Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2015

Subject Code:160903 **Date:08/05/2015**

Subject Name: Microcontroller

Time:10.30am-01.00pm **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)**	What are the various addressing modes of 8051?	**07**
	(b)	Explain all the bits of PSW register & hence find the control word for selecting register bank 2.	**07**
Q.2	**(a)**	With the help of diagram explain all modes of internal timer/counter of 8051.	**07**
	(b)	Write a short note on internal memory structure of 8051.	**07**
		OR	
	(b)	Explain the physical structure of I/O ports.	**07**
Q.3	**(a)**	Explain the following instruction 1. ACALL 2. DJNZ 3. RETI 4.SWAP	**07**
	(b)	Write an ALP to move a block of 5 numbers starting from location 30H to a location starting from 50H.	**07**
		OR	
Q.3	**(a)**	Differentiate between following instruction. 1. MOVC & MOVX 2. PUSH & POP 3. RLA & RLCA	**07**
	(b)	Write an ALP to find 2's compliment of a number.	**07**
Q.4	**(a)**	Write a C program to toggle all the bits of port0 continuously with 50ms time delay.	**07**
	(b)	Write a short note on interrupt structure & priorities of 8051.	**07**
		OR	
Q.4	**(a)**	Write a C program to generate a square wave of 50Hz at pin P2.1	**07**
	(b)	Design an 8051 based system to interface DC motor to control its speed.	**07**
Q.5	**(a)**	Compare SPI & I^2C bus protocols.	**07**
	(b)	Write a short note on data types available in embedded C.	**07**
		OR	
Q.5	**(a)**	Write a short note on different microcontroller family (PIC, AVR, ARM).	**07**
	(b)	Draw & explain interfacing of matrix keyboard with 8051.	**07**

****