

GUJARAT TECHNOLOGICAL UNIVERSITY**PDDC - SEMESTER-VI EXAMINATION – WINTER 2015****Subject Code: X60902****Date: 12/12/2015****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) Discuss the specific features of 8051 microcontroller over microprocessor **07**
 (b) What is SFR? Explain the working of DPTR, Program Counter and PSW registers in details **07**
- 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) Discuss the RAM structure of 8051 microcontroller **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) What are interrupts? Explain each interrupt of 8051 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 30H, 31H and 33H. Store the result in 34H (LSB) and 35H (MSB). **07**
 (b) Explain how delay is design in microcontroller 8051? **07**
- Q.4** (a) Write a program in Embedded C/assembly language 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. LJMP 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 difference between 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) What is serial data transmission? Explain various types of serial data communication. **07**
