

**580.422 System Bioengineering II: Neurosciences (Spring 2015)**

Recitation #6 Review Questions

March 05<sup>th</sup>, 2015

**Question 1**

What is the physiological basis of our ability to hear different frequencies of sound?

**Question 2**

An English vowel /i/ can be represented by the auditory nerves in more than one-way.  
What are the two ways that the auditory nerve uses to represent a vowel's spectrum?

### Question 3

If you record action potentials (spikes) from an auditory nerve with a characteristic frequency of 500 Hz using a pure tone stimulus with frequency of 500 Hz and duration of 10 ms, sketch the post-stimulus histogram (PSTH) of this nerve's responses. Assume multiple trials are recorded. Mark axes and explain all features of the PSTH in your sketch (i.e., why you sketch the PSTH in particular ways).