Total No. of Questions : 8] **SEAT No. :**

P4835 **[Total No. of Pages : 2**

[5060]-741
M.E. (E & TC) (VLSI & Embedded Systems)
EMBEDDED SIGNAL PROCESSOR
(2013Pattern) (Credit System) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:-

1) ***Answer any five.***

2) ***Figures to the right indicate full marks.***

Q1) a) Explain the block diagram of software development tools for designing of DSP applications system. **[4]**

b) Obtain the cascade realization of system function
$H(z) = (1 + 2z^{-2} - z^{-2})(1 + z^{-1} - z^{-2})$. **[4]**

c) What is the concept of moving window in signal processing? **[2]**

Q2) a) What are the important issues in selecting hardware components and interfacing external hardware devices to DSP processor? **[3]**

b) Compute the 4-point DFT of the sequence x(n) = (1 2 1 0). **[4]**

c) Explain the adaptive filter algorithm for noise cancellation. **[3]**

Q3) a) Find the 8 point DFT of a sequence x(n) = (1 1 1 1 0 0 0 0) using DIT-FFT radix 2 Algorithm. **[6]**

b) Compare IIR and FIR digital filters. **[4]**

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Q4) a) Draw and explain the architecture of Blackfin processor. **[5]**

b) What are the important feature of TMS320C67XX processor? Draw and explain the block diagram of TMS320C67XX. **[5]**

Q5) a) Justify the necessity of MAC and Barrel shifter in DSP processor. **[3]**

b) What is the need of code optimization? Explain different code optimization methods for developing DSP system. **[3]**

c) Compare and contrast fixed and floating point processors. **[4]**

Q6) a) Explain different addressing modes of TMS320C54XX. **[4]**

b) Compare TMS320C54XX and TMS320C67XXN with respect to architecture, MIPS, memories, and addressing modes. **[6]**

Q7) a) Write short note on audio coding and audio effects applications using DSP techniques. **[5]**

b) What is the need of image enhancement? Explain the different methods of image enhancement. **[5]**

Q8) a) Explain wavelet transform and its applications. **[5]**

b) Explain DTMF generation and detection application using DSP techniques. **[5]**

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