

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – WINTER 2013

Subject Code: 173203**Date: 05-12-2013****Subject Name: Microprocessor and Microcontroller****Time: 10.30 am - 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) Draw and Describe function of each pins of DIP-51 Intel 8-bit Microcontroller. **07**
 (b) How Microcontrollers are differing than Microprocessor? Explain with technical justification and application. **07**
- Q.2** (a) Draw the functional block diagram of internal architecture of IC 8085 and explain its working. **07**
 (b) Explain and Draw the demultiplexing of the AD0 to AD7 Bus in 8085 Microprocessor. **07**
- OR**
- (b) Explain and Draw the control signal generation in 8085 Microprocessor. **07**
- Q.3** (a) What is Special Function Register (SFR) of 51-Microcontroller? List all the SFR and explain SBUF, IP and PCON. **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**
- OR**
- Q.3** (a) Define and describe the directives of 8051 Microcontroller. **07**
 (b) Explain following Addressing Modes of 8051 Microcontroller **07**
 1). MOV A, #20h 2). MOV A, 30h 3). MOV A, @R0
 4). MOVX A, @DPTR 5). MOVC A, @A+DPTR
- Q.4** (a) 1). Describe TMOD and TCON Special Function Registers. **07**
 2). Write an assembly program to generate 10Khz Square wave frequency with 60% duty cycle.(take $T = 1.085 \times 10^{-6}$ sec)
 (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 SCON 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 the IE and IP register of 8051 and explain the level and edge-triggered interrupts. **07**
 (b) Draw and Explain 8051 connection to ADC 0804 with one of the mode. **07**
- OR**
- 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 “GTU” to the LCD using delays. **07**
