Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014

Subject code: 1720107 **Date: 05-12-2014**

Subject Name: Embedded System

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)**	Discuss microcontroller and ccdpp/fixed point dct	**07**
	(b)	Design a cold drink machine controller , given that a cold drink costs 35/- Rs. Machine accepts quarters only.. Draw a black ï box view, come up with a state diagram and state table, minimize the logic and draw the circuit.	**07**
Q.2	**(a)**	Draw and explain functional block diagram of 8051 microcontroller.	**07**
	(b)	Given 1 X 10^5 Hz crystal controlled oscillator and 64 bit and any number of 16 bit terminal count timers, design a real-time clock that outputs the date and time down to milliseconds.	**07**
		OR	
	(b)	Explain in detail 8051 register banks and stack	**07**
Q.3	**(a)**	Write a code to generate a ramp using the DAC (DAC0800)	**07**
	(b)	List and Explain disadvantage of Multilevel Bus Architectures	**07**
		OR	
Q.3	**(a)**	Attempt following: (i) What are the functional requirements of embedded system? (ii) Give some examples for sophisticated embedded systems.	**07**
	(b)	Explain Arbitration using daisy-chain configuration in detail.	**07**
Q.4	**(a)**	Write a C program to count in BCD from 00 to 99.(use the 2 digit BCD decoded 7 segment display as the output.	**12**
	(b)	List difference between DIP switch and PORT	**02**
		OR	
Q.4	**(a)**	Explain working of all important functional unit of Keypad Controllers	**07**
	(b)	What is t he need for IDE in an Embedded Architecture?	**07**
Q.5	**(a)**	Write a C program to switching ON and OFF individual LEDs with software delay. Use the eight independent LEDS.	**12**
	(b)	What are the forms of timer?	**02**
		OR	
Q.5	**(a)**	Explain in detail about UART single ï purpose processor as an FSMD	**07**
	(b)	List the hard ware units that must be present in the embedded systems.	**07**

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