Problem Set 1

Due 5p Monday 10/20

All of these are short answer questions – just a sentence or two.

1. Explain why microelectrodes placed in the white matter show relatively few and much smaller action potentials than similar electrodes placed in gray matter.
2. Why is it believed that pyramidal cells are the primary contributors to the EEG?
3. Action potentials are all-or-nothing events, whose magnitude does not scale with the strength of the input. Please explain how one might use linear systems theory to describe the relationship between neuronal input and output for a single neuron.
4. If myelin acted as a simple insulator covering the length of an axon, would it be able to carry signals from the cell body to the post-synaptic cell?
5. What function is its own Fourier transform?