

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V(NEW) EXAMINATION – SUMMER 2022

Subject Code:2150907

Date:13/06/2022

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) What are the content of stack pointer on upon reset of 8051 μ c? Why?	03
	(b) Explain in brief: DPTR register and PC register of 80051 μ c.	04
	(c) List and explain in brief alternate functions of port 3 pins of 8051 μ c.	07
Q.2	(a) Differentiate between (i) Van Neumann and Harvard Architecture (ii) CISC and RISC Processors	03
	(b) What different criterion should be considered for selecting a proper 8051 μ c chip? List and discuss.	04
	(c) Write a detail note on memory classification of 8051 μ c.	07
OR		
	(c) List and discuss various addressing modes available of 8051 μ c.	07
Q.3	(a) Explain execution of 8051 assembly language instructions: CJNE and DJNZ with proper illustration.	03
	(b) Explain function of following pins of 8085 μ p: READY, HLDA, HOLD and TRAP	04
	(c) Draw timing diagram of instruction IN 20H for 8085 microprocessor and explain.	07
OR		
Q.3	(a) Differentiate between 8051 assembly language instructions: AJMP, LJMP and SJMP	03
	(b) Discuss flag register(PSW) of 8085 μ p.	04
	(c) Draw timing diagram of instruction LDA 2200H for 8085 microprocessor and explain.	07
Q.4	(a) Explain the function of following pins of 8051 microcontroller: (i) \overline{EA}/VPP (ii) \overline{PSEN} (iii) ALE/\overline{PROG}	03
	(b) What are assembler directives? List assembler directives available for 8051 μ c and discuss in brief.	04
	(c) A block of 16 data is stored at internal memory of 8051 μ c starting from memory location 40H. Write an assembly language program to transfer these data to memory location starting from 60H in reverse order.	07
OR		
Q.4	(a) Explain the working of timer in 8051 using the configuration of TCON and TMOD registers.	04
	(b) Explain the difference between 8051 timer operation mod 0 and mod 1.	03
	(c) Write an 8051 assembly language program to generate a 1.2 kHz square wave on P1.0 using timer 0.	07

- Q.5** (a) Explain priorities of Interrupts in 8051 μ c. **03**
- (b) State and explain different data types available in 8051 μ c C programming. **04**
- (c) Write a 'C' program to generate a square wave at pin P3.0 of 8051 μ c. **07**
- OR**
- Q.5** (a) With the help of diagram explain the interfacing of seven segment display with 8051. **07**
- (b) Write a 'C' program to find average of 10 numbers stored at external memory of 8051 μ c. Store result at register R1 of register bank1. **07**
