Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–V (Old) EXAMINATION – WINTER 2019**

**Subject Code: 151001 Date: 06/12/2019**

**Subject Name: Microcontroller And Interfacing**

**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.**

| | | | |
|---|---|---|---|
| **Q.1** | **(a)** | State different addressing modes in 8051 microcontroller. Explain each with example. | **07** |
| | **(b)** | Explain basic architecture of 8051 microcontroller. | **07** |
| **Q.2** | **(a)** | Explain following 8051 instructions with an example.<br>(1) MUL AB (2) SUBB A,R0 (3) RR A (4) SWAP A (5) ANL C, Bit (6)XCHD A,R0 (7)RLC A. | **07** |
| | **(b)** | Write a Program to Generate delay of 20 msec in 8051. | **07** |
| | | **OR** | |
| | **(b)** | Write an assembly language program to transfer a block of 15 data bytes stored at D000 onwards to E000 onwards. | **07** |
| **Q.3** | **(a)** | Write an assembly language program to generate square wave of 5 KHz Frequency on pin P1.5 Use Timer 0 in Mode 1. | **07** |
| | **(b)** | Discuss the hardware scheme to interface external 32K EPROM and 16K RAM memories with microcontroller. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain 8 bit ADC and Explain interfacing of same with 8051 | **07** |
| | **(b)** | Describe TMOD and TCON Special Function registers. | **07** |
| **Q.4** | **(a)** | Explain RS 232 connector and respective handshaking signals. | **07** |
| | **(b)** | 16X2 LCD is connected to 8051 microcontroller. Write assembly language program to display “Hello World” on LCD. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Draw and explain interfacing of RTC with 8051 microcontroller. | **07** |
| | **(b)** | Interface a Matrix Keyboard with 8051 and draw the flow chart to detect a switch pressing. | **07** |
| **Q.5** | **(a)** | Draw and explain DC motor control with optoisolater and PWM. | **07** |
| | **(b)** | Write a C-language Program to transfer the message “Hello” Serially at 9600 baud, 8 bit data, 1 stop bit. Do this continuously. Xtal =11.0592MHz. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Compare microprocessors with microcontrollers. | **07** |
| | **(b)** | Draw pin diagram of 8051 microcontroller. | **07** |

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