Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: X 31103 Date: 31/12/2012

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)**	Explain different directives of 8051 Microcontroller.	**07**
	(b)	Draw and explain interfacing of external 32K EPROM and 16K RAM with 8051 Microcontroller.	**07**
Q.2	**(a)**	Explain selection criteria of Microcontroller for an application.	**07**
	(b)	Explain SCON and PCON SFR for 8051 Microcontroller.	**07**
		OR	
	(b)	Explain different modes of Timers for 8051 Microcontroller.	**07**
Q.3	**(a)**	Draw internal circuit diagram of all ports of 8051 Microcontroller and explain in short.	**07**
	(b)	Explain following instructions [1] SWAP A [2] DIV AB [3] MOV 85h, @ R_0 [4] RR A [5] DJNZ R_0, radd [6] XCHD A, @R1 [7] MOVC A,@A+DPTR	**07**
		OR	
Q.3	**(a)**	Write a program to perform the following. 1. Keep monitoring P1.2 until it becomes high. 2. When P1.2 becomes high write value 55H on P0. 3. Sent a high to low pulse to P2.3.	**07**
	(b)	Write a program add block of 10 data stored in external memory locations starting from 5000h and store answer in external memory location 6000h.	**07**
Q.4	**(a)**	Give difference between polling and interrupt. Explain IE and IP SFR for 8051 Microcontroller.	**07**
	(b)	Explain interfacing of LCD with 8051 microcontroller. Write C program to send “Best of Luck ” on LCD.	**07**
		OR	
Q.4	**(a)**	Write ALP program to transfer the message “GTU” serially at 4800 baud rate, 8-bit data, 1 stop bit do this continuously.	**07**
Q.4	**(b)**	Explain interfacing of 4x4 matrix keyboard with 8051 microcontroller. Write C program to read switch.	**07**
Q.5	**(a)**	Explain Stepper motor interfacing with microcontroller. Write a program to rotate a motor 64º in the clockwise direction. The motor has a step angle of 2º. Use the 4 – step sequence.	**07**
	(b)	Draw and Explain interfacing of ADC 0804 with 8051 Microcontroller.	**07**
		OR	
Q.5	**(a)**	Explain interfacing of 8051 with DC motor and PWM.	**07**
	(b)	Draw and explain interfacing of DAC with 8051 microcontroller. Write a program to generate saw tooth waveform at the output of DAC.	**07**

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