

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014

Subject Code: 173203**Date: 03-06-2014****Subject Name: Microprocessor and Microcontroller****Time: 02:30 pm - 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.

- Q.1** **(a)** Draw and Describe Architecture of intel-8051, 8-bit Microcontroller. **07**
(b) (1) What is PSW? Explain 8051 Flag register and its practical implementation. **07**
 (2) Describe following pointers
 (i) PC (ii) SP (iii) DPTR (iv) R0 & R1
- Q.2** **(a)** Explain and Draw the demultiplexing of the AD0 to AD7 Bus in 8085 Microprocessor. **07**
(b) Draw and Explain Reset and Clock Circuit of 8051 Microcontroller. What is the Purpose of capacitor in RESET circuit? **07**
- OR**
- (b)** Draw and Explain the Programmable Model of 8051 Microcontroller with Different Flags. **07**
- Q.3** **(a)** Explain the Addressing Modes of 8051 Microcontroller with example. **07**
(b) Write an assembly program to generate 10KHz Square wave frequency with 60% duty cycle. (take $T = 1.085 \times 10^{-6}$ sec) **07**
- OR**
- Q.3** **(a)** Define and describe the directives of 8051 Microcontroller. **07**
(b) Write a program for the DS89C420/30 chip to toggle all the bits of P0, P1 and P2 every $\frac{1}{4}$ of a second. Assume a crystal frequency of 11.0592MHz. **07**
- Q.4** **(a)** Write an 8051 C program to toggle all bits of P2 continuously every 500ms. Use timer 1, Mode 1 to create the delay. **07**
(b) Generate a square wave with an ON time of 3ms and an OFF time of 10ms on all pins of port 0. Assume a crystal frequency of 22 MHz. **07**
- OR**
- Q.4** **(a)** Explain the PCON registers and What is the important of the TI and RI flag bit in SCON Register? **07**
(b) Write a C Program for the 8051 to receive bytes of data serially and put them in P1. Set the baud rate at 4800, 8-bit data, and 1 stop bit. **07**
- Q.5** **(a)** Explain and Draw the interfacing of Liquid Crystal Display (LCD) with 8051 Microcontroller and also explain five different LCD Command. **07**
(b) Write an 8051 C program to send letters "ONE" to the LCD using delays. **07**
- OR**
- Q.5** **(a)** Explain level and edge-triggered interrupts of 8051 Microcontroller. **07**
(b) Draw and Explain 8051 connection to ADC 0804 with one of the mode. **07**
