Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VI • EXAMINATION – WINTER 2013

Subject Code: X60902 **Date: 06-12-2013**

Subject Name: Microcontroller and Interfacing

Time: 02.30 pm - 05.00 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)**	Compare Microprocessor with microcontroller and discuss the specific features of 8051 microcontroller.	**08**
	(b)	Explain the working of DPTR, Program Counter registers in details	**06**
Q.2	**(a)**	Explain PSW register in detail. Give bit format of it and explain bit significance of each bit also explain use of general purpose flag.	**07**
	(b)	Calculate how many address pins of microcontroller would be used in the interfacing of 8KB RAM? Explain the use of EA pin in this connection diagram.	**07**
		OR	
	(b)	Explain the Functions of the following Pins of 8051. Also explain why some of the PINs of Microcontrollers are multiplexed? 1. PSEN 2. ALE 3. TxD	**07**
Q.3	**(a)**	Which are the different types of interrupts available in microcontroller 8051? Explain each interrupts in brief.	**07**
	(b)	What is serial data transmission? How it is done in the microcontroller 8051?	**07**
		OR	
Q.3	**(a)**	Which are the different types of addressing modes available in the assembly language of 8051 explain each of them with example.	**07**
	(b)	Write an ALP to transfer numbers found in internal RAM 35H, 36H and 37H to R4, R5 and R6 of registers bank 3 in reverse order.	**07**
Q.4	**(a)**	Write the steps to design 1 Sec delay using appropriate registers.	**08**
	(b)	Explain the following instructions with suitable examples 1. ANL A, Ro 2. MUL AB 3. LJMP ladd	**06**
		OR	
Q.4	**(a)**	Write an ALP to add two 16 bit numbers stored in the internal RAM. assume suitable locations for data and results.	**07**
	(b)	Discuss different types of CALL and RET instructions of 8051	**07**
Q.5	**(a)**	Explain how microcontroller 8051 can be interfaced with ADC.	**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 circuit for blinking one red and one green LED alternatively can be designed using microcontroller. Give your assumptions clearly.	**07**
	(b)	Discuss the bit significance of SCON registers of 8051.	**07**

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