

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC-Semester –III (May-2012) Examination

Subject code: X31103

Subject Name: Microcontroller and Interfacing

Date: 16/5/2012

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) What is Microcontroller? Explain criteria for selection of Microcontroller. **07**
List difference between 8051 and 8052 Microcontroller.
(b) Draw and explain basic architecture of Intel 8051 Microcontroller. **07**

- Q.2** (a) Write an 8051 C program to calculate the checksum byte for given data. **07**
4 bytes of hexadecimal data: 25h, 62h, 3Fh, and 52h.
(b) Draw Pin diagram of Intel 8051 and explain function of each pin. **07**

OR

- (b) Explain pin configuration with circuit diagram for all ports. **07**

- Q.3** (a) Write a Assembly program to multiply two 16-bit numbers for 8051 Microcontroller **07**
(b) Write a program to transfer block of data from internal memory locations to external memory locations for 8051 Microcontroller. **07**

OR

- Q.3** (a) Explain IE SFR and IP SFR. **07**
(b) Explain following instructions **07**
[1] SWAP A [2] MOVX A,@DPTR [3] DIV AB
[4] MOV A, #25h [5] MOV A, 25h
[6] XCHD A,R1 [7] MOVC A,@A+DPTR

- Q.4** (a) Write a program to generate 1 KHz pulse waveform of 70% duty cycle on pin 1.0 using timer. **07**
(b) Explain different modes of Timer for Intel 8051 Microcontroller. **07**

OR

- Q.4** (a) Explain different modes for serial communication for 8051 Microcontroller. **07**
(b) Draw and Explain 8051 connection to ADC 0804 with self-checking mode. **07**

- Q.5** (a) Draw and explain interfacing of external 8K EPROM and 4K RAM with Intel 8051 the microcontroller. **07**
(b) Explain RTC interfacing with 8051 microcontroller. **07**

OR

- Q.5** (a) Write an 8051 C program to send letters 'M', 'D', and 'E' to the LCD using the busy flag method. **07**
(b) Explain interfacing of microcontroller with DC motor and PWM. **07**
