

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER • 2014****Subject Code: 173203****Date: 02-12-2014****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 the functional block diagram of internal architecture of IC 8085 and explain its working. **07**
- (b)** Draw and explain the generation of Control Signal of Microcontroller. Also explain the flag register of 8085. What is PSW? **07**
- Q.2 (a)** Define and describe the data types and directives of 8051 Microcontroller. **07**
- (b)** Draw and describe following 8-bit Registers **07**
(a) SCON (b) PCON (c) TCON (d) TMOD
- OR**
- (b)** (a) Draw the pin diagram of Intel 51 8-bit Microcontroller. **07**
(b) Explain the register indirect and index addressing mode of 8051.
- Q.3 (a)** Explain Register Bank and Stack of 8051 microcontroller. **07**
- (b)** Write an assembly program to generate 10khz square wave frequency with 60% duty cycle. (take $T = 1.085 \times 10^{-6}$ second) **07**
- OR**
- Q.3 (a)** Draw and explain Reset and Clock circuit of 8051. What is the purpose of capacitor in RESET circuit? **07**
- (b)** A door sensor is connected to the P1.1 pin, and a buzzer is connected to P1.7. Write an 8051 C program to monitor the door sensor, and when it opens, sound the buzzer. Sound of buzzer by sending a square wave of a 10KHz. **07**
- Q.4 (a)** Explain the level and edge-triggered interrupts of 8051. **07**
- (b)** Write an 8051 C program to toggle all bits of P2 continuously every 500 ms. Use Timer, mode 1 to create the delay. **07**
- OR**
- Q.4 (a)** What is the important of TI and RI flag bit in serial communication? **07**
- (b)** Assuming that XTAL = 22 MHz, write a program to generate a square wave of frequency 1Khz on pin P1.2. **07**
- Q.5 (a)** Draw and explain the Stepper and DC motor interfacing with 8051. **07**
- (b)** Write a C program to scrolling a string “The Earth is but One Country” to the LCD using 250 millisecond delays. **07**
- OR**
- Q.5 (a)** Draw and explain the DAC interfacing of 8051 with one of the mode. **07**
- (b)** Write a C program to reading and displaying temperature on LCD using LM35. **07**
