

**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. **07**  
(1) MUL AB (2) SUBB A,R0 (3) RR A (4) SWAP A (5) ANL C, Bit  
(6) XCHD A,R0 (7) RLC A.  
(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 optoisolator 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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