Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC– SEMESTER III– • EXAMINATION –WINTER- 2016

Subject Code: X31103 **Date:04/01/2017**

Subject Name: Microcontroller and Interfacing

Time:10:30 AM to 1:00 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)**	Draw and explain internal RAM organization of 8051.	**07**
	(b)	Explain the following instructions: ADDC,MUL,ANL,RR,MOVX,CPL,RETI.	**07**
Q.2	**(a)**	Write an 8051 C Program to toggle only P1.5 bit continuously every 50ms. Use timer 0, mode 1 to create delay.	**07**
	(b)	Write a program to add ten bytes stored in internal RAM. The starting location of block is 40H.	**07**
		OR	
	(b)	Write an assembly program in which 8051 reads data from port P1 and writes it to port P2 continuously while giving a copy of it to the serial COM port to be transferred serially. Assume XTAL=11.0592 MHz. Set the baud rate at 9600.	**07**
Q.3	**(a)**	Write 8051 C program to convert packed BCD to ASCII and display the bytes on P1 and P2.	**07**
	(b)	List and Explain various addressing modes of 8051.	**07**
		OR	
Q.3	**(a)**	Explain TCON and TMOD control registers.	**07**
	(b)	Draw and explain pin diagram of 8051.	**07**
Q.4	**(a)**	Explain IE and IP registers.	**07**
	(b)	Write a program to receive the data serially and send it out to port-0 in parallel form. Also save data at RAM location 60H.	**07**
		OR	
Q.4	**(a)**	Explain RTC interfacing with 8051 microcontroller.	**07**
	(b)	Interface DAC0808 to 8051.Write an assembly code to generate triangular waveform with appropriate delay.	**07**
Q.5	**(a)**	Interface 4*4 matrix keyboard to 8051. Write subroutine in assembly to identify the key pressed, find its ASCII code and send it to port-0.	**07**
	(b)	Explain different modes for serial communication for 8051Microcontroller.	**07**
		OR	
Q.5	**(a)**	A switch is connected to pin P2.7. Write an assembly program to monitor the status of switch and perform following: (1) If SW=0 , the DC motor moves clockwise (2) If SW=1 , the DC motor moves counterclockwise.	**07**
	(b)	Draw and explain interfacing of external 8K EPROM and 8K RAM with Intel 8051 the microcontroller.	**07**

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