

ENEL 563 Biomedical Signal Analysis
Fall 2008
Assignment 1

1. Draw a three-channel schematic plot of simultaneous recordings of the ECG, PCG, and carotid pulse signals for two cardiac cycles.

Label the important waves in each signal and describe the related events in the cardiac cycle. Label the time axis with the typical durations of each wave.

Identify the interrelated waves or markers in the three signals and the relationships to cardiac events that they share. (6 marks)

2. Describe two potential clinical applications of the analysis of EMG signals. (2 marks)
3. List three main objectives of biomedical signal analysis.

For each objective that you list, give one example of a clinical application and describe the characteristics of the associated biomedical signal. (6 marks)
4. Describe the major differences between the signals corresponding to voiced, unvoiced, and plosive sounds in speech. (3 marks)
5. Describe the normally expected characteristics of the EEG related to various stages of sleep. Specify the frequency ranges of the related EEG waves. (3 marks)

Total marks: 20.

Due date: 4:00 PM, Friday, 10 October, 2008 in the box for ENEL 563, 2nd floor, ICT building.