Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE -SEMESTER– VII • EXAMINATION – SUMMER 2015

Subject Code: 170907 **Date: 06/05/2015**

Subject Name: Advanced Microcontrollers and Embedded System

Time: 02:30 pm to 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)**	State and explain in short the advanced features of Si-Lab. Microcontroller C8051F12x.	**07**
	(b)	Which are the different modes of operation of the PCA timer in P89C51RD2xx? Explain Capture mode in detail with block diagram.	**07**
Q.2	**(a)**	Discuss use of Watch-dog timer in 8051 microcontroller.	**07**
	(b)	Explain voltage reference of C8051F12x with block diagram and describe REF0CN register in detail.	**07**
		OR	
	(b)	Describe the bits of SCON register of P89C51RD2xx microcontroller.	**07**
Q.3	**(a)**	Sketch and explain the block schematic of NXP Microcontroller 89C51RD2xx.	**07**
	(b)	Give significance of SPI protocol and explain its Master Mode operation in detail using connection diagram for NXP Microcontroller.	**07**
		OR	
Q.3	**(a)**	What is PLL? Explain the PLL control and PLL pre-divider registers.	**07**
	(b)	What is SFR paging? Why SFR paging is required in C8051F12x Controller?	**07**
Q.4	**(a)**	Explain the different ways of start of conversion and steps to detect End of conversion for ADC2 of C8051F12x microcontroller.	**07**
	(b)	Discuss the interfacing of 89C51RD2xx microcontroller to RTC.	**07**
		OR	
Q.4	**(a)**	Explain the round robin with interrupt architecture.	**07**
	(b)	Explain Task states and Task data in RTOS with necessary diagram.	**07**
Q.5	**(a)**	How many timers are available in C8051F12x? Which are the different modes of operation? Explain Timer 3 in capture mode with block diagram.	**07**
	(b)	Define the embedded system. List the application of small, medium and large embedded system.	**07**
		OR	
Q.5	**(a)**	Explain the comparison of various software architecture in detail.	**07**
	(b)	Explain the different mode of UART of 89C51RD2xx microcontroller.	**07**

****