

Total No. of Questions : 8]

SEAT No. :

P3765

[Total No. of Pages : 2

[4960] - 1258

M.E. (E & TC) (VLSI and Embedded Systems)

Embedded Signal Processor

(2013 Pattern) (Semester - II)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *Answer any five questions.*
- 2) *Figures to the right indicate full marks.*

- Q1)** a) Explain the term convolution, correlation and covariance. [3]
b) Define Causal system and comment on causality of LTIDT system. [3]
c) Derive condition for linear phase of FIR filter. [4]
- Q2)** a) Compare the FIR and IIR filters. Which type of filters is used more in practice? Why? [3]
b) Sketch the signal flow graph of DIT algorithm for 4-point DFT calculation. [3]
c) Find the 4 point DFT of a real time discrete sequence (1, 0, 2, 3). [4]
- Q3)** a) Determine $X(K)$ for $N=2$ by using basic butterfly computation in DITFFT algorithm. [3]
b) Explain fixed point and floating point data format in DSP processors. [3]
c) Explain the use of adaptive filters for system identification and noise cancellation. [4]

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- Q4)** a) Discuss design steps of IIR filters using Bilinear transformation method. [4]
b) What is Gibb's phenomenon? How it is reduced? [3]
c) Explain the characteristics of window functions. [3]
- Q5)** a) Explain with the help block diagram the software development tools used for designing DSP system. [3]
b) Explain application of DSP for image processing. [3]
c) Draw and explain architecture overview of Black fin processor. [4]
- Q6)** a) Explain modified Harward architecture for DSP. What are its advantages. [3]
b) What are the desirable features of the DSP Processor? [3]
c) Explain in detail hardware MAC unit for DSP. [4]
- Q7)** a) Give different addressing formats for DSP Processors. [5]
b) Explain salient features of TMS 320C6713digital signal processor and Draw functional block diagram. [5]
- Q8)** a) Explain DTMF application with importance of Geortzel algorithm in it. [5]
b) Explain the implementation of adaptive filter using Code composer studio. [5]

