ACS College of Engineering Department of Biomedical Engineering

BMDSP LAB (10BML77) Pre lab Questions (2015-2016) Cycle-1

- 1 Expand ECG.
- 2 Who invented ECG and When?
- 3 Difference between Electrocardiogram and Electrocardiograph.
- 4 Difference between Electrodes and Leads.
- 5 Different types of ECG measurements?
- 6 What is sampling? Give the need for sampling.
- 7 Define Up-sampling.
- 8 Define Down-sampling.
- 9 What is Sample Rate?
- 10 Up-sampling and down-sampling are also referred to as?
- 11 Give the clinical significance of QRS complex
- 12 Components of ECG waves

- 1 What is Correlation.
- 2 Types of Correlation
- 3 What is Auto correlation
- 4 What is Cross- correlation
- 5 Difference between Auto correlation and cross correlation
- 6 What is convolution
- 7 Difference between convolution and correlation

Cycle-3

- 1. Define Signal to Noise ratio
- 2. What is meant by Signal Averaging
- 3. What is the need for signal averaging
- 4. How SNR can be improved
- 5. Write a algorithm on signal averaging
- 6. Define Power Spectrum

Cycle-4

- 1 Define compression ratio
- 2 Abbreviate DCT and IDCT
- 3 Compression ratio of DCT
- 4 Importance of DCT
- 5 Write Compression ratio for each data compression technique
- 6 Differentiate between lossy and lossless data reduction techniques
- 7 Importance of AZTEC, TP and FAN

- 1 Write the standard equation for IIR filters
- 2 Write the conditions for stable, unstable and marginally stable systems.
- 3 Differentiate IIR and FIR filters
- 4 When are IIR filters used
- 5 IIR stands for
- 6 Define Notch Filter
- 7 Why ECG signal is always corrupted by a 60Hz noise signal
- 8 Notch filter is also referred to as?
- 9 What is the frequency response for Notch filter
- 10 Explain Kaiser Window with necessary equations
- 11 Explain the function of FIR1 inbuilt command of MATLAB
- 12 What do you mean by frequency response
- 13 Write the standard equation for FIR filters
- 14 When are FIR filters used?
- 15 Different ways of designing FIR filters

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- 1 Write a Matlab program to display EEG signal
- 2 Write a Matlab program to up-sample a ECG signal by a factor 2
- 3 Write a Matlab program to down-sample a ECG signal by a factor 4
- 4 Write a Matlab Program to determine whether the given ECG signal is normal or arrhythmic

- 1 What is Correlation.
- 2 Types of Correlation
- 3 What is Auto correlation
- 4 What is Cross- correlation
- 5 Difference between Auto correlation and cross correlation
- 6 What is convolution

- 1 Write a Matlab program to correlate two same and different signals using convolution command
- 2 Write a Matlab program to perform convolution of sequences { 1,2,4,6,2} and {2,4,6,8}
- 3 Write a Matlab program to perform auto correlation of sequences {1,3,5,7,8}
- 4 Write a Matlab program to perform cross correlation of sequences {1,2,3,4} and {4,3,2,1}

- 1. Define Signal to Noise ratio
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Post Lab

1 Write a Matlab program to display SNR and to improve it.

Cycle-4

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Post Lab

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- 14 Different ways of designing FIR filters

Post Lab

- 1 Design IIR filter to check for stability for the given difference equation Y(n)=x(n)-2y(n-1)
- 2 Design IIR filter to check for stability for the given difference equation

Y(n)-5/6y(n-1)+1/6y(n-2)=x(n)

3 Write a Matlab Program to design a 50 Hz Notch filter for ECG signal

ACS College of Engineering Department of Biomedical Engineering BMDSP LAB (10BML77) Pre lab Questions (2017-2018)

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- 2 Design IIR filter to check for stability for the given difference equation Y(n)-5/6y(n-1)+1/6y(n-2)=x(n)
- 3 Write a Matlab Program to design a 50 Hz Notch filter for ECG signal
- 4 Write a Matlab Program to design a 100 Hz Notch filter for ECG signal