Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VI • EXAMINATION – SUMMER • 2015

Subject Code: X60902 **Date: 12/05/2015**

Subject Name: Microcontroller and interfacing

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)**	Differentiate between micro controller and micro processor.	**07**
	(b)	Draw and explain the functional block diagram of 8051 microcontroller	**07**
Q.2	**(a)**	Explain RAM memory space allocation in 8051	**07**
	(b)	Explain PSW register in detail.	**07**
		OR	
	(b)	Discuss the different types of conditional and unconditional jump instructions available with 8051 microcontroller	**07**
Q.3	**(a)**	Discuss the different types of bit manipulation instructions available with 8051	**07**
	(b)	Discuss the different addressing modes of 8051 with suitable example.	**07**
		OR	
Q.3	**(a)**	Write an ALP to find the largest number from a block of 15 bytes which starts from M.L. 40H. Store the largest number in M.L. 60H	**07**
	(b)	Write an ALP to transfer numbers found in internal RAM memory locations 35H, 36H and 37H to R4, R5 and R6 of registers bank 3.	**07**
Q.4	**(a)**	Which are the different types of interrupts available in microcontroller 8051? Explain each interrupts in brief.	**07**
	(b)	Explain different modes of timer operation in 8051	**07**
		OR	
Q.4	**(a)**	Discuss different types of CALL and RET instructions of 8051	**07**
	(b)	Assuming XTAL = 11.0592 MHz, write a program to generate a square wave of 2 kHZ on pin P1.6. Use timer 1 in mode 1	**07**
Q.5	**(a)**	With the help of neat diagram, explain how 7-segment LED's can be interfaced with 8051	**07**
	(b)	Discuss the interfacing of matrix keyboard with 8051.	**07**
		OR	
Q.5	**(a)**	Explain how DC motor can be interfaced with 8051?	**07**
	(b)	Explain how you can connect ADC to 8051? Discuss the steps to program the ADC	**07**

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