

**NAME:** \_\_\_\_\_

## **EEL 6586: HW#5**

**Due Monday, April 17, 2006 in class. You should only turn in this sheet of paper.  
Late homework loses usual exponential penalty.**

Circle the letter that correctly answers five of the following six questions. Mark a X across the question that you don't want graded. (No extra credit for doing all six).

1. The place theory provides an explanation of
  - a. How the hair cells are arranged inside the cochlea
  - b. How the cochlea processes sounds of varying frequencies
  - c. How to arrange china for a dinner party
2. Vertical localization is made possible for humans
  - a. Because of the reflections off the pinna
  - b. Because of interaural time differences
  - c. Because of interaural intensity differences
3. 'Adaptation' refers to
  - a. The inability of the human auditory system to resolve two frequencies separated by less than 5 cents
  - b. The slowing down in the firing rate of IHCs (inner hair cells) for constant stimuli
  - c. A Nicholas cage movie
4. Mp3 encoding utilizes
  - a. The critical band theory
  - b. Weber's law
  - c. Ohm's law of hearing
5. The 'Bass loss' problem refers to
  - a. Decrease in catching bass during the winter months
  - b. The fact that low frequencies mask more than the highs
  - c. The bias against the low frequencies in the thresholds of hearing
6. Cochlear implants
  - a. Amplify sounds and are higher quality hearing aids
  - b. Are surgically inserted into the cochlea and provide spike outputs
  - c. Are external devices which process the signal before it reaches the cochlea