Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2723110 **Date: 24/05/2016**

Subject Name: Embedded System for Biomedical Applications

Time:10:30 am to 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)**	Define Embedded System. Also explain different embedded based biomedical applications.	**07**
	(b)	Explain difference between CISC and RISC processors with proper examples.	**07**
Q.2	**(a)**	Enlist different types of ADC and compare them with proper examples.	**07**
	(b)	Explain different Special Function Registers (SFR) of Intel MCS51 in detail.	**07**
		OR	
	(b)	Explain different Special Function Registers (SFR) of PIC microcontroller in detail.	**07**
Q.3	**(a)**	What do we require to develop the application based on RTOS?	**07**
	(b)	Compare different Interrupt facilities available in MCS51 and PIC microcontroller.	**07**
		OR	
Q.3	**(a)**	Explain the multitasking feature supported by an RTOS.	**07**
	(b)	Compare Timer/counter facilities available in MCS51 and PIC microcontroller.	**07**
Q.4	**(a)**	Write a c code to generate a Square pulse waveform with 1 Hz frequency and 25% duty cycle using timer of any microcontroller. Also draw the circuit diagram and flow chart for that.	**07**
	(b)	Explain I2C communication using controller with proper block diagram and flow chart.	**07**
		OR	
Q.4	**(a)**	Write a C code to transfer the letter "Embedded System" serially at 9600 baud rate continuously using any microcontroller.	**07**
	(b)	Explain interfacing of 8051 with 8 bit ADC. Write a code to read analog value from ADC and convert it to decimal, and put it on Port 2 of 8051.	**07**
Q.5	**(a)**	Design a pulse rate meter. Explain required sensor specification, required hardware or component specification for your design with proper justification.	**07**
	(b)	Write a c code for pulse rate meter. Explain it with proper circuit diagram and flow chart.	**07**
		OR	
Q.5	**(a)**	Design a Glucometer. Explain required sensor specification, required hardware or component specification for your design with proper justification.	**07**
	(b)	Write a c code for Glucometer. Explain it with proper circuit diagram and flow chart.	**07**

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