Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710311 **Date:04/01/2017**

Subject Name: Embedded system for Instrumentation

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)**	Explain ARM's Programmer model in details	**14**
Q.2	**(a)**	Explain how interrupts are managed by Cortex M processors in brief.	**07**
	(b)	Write an Assembly language program for reversing bit orders in given register.	**07**
	(b)	Write an Assembly language program for divide without using DIV instruction.	**07**
Q.3	**(a)**	Explain the features of NVIC in details	**07**
	(b)	Write an Assembly language program for finding a maximum within a array and storing in other array	**07**
Q.3	**(a)**	Explain Features of Cortex M processors in details.	**07**
	(b)	Write an assembly language program for finding 2's complement of a number	**07**
Q.4	**(a)**	What is lazy stacking? Enlist the different scenario for the same and explain any two along with the key element.	**07**
	(b)	Enlist the various types of data types available in in ARM Architecture Including Cortex-M Processors with their size and range.	**07**
Q.4	**(a)**	Explain Bit-band operations and its advantages	**07**
	(b)	Write an assembly language program for counting number of leading zero in a given number	**07**
Q.5	**(a)**	Write an ASM for reading different number from memory location and combine them in other memory location using LSL-LSR instruction.	**07**
	(b)	Explain various types of shift and rotate instructions with a neat sketch.	**07**
Q.5	**(a)**	Explain in brief what happens when the microprocessor resets.	**07**
	(b)	Write an assembly language program for moving number from array if the number is less than 0×77777777.	**07**

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