Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2160909 Date: 26/10/2016

Subject Name: Advance Microcontrollers

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)**	Explain SPI communication protocol for 8051 microcontroller.	**07**
	(b)	Discuss the capture mode of PCA time in 89C51rd2 microcontroller.	**07**
Q.2	**(a)**	Discuss the I^2C communication protocol of 89C51rd2 microcontroller.	**07**
	(b)	Explain features of STM32F4XXDSC.	**07**
		OR	
	(b)	Write a 'c' program for generating a square wave with 55% duty cycle using P89V51RD2 with crystal frequency of 11.0592 MHz using PCA Timer in PWM mode of operation. What is the PWM frequency if PCA Timer is used in 12 clock mode in mode 1?	**07**
Q.3	**(a)**	List out steps required to enable interrupts safely in an IRQ handler.	**07**
	(b)	Draw and explain reset circuit of STM32F4xx.	**07**
		OR	
Q.3	**(a)**	What are advantages of watchdog timer of 89C51rd2 microcontroller? Explain the watchdog timer in details.	**07**
	(b)	Compare Harvard and Van Neumann architecture.	**07**
Q.4	**(a)**	Discuss the pulse width modulator mode of 89C51rd2 microcontroller with C-programming code.	**07**
	(b)	Explain high speed output toggle mode of 8051 microcontroller.	**07**
		OR	
Q.4	**(a)**	Explain thumb-2 instruction set of ARM CORTEX.	**07**
	(b)	Explain Nested Vectored Interrupt Controller of ARM.	**07**
Q.5	**(a)**	Explain the round robin with interrupt architecture.	**07**
	(b)	Explain GPIO registers in detail.	**07**
		OR	
Q.5	**(a)**	Explain TIM 6 & TIM 7 basic timers.	**07**
	(b)	Explain features of the GPIO in detail.	**07**

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