Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016

Subject Code: 2723110 **Date: 17/11/ 2016**

Subject Name: Embedded System for Biomedical Applications

Time: 2:30 pm to 5:00 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)**	What is the meaning of embedded system and explain how embedded system technology is useful for biomedical application?	**07**
	(b)	Which type of processor is better? Explain CISC processors and RISC processors with proper examples.	**07**
Q.2	**(a)**	Enlist different types of DAC and compare them with proper examples.	**07**
	(b)	Explain different features of Intel MCS51 in detail.	**07**
		OR	
	(b)	Explain different features of PIC microcontroller in detail.	**07**
Q.3	**(a)**	Define RTOS. Explain any biomedical application based on RTOS.	**07**
	(b)	Explain Timer facilities available in MCS51 microcontroller.	**07**
		OR	
Q.3	**(a)**	Explain interrupt facilities available in PIC controller.	**07**
	(b)	Explain Timer facilities available in PIC microcontroller.	**07**
Q.4	**(a)**	Write a c code to generate a Square pulse waveform with 2 kHz frequency and 10% duty cycle using timer of 8051 microcontroller. Also draw the circuit diagram and flow chart for that.	**07**
	(b)	Explain CCP mode available in PIC controller.	**07**
		OR	
Q.4	**(a)**	Write a C code to transfer the letter "Embedded System" serially at 4800 baud rate continuously using 8051 microcontroller.	**07**
	(b)	Explain interfacing of 8051 with 8 bit ADC. Design a temperature controller and explain it in detail.	**07**
Q.5	**(a)**	Design a Colorimeter. Explain required sensor specification, required hardware or component specification for your design with proper justification.	**07**
	(b)	Write a c code for colorimeter. Explain it with proper circuit diagram and flow chart.	**07**
		OR	
Q.5	**(a)**	Design a Blood pressure meter. Explain required sensor specification, required hardware or component specification for your design with proper justification.	**07**
	(b)	Write a c code for Blood pressure meter. Explain it with proper circuit diagram and flow chart.	**07**

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