

**Code No: C4502**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD  
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012  
ADVANCED DIGITAL SIGNAL PROCESSING  
(SYSTEMS & SIGNAL PROCESSING)**

**Time: 3hours****Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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1. a) Define Decimation and Interpolation.  
b) Discuss Sampling rate conversion of a band pass signal by a factor I/D.
2. a) Discuss any one Application of Multirate Signal Processing.  
b) Discuss the design of Interpolators and Decimators using Polyphase structures.
3. Discuss in detail the estimation of Power Spectra using Welch method and discuss how it is better in power spectrum estimation using Bartlett method.
- 4.a) Discuss the method of Power Spectrum estimation using Blackman-Tukey method  
b) Compare various Non-Parametric methods of power spectrum estimation with respect to Figure of Merit, Quality, Variability, Resolution and No. of Computations.
- 5.a) Compare Parametric and Non-Parametric Methods of Power Spectrum estimation  
b) Discuss the method of power spectrum estimation using Burg method. List out its Limitations.
- 6.a) Bring out the relationship between Forward and Backward Linear predictor coefficients.  
b) Discuss Lattice realization structures of FIR filters.
- 7.a) What are the Main errors that occur due to finite representation of data  
b) Discuss various number format representations
- 8.a) Compare Fixed and Floating type of Processors.  
b) Discuss Finite word length effects w.r.to FFT Algorithms.

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