

Total Marks: 80

(3 Hours)

- N.B. : (1) Questions No.1 is compulsory.
(2) Solve any three questions out of remaining five questions
(3) Draw neat labeled diagram whenever necessary
(4) Assume suitable data if necessary

- Q.1 Solve any four out of five
- i) Explain Power spectral density 5
 - ii) What is Harr Wavelet? Write its properties. 5
 - iii) What are Time Domain operations in Musical Sound Processing 5
 - iv) Write any four characteristics of adaptive system 5
 - v) Compare Bartlett , Welch and Blackman-Tukey methods of Power Spectrum Estimation 5
- Q.2
- a) Explain Yule-Walker method for AR model Parameters. 10
 - b) What is QRS complex in ECG and Explain any method for QRS complex detection. 10
- Q.3
- a) What are the time and frequency domain ECG parameters? Explain with the ECG waveforms. 08
 - b) Explain with neat block diagram the Adaptive Echo Cancellation. 12
- Q.4
- a) Derive LMS Algorithm and mention its limitations 10
 - b) Explain Application of Wavelet Transform for Signal Denoising. 10
- Q.5
- a) How Occular Artifacts are removed from Human EEG? Explain with neat diagram. 10
 - b) Explain the Three Basic Filters used in Equalization of Digital Audio Signals. 10
- Q.6
- a) What is Short Time Fourier Transform and explain how it is suitable for analysis of Speech Signals. 08
 - b) Explain with block diagram the Adaptive Linear Combiner. 06
 - c) Compare Short Time Fourier Transform and Wavelet Transform 06