

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- VI<sup>th</sup> SEMESTER-EXAMINATION – MAY- 2012****Subject code: 160903****Date: 15/05/2012****Subject Name: 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) Discuss the specific features of 8051 microcontroller **08**  
 (b) Explain the working of DPTR, Program Counter and PSW registers in details **06**

- Q.2** (a) Explain PCON and SCON registers in details. Give bit format of both these SFRs and explain bit significance of each bit. **08**  
 (b) What is serial data transmission? How it is done in the microcontroller 8051? **06**

**OR**

- (b) Explain the Functions of the following Pins of 8051 **06**  
 1. PSEN 2. ALE 3. INT0 4 INT1 5. XTAL1 6 XTAL2

- Q.3** (a) Which are the different types of interrupts available in microcontroller 8051? Explain each interrupts in brief. **07**  
 (b) Which are the different types of addressing modes available in the assembly language of 8051 explain each of them with example. **07**

**OR**

- Q.3** (a) Write an ALP to add unsigned numbers found in internal RAM 35H, 36H and 37H. Store the result in 40H (LSB) and 41H (MSB). **07**  
 (b) Write the steps to design 1 Sec delay using appropriate registers. **07**

- Q.4** (a) Write a program in Embedded C to toggle the bit at pin 1 of Port 0 of 8051 microcontroller at some appropriate delay. **07**  
 (b) Explain the following instructions with suitable examples **07**  
 1. ORL A, @Rp 2. DIV AB 3. LJMPL ladd

**OR**

- Q.4** (a) Explain how 32 KB (ROM) of memory can be connected to Microcontroller 8051 with neat diagram. Discuss the pins used in this interfacing. **07**  
 (b) Discuss different types of CALL and RET instructions of 8051 **07**

- Q.5** (a) Explain how microcontroller 8051 can be interfaced with keyboard **07**  
 (b) With the neat diagram, explain how LCD display can be interfaced to microcontroller 8051. **07**

**OR**

- Q.5** (a) With neat block diagram, explain how SCR firing circuit can be designed using microcontroller. **07**  
 (b) Discuss the RAM structure of 8051 microcontroller **07**

\*\*\*\*\*