Reg. No. :

1. (a) Explain and derive the expression for signal modeling using pade approximation.   (20)

Or

   (b) Obtain the expression for all –pole modeling using Prony's method.   (20)

2. (a) Derive the variance of the periodogram using Blackman-Tukey method.   (20)

Or

   (b) (i) Explain how power spectrum can be estimated from the AR model.   (10)

       (ii) Discuss the Welch method of periodogram averaging.   (10)

3. (a) (i) Describe the basics of forward linear prediction. Give the schematic of FIR filter and Lattice filter for the first order predictor.   (10)

       (ii) Derive the recursive predictor coefficients for optimum lattice predictor by Levinson-Durbin algorithm.   (10)

Or

   (b) Derive Wiener Hopf equations and the minimum mean square error for a causal wiener filter.   (20)

4. (a) Explain steepest descent algorithm for FIR adaptive filter.   (20)

(b) Discuss the convergence of the LMS algorithm in detail. (20)

5. (a) Describe the mathematical equations how sampling rate can be increased by a factor of L. (20)

Or

(b) With necessary equations and diagrams, discuss about the interpolation and decimation in multirate signal processing. (20)

—————————————