Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 2710311 **Date: 17/05/2016**

Subject Name: Embedded system for Instrumentation

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)**	Draw and explain basic memory map of Cortex M3/M4 processor. Also give address ranges.	**07**
	(b)	Explain xPSR registers in brief.	**07**
Q.2	**(a)**	Explain how interrupts are managed by Cortex M processors in brief.	**07**
	(b)	Write an ALP to generate the square wave of 100 Hz frequency.	**07**
		OR	
	(b)	Write an ALP to scan a series of sixteen 16 bit numbers to find the smallest Number.	**07**
Q.3	**(a)**	Write an assembly language program to divide a 32 bit binary number by 16 bit binary number, store the quotient and reminder on consecutive memory location.	**07**
	(b)	Write an assembly program for finding a maximum within a array and storing in other array.	**07**
		OR	
Q.3	**(a)**	Write an assembly language program to find the factorial of number X. (Assume the value of X is between 0 &9)	**07**
	(b)	What is lazy stacking? Enlist the different scenario for the same and explain any two along with the key element	**07**
Q.4	**(a)**	Write a Assembly program for Two 64 bit numbers addition	**07**
	(b)	Explain in brief what happens when the microprocessor resets	**07**
		OR	
Q.4	**(a)**	Write an assembly program for adding two Array and save result and carry in other array	**07**
	(b)	Write an assembly program for reading different number from memory location and combine them in other memory location using LSR-LSL instruction.	**07**
Q.5	**(a)**	Write an assembly program for moving number from array, if that number is less than 0X77777777.	**07**
	(b)	Discuss the features of cortex M processors in brief	**07**
		OR	
Q.5	**(a)**	Write an assembly program for multiplying 32*32 bit number from an array.	**07**
	(b)	Explain various types of shift and rotate instructions with a neat sketch.	**07**

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