

As always, the Skidmore Honor Code is in effect. At the end of the exam, I'll have you write and sign something to attest to that fact. The exam should contain no surprises, in that it's just like the first exam. Thanks for a pleasant semester. I really enjoyed myself. Have a pleasant and relaxing break. May the spirit of the season fill your heart.

Peace!

Essay 1. [20 pts] Vision is often thought of as the primary sense, and has been found to dominate several of the other senses. Clearly describe several instances in which vision dominates or interacts with hearing and touch.

Essay 2. [20 pts] Some animals are better able to localize sounds in the environment, and they are often nocturnal predators. What experiments have demonstrated this ability? Also, what mechanisms are responsible for this talent, and how have the prey of these organisms adapted?

1. Eyewitness identification is a difficult task, as indicated by
 - a. d' values of 2.0 or above.
 - b. d' values of .80 or below.
 - c. b values of 2.0 or above.
 - d. b values of .80 or below.

2. Hair cells, the actual receptors for hearing, are located in the
 - a. helicotrema.
 - b. organ of Corti.
 - c. round window.
 - d. none of the above.

3. Which of the following statements about phantom limb experience is true?
 - a. People who had been born without limbs experienced phantom limb experience.
 - b. Phantom limb experience is due to learning to use a limb.
 - c. Phantom limb experience is due to processing input from the limb.
 - d. None of the above.

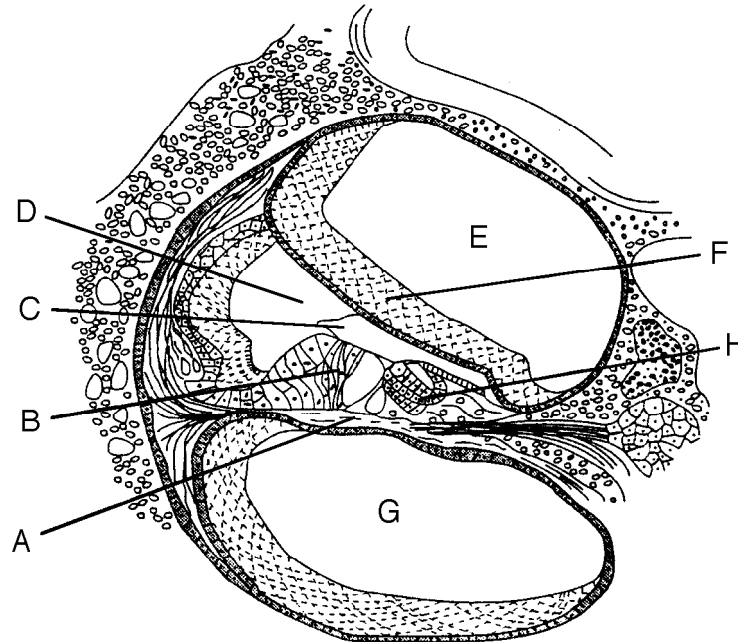
4. If a person were missing the organ of Corti in both ears, what would this person's auditory perception be?
 - a. Only high-frequency tones could be heard.
 - b. Only low-frequency tones could be heard.
 - c. Nothing could be heard.
 - d. As long as the auditory nerve was intact, hearing would be normal.

5. Loss of efferent fibers would result in
 - a. the inability of the brain to send messages to the hair cells.
 - b. the inability of the hair cells to send messages to the brain.
 - c. reduced sensitivity to certain frequencies.
 - d. conduction deafness.

6. The term *just noticeable difference*
 - a. is important in signal detection theory.
 - b. refers to the value of the physical stimulus that is just barely detectable.
 - c. refers to the psychological sensation that corresponds to a change in the physical stimulus that can barely be detected.
 - d. is the same as the point of subjective equality.

7. If you were to use the method of constant stimuli for measuring discrimination of auditory stimuli,
- you would present comparison tones that were substantially lower than the standard stimulus.
 - you would have to use both ascending and descending series.
 - you would notice the frequency of the comparison stimulus at which the judgments changed from “higher than” to “same as.”
 - you would present comparison stimuli in random order and ask observers to compare these stimuli with the standard stimulus.
8. Weber’s law
- is not as reliable as Fechner’s law.
 - applies to a wider range of stimuli than Stevens’ power law.
 - works better in the middle range of stimuli than it does at the extremes.
 - has often been combined with signal detection theory.
9. The two-point discrimination task
- is not affected by the length of time between the first and second stimulus presentation.
 - exhibits different thresholds for different body parts.
 - is least effective on the face.
 - is not a task that improves with practice.
10. Research on active touch has shown that
- active touch produces more accurate identification than passive touch only if a long time is allowed for identification.
 - active touch and passive touch produce equivalent scores for identification accuracy.
 - passive touch is often more accurate than active touch.
 - active touch is usually more accurate than passive touch.
11. Suppose that you are told that you will be participating in a magnitude estimation study of loudness. It is likely that you will be asked to
- listen to a series of sounds decreasing in loudness and indicate when you no longer hear the sounds.
 - say “I detect it” or “I do not detect it” for sounds that are either present or absent.
 - adjust a sound until its estimated magnitude is substantially larger than that of a standard loudness.
 - assign a number to indicate how loud a stimulus appears to be.
12. Your textbook showed a figure with one probability distribution representing “Noise” and one representing “Signal + noise.” In this kind of figure, a very sensitive observer would be represented by
- two completely overlapping probability distributions.
 - a criterion line at the extreme right of the figure.
 - two probability distributions that overlap very little.
 - a criterion line at the extreme left of the figure.
13. Which of the following factors does *not* facilitate speech perception?
- Visual access to the speaker’s lip movements.
 - The context of a phrase or a sentence.
 - Knowledge of the topic of conversation.
 - Previous exposure to the voice.
14. Anosmia refers to a condition in which
- people have lost the ability to smell certain types of perfumes, particularly musk-scented perfumes.
 - women’s menstrual cycles change to become synchronized with other women they are living with.
 - the sense of smell, for all odors, is lost.
 - males of a species are alerted to the fact that the females are ready to mate.

15. Suppose that a researcher records electrical impulses from a fiber in the auditory nerve and plots a frequency tuning curve. This figure is likely to show
- the fiber is most sensitive to a stimulus of a specific frequency, with lower sensitivity to more remote frequencies.
 - the fiber is equally sensitive to all frequencies.
 - the fiber vibrates at the same rate as the auditory stimulus.
 - all fibers in the auditory nerve are similar to each other in their frequency tuning curves.



16. Use the figure above to label the parts of the inner ear shown below [4 pts]:

- | | |
|---------------------------|--------------------------|
| _____ Outer Hair Cells | _____ Tympanic Canal |
| _____ Inner Hair Cells | _____ Cochlear Duct |
| _____ Reissner's Membrane | _____ Vestibular Canal |
| _____ Basilar Membrane | _____ Tectorial Membrane |

17. Duplex perception

- provides support for the special mechanism account.
- involves presenting a phoneme to people and varying its voice onset time.
- is a phenomenon in which the same auditory stimulus is reported as having both speech and non-speech qualities.
- clearly illustrates the effects of top-down processing on speech perception.

18. In signal detection theory, one factor that influences sensitivity (d') is

- how much the observer is paid for the task.
- how much the observer is paid for correct responses.
- the likelihood that the signal is being presented.
- the intensity of the stimulus.

19. What part of the auditory system allows for comparisons of both auditory and visual spatial information?

- a. superior colliculus
- b. inferior colliculus
- c. superior olivary nucleus
- d. medial geniculate nucleus

20. The two phonemes /b/ and /p/ differ from each other in

- a. place of articulation.
- b. manner of articulation.
- c. dynamics.
- d. voicing.

21. Research on categorical perception has shown that

- a. categorical perception can be demonstrated in a variety of animals other than humans.
- b. categorical perception is limited to speech perception.
- c. experimenters have been unable to demonstrate categorical perception for the distinction between voiced and voiceless phonemes.
- d. categorical perception cannot be demonstrated for human listeners.

22. Although loudness perception is clearly related to the amount of energy in a sound, that's not all that's involved in loudness perception. Briefly defend that statement with evidence and then describe how loudness information is encoded in the auditory system. [4 pts]

23. Music and speech are both examples of complex auditory phenomena. As examples of these phenomena, briefly describe the octave illusion and the phonemic restoration effect. Are there visual phenomena that you see as similar to these complex auditory phenomena? Which one or ones? [6 pts]

24. Why would a cognitively oriented psychologist be more attracted to signal detection theory over classical psychophysical theories? [3 pts]

25. Who are Poto and Cabengo and why are they important to our discussion of speech perception? [3 pts]