

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– V EXAMINATION – SUMMER -2015****Subject Code: 151001****Date: 02/05/2015****Subject Name: Microcontroller and Interfacing****Time: 02.30pm to 05.00pm****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 neat pin diagram of 8051. Explain how Port 0 assign as input and Output port with suitable example. **07**
- (b) Answer the following **07**
- 1) Draw and describe 11.0592 MHz Clock.
  - 2) Draw and describe Power-On RESET circuit.
  - 3) Draw and describe interfacing of 8K x 8 Data chip with 8051.
  - 4) Explain Read-Modify-Write feature of logical instruction.
  - 5) Describe Bit v/s Byte addressing mode of 8051.
  - 6) Convert 102D in to signed Hex number.
  - 7) Divide 64H by 2H two times without using DIV instruction.
- Q.2** (a) Prepare Assembly Language Program (ALP) with schematic to interface SPDP Relay with 8051. **07**
- (b) Draw and describe interfacing diagram of ADC chip with 8051 microcontroller with necessary program. **07**
- OR**
- (b) Write ALP to blink LED every 5 sec for 2 sec using 1 sec delay **07**
- Q.3** (a) Describe TMOD register timer modes of 8051 with its timing range. **07**
- (b) Draw and describe interfacing diagram of DAC chip with 89C51 microcontroller with necessary program. **07**
- OR**
- Q.3** (a) Write an 8051 C program to create a frequency of 2500 Hz on pin P2.7. Use Timer 1, mode 2 to create delay. **07**
- (b) Draw and describe the interfacing of ADC0804 with 8051 microcontroller. **07**
- Q.4** (a) Explain necessary hardware for counter programming with external input for mode 2. **07**
- (b) Write a program to send the message “Happy New Year” to serial port. Assume a Switch SW is connected to pin P1.2. Monitor its status and set the baud rate as follows: If SW = 0, 4800 baud rate otherwise W = 1, 9600 baud rate. Assume XTAL = 11.0592 MHz, 8-bit data, and 1 stop bit. **07**
- OR**
- Q.4** (a) Why interrupts are required in programming? Explain it with IE Register. **07**
- (b) Write a C program to get bit of data from P1.2 and sends it to P2.3, while simultaneously creating a square wave of 50  $\mu$ s period on pin P2.4. Use Timer 0 to create the square wave. Assume that XTAL = 11.0592 MHz **07**
- Q.5** (a) Explain PSW and PCON Special Function register in details **07**
- (b) What is look up table? Describe its application with microcontroller operation **07**
- OR**
- Q.5** (a) Write the benefits of LCD over LED display. Draw and describe interfacing 16x2 lines LCD with 8051 microcontroller. **07**
- (b) Prepare ALP with schematic and explain VR stepper motor driver circuit using 89C52 microcontroller. **07**

\*\*\*\*\*