

Total No. of Questions : 10]

SEAT No. :

P4003

[4959]-1198

[Total No. of Pages : 2

B.E. (Instrumentation and Control)
ADVANCED DIGITAL SIGNAL PROCESSING
(Elective - I) (2012 Course) (406264E) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to candidates:

- 1) *Assume suitable data if necessary.*
- 2) *Use of Calculators, log tables, charts is allowed.*
- 3) *Figures to the right indicate full marks.*

Q1) a) Explain the need of TFD with suitable application. **[5]**

b) Explain STFT with its properties. **[5]**

OR

Q2) Explain polyphase decomposition with suitable example. **[10]**

Q3) a) Discuss sampling rate conversion by non integer factor. **[5]**

b) Compare decimation and interpolation. **[5]**

OR

Q4) Decimate the sinusoidal signal of frequency 100 Hz by factor 3 for the $n > 0$. **[10]**

Q5) a) Explain Welch's method of PSD estimation. **[10]**

b) Compare WSS and SSS signals. **[6]**

OR

Q6) a) Explain Yule Walker equation and its solution. **[12]**

b) Discuss the need of PSD estimation. **[4]**

P.T.O.

- Q7)** a) Explain RLS adaptive filtering algorithm with suitable block diagram. [10]
b) State the applications of adaptive filtering. Explain any one. [8]

OR

- Q8)** a) Explain principle of adaptive filtering with suitable block diagram. [10]
b) Explain homomorphic system for convolution. [8]

- Q9)** a) Compare fixed and floating point DSP processor. [8]
b) State and explain the features of DSP processor. [8]

OR

- Q10)** a) Explain Address Generation Unit in DSP processor. [8]
b) Explain interrupts in DSP processor. [8]

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