Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013

Subject code: 1722603 **Date: 31-12-2013**

Subject Name: DSP Architecture and Programming

Time: 10.30 am – 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)**	List and describe the hardware features of the TMS320C67x processor in brief.	**07**
	(b)	Explain TMS320C67x processor CPU data paths in detail with block diagram.	**07**
Q.2	**(a)**	Explain following TMS320C67x processor instructions with an example. (i) CMPLT (ii) EXT (iii) ADD2	**07**
	(b)	Explain in detail double precision floating point data representation. Convert following data format into double precision floating point data. (i) $(-100.5)_{10}$ (ii) 0x462A0000 SP floating point number	**07**
		OR	
	(b)	Explain various addressing modes of TMS320C67x processor with examples. Write short code to initialize C67x processor for circular addressing mode with buffer size 2 KB using size field-1 and register B4.	**07**
Q.3	**(a)**	Explain in brief about following control register: (i) AMR (ii) CSR	**07**
	(b)	Explain resource constraints on Cross Paths (1X and 2X) in detail.	**07**
		OR	
Q.3	**(a)**	Explain following terms with respect toTMS320C67x processor in brief: (i) Delay slot (ii) Functional Unit Latency (iii) Pipelining (iv) MFLOPS	**07**
	(b)	List and explain in brief with examples, different types of instruction fetch packet.	**07**
Q.4	**(a)**	Write an assembly language program using C67x processor to find minimum number among randomly stored FIVE words from memory location 5000H onwards. Store result to location 2000H.	**07**
	(b)	Write short note on Host Port Interface (HPI)/	**07**
		OR	
Q.4	**(a)**	Write an assembly language program using C67x processor to find odd number among randomly stored TEN words from memory location 1000H onwards. Store result to location 2000H.	**07**
	(b)	Write short note on EDMA.	**07**
Q.5	**(a)**	Write a C program that calls an assembly function using C67x processor to calculate the following: SUM=1+2+3+……+100	**07**
	(b)	Explain with example how code optimization helps us for DSP system design.	**07**
		OR	
Q.5	**(a)**	Write a C program that calls an assembly function using C67x processor to find number of positive data among randomly stored TEN words.	**07**
	(b)	List and discuss applications of Digital Signal Processors.	**07**

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