USN

Internal Assessment Test II – Oct. 2018

Sub: DSP Algorithms and Architecture | Sub Code: 15EC751 | Branch: ECE

Date: 17/10/2018 Duration: 90 mins Max Marks: 50 Sem / Sec: 7/A,B,C

OBE

Answer any FIVE FULL Questions

		MARKS	CO	RBT
1	Explain Functional Architecture of TMS320C54XX Processor, with a Block Diagram.	[10]	CO3	L1
2 (a)	Discuss briefly about the Direct and Indirect addressing modes of TMS320C54XX Processor.	[07]	CO3	L2
(b)	Assuming the current content of AR3 to be 220h, what will be its contents after each of the following TMS320C54xx addressing modes is used? Assume that the contents of AR0 are 10h. a. *AR3+0 b. *AR3-0 c. *AR3+ d. *AR3 e. *AR3 - f. *+AR3 (40h)	[03]	CO3	L3
3)	Write an assembly language program of TMS320C54XX Processors to compute the sum of three product terms given by the equation, y(n) = h(0) x(n)+ h(1) x(n-1)+ h(2) x(n-2) with usual notations. Use MAC Instruction and Indirect Addressing mode.	[10]	CO3	L3
4(a)	Explain the 6 level pipeline operation of TMS320C54XX.	[05]	CO3	L1

(b)	By means of a figure explain the pipeline operation of the following sequence of instruction if the initial values of AR1,AR3,A are 104,101, 2 and the values stored in the memory locations 101,102,103,104 are 4,6,8,12.Also provide the values of registers AR3,AR1,T and accumulator after completion of each cycle.
	ADD *AR3+,A
	LD*AR1+,T
	MPY*AR3+,B
	ADD B,A
		[05]	CO3	L3

5(a)	Describe host port interface and explain its signals.	[05]	CO3	L2
(b)	Briefly describe the following instructions of TMS320C54XX processors with an example. i) MAC *AR5, +*AR6+, A, B ii) RPT Smem iii) RPTB iv) BANZ, v) MAS *AR3-, *AR6+, B, A	[05]	CO3	L2
6(a)	Draw the functional diagram of multiplier/ adder unit of TMS320C54XX processors and explain.	[05]	CO3	L1
(b)	Draw and explain the functional diagram of Barrel shifters of TMS320C54XX processors.	[05]	CO3	L1

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MPY*AR3+,B
ADD B,A

5(a) Describe host port interface and explain its signals. [05] CO3 L2

(b) Briefly describe the following instructions of TMS320C54XX processors with an example. i) MAC *AR5, +*AR6+, A, B ii) RPT Smem iii) RPTB iv) BANZ, v) MAS *AR3-, *AR6+, B, A [05] CO3 L2

6(a) Draw the functional diagram of multiplier/ adder unit of TMS320C54XX processors and explain. [05] CO3 L1

(b) Draw and explain the functional diagram of Barrel shifters of TMS320C54XX processors. [05] CO3 L1

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