 timer in Mode 2 operation.	07
Q.5	(a) Explain MUL instruction with example.	03
	(b) List SFR related with serial interrupt.	04
	(c) Write a C language program to create square wave of any frequency at any port pin.	07
OR		
Q.5	(a) Draw pin diagram of 16 X 2 LCD.	03
	(b) Define assembler and interpreter.	04
	(c) Explain interfacing of 4 X 3 matrix key board with 8051.	07
