Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016

Subject Code: 2725402 **Date: 21/11/ 2016**

Subject Name: Digital Signal Processors: Architecture and Programming

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)**	1. Which addressing mode is convenient for FFT computation in PDSP? 2. What is the use of HostPort in PDSP? 3. List out the special addressing modes in PDSP. 4. Define Dynamic range in PDSP. 5. Perform arithmetic subtraction using 4 bit 2's complement format [-0.25 from 0.625]. 6. What is McBSP in PDSP?. 7. What is the use of ARP available in ST0 (status register) of TMS 320C5x?	**07**
	(b)	Explain difference between Von Neumann & Harvard Architecture. Which Architecture is preferred for DSP Application? Differentiate between RISC Processor and CISC Processor.	**07**
Q.2	**(a)**	Explain different type of floating point formats. Perform Floating point addition and multiplication for number 2.94 and -14.88. Also mention how it is stored?	**07**
	(b)	Explain about finite word length effect in PDSP.Also discuss the techniques used to prevent overflow.	**07**
		OR	
	(b)	Discuss Real time implementation Consideration used in DSP.	**07**
Q.3	**(a)**	Explain Architectural overview for DSP TMS320C54x Processor.	**07**
	(b)	Explain different program control instructions for c54x Processor.	**07**
		OR	
Q.3	**(a)**	Describe different Memory Mapped CPU register and their functions.	**07**
	(b)	Explain special addressing modes used for DSP TMS 320c54x Processor.	**07**
Q.4	**(a)**	Describe different data conversion instructions and arithmetic instruction for c6x processor.	**07**
	(b)	Explain about control register file used in c6x processor.	**07**
		OR	
Q.4	**(a)**	Draw functional Block diagram of TMS 320 C67x processor. Also explain different features of c6x processor.	**07**
	(b)	Give the overview of instructions performed by different functional unit in DSP 6x processor.	**07**
Q.5	**(a)**	Explain Circular convolution .Write C Program to implement it on PDSP.	**07**
	(b)	Describe different Hardware Interfacing used in Digital Signal Processor.	**07**
		OR	
Q.5	**(a)**	Write C program to implement FIR Filter in floating point processor.	**07**
	(b)	Explain different addressing modes used in DSP c6x Processor.	**07**

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