Seat No.: _____          Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY
### BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2019

**Subject Code: 2150907**                                    **Date: 31/05/2019**

**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.

|  |  |  | MARKS |
|---|---|---|---|
| **Q.1** | **(a)** | Explain all the bits of PSW register. | **03** |
|  | **(b)** | What is the function of following pins in 8085: TRAP & HLDA | **04** |
|  | **(c)** | Draw & explain the timing diagram of MVI A, 32H instruction for 8085. | **07** |
| **Q.2** | **(a)** | Differentiate between MOVX & MOVC instructions | **03** |
|  | **(b)** | How stacks are accessed in 8051? Explain PUSH & POP instructions. | **04** |
|  | **(c)** | How demultiplexing of address/data lines (AD0 – AD7) can be achieved? Also explain the generation of all the control signals. | **07** |

**OR**

|  |  |  |  |
|---|---|---|---|
|  | **(c)** | Write a short note on interrupts available in 8051. | **07** |
| **Q.3** | **(a)** | Explain assembly directives. | **03** |
|  | **(b)** | Explain the instruction DJNZ & JBC in 8051 | **04** |
|  | **(c)** | Write an assembly program to find 0's & 1's from a given number. | **07** |

**OR**

|  |  |  |  |
|---|---|---|---|
| **Q.3** | **(a)** | List all the data types available in C. | **03** |
|  | **(b)** | Explain the programming model of 8085. | **04** |
|  | **(c)** | Write an assembly program to add two 16 bit numbers. | **07** |
| **Q.4** | **(a)** | What is the function of temporary registers W & Z in 8085. | **03** |
|  | **(b)** | Compare Von Neumann & Harvard architecture. | **04** |
|  | **(c)** | Write a C program to toggle all the bits of port 1 at a time delay of 50 ms. | **07** |

**OR**

|  |  |  |  |
|---|---|---|---|
| **Q.4** | **(a)** | Why C programming is preferred over assembly programming? | **03** |
|  | **(b)** | Find control word to be loaded in timer registers TH0 & TL0 to generate time delay of 25 ms. Assume clock frequency as 11.0592MHz | **04** |
|  | **(c)** | Write a C program to continuously transfer the message "YES" serially at 9600 baud, 8 bit data, and 1 stop bit. | **07** |
| **Q.5** | **(a)** | What is RETI instruction? How it is different from RET instruction? | **03** |
|  | **(b)** | List the alternate functions of all the pins of port 3. | **04** |
|  | **(c)** | Draw & explain the interfacing of matrix keyboard with 8051. | **07** |

**OR**

|  |  |  |  |
|---|---|---|---|
| **Q.5** | **(a)** | Explain the advantage of IDE in program development. | **03** |
|  | **(b)** | Write a short note on types of memory. | **04** |
|  | **(c)** | Explain the role of SBUF & SCON registers in serial transfer in8051. | **07** |

*************