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(You must use your real student ID#)

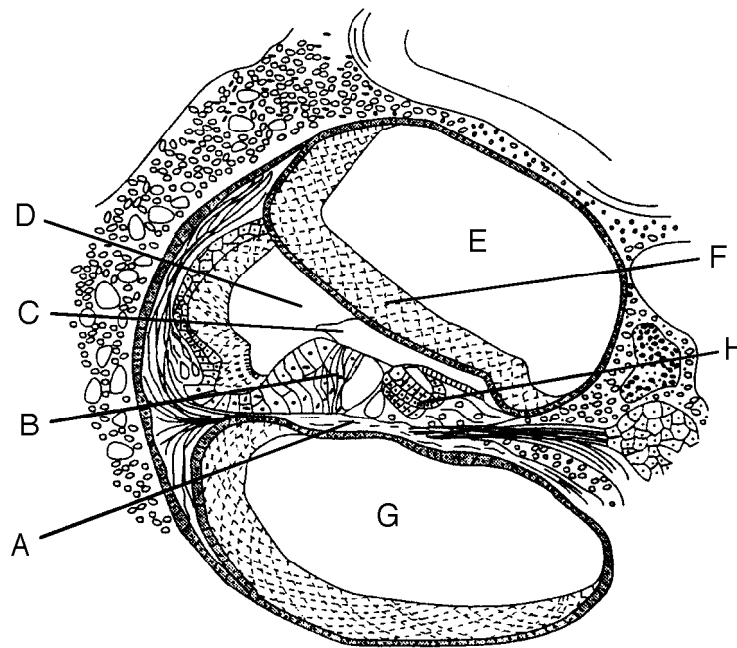
Exam 2

PS 325, Fall 2002

Well, it's been a fun semester for me. I'm probably in the distinct minority, but I'm sorry to see this class come to an end. Thanks for all that you brought to the class that made it so enjoyable for me. Good luck on this exam! Have a relaxing break. If you have some time, try to solve the mind-body problem. Who knows, even if you don't come up with a solution, you may invent a whole new area of psychology!

Essay 1. Context has been shown to play an important role in visual perception. You've also learned of several instances in which context plays an important role in auditory perception. Discuss several such examples. [20 pts]

Essay 2. Describe the General Mechanism and the Special Mechanism accounts of speech perception. Be sure to provide examples of the evidence that supports each mechanism. [20 pts]



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

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

2. The function of the inner hair cells is to
- filter out particles of dirt and other small objects that could damage the structure of the inner ear.
 - transmit auditory information to higher levels of processing.
 - provide a protective covering for the auditory receptors.
 - help overcome the impedance mismatch problem.



3. Match the labels from the figure above to each of the following parts of the auditory system: [4 pts]

_____ Pinna	_____ Round Window
_____ Incus (Anvil)	_____ Malleus (Hammer)
_____ Eardrum	_____ Eustachian Tube
_____ Stapes (Stirrup)	_____ Cochlea
_____ Auditory Nerve	_____ Oval Window
_____ Contains the Organ of Corti	_____ External Auditory Canal

4. Match the labels from the figure above to each of the following descriptions: [3 pts]

_____	Important for localization
_____	Membrane at the end of the tympanic canal
_____	Important for a sense of balance
_____	Important for equalizing air pressure in the auditory system
_____	Membrane that pushes in on fluids in the vestibular canal
_____	Amplifies some frequencies through resonance

5. Relative to a sound source located close to you, for a sound source located far away from your head, the onset difference
 - a. decreases.
 - b. increases.
 - c. remains the same.
 - d. either increases or remains the same, depending on the frequency of the sound.

6. If two tones playing simultaneously produced dissonance, what could you do that typically makes them more consonant?
 - a. Play them at a lower amplitude.
 - b. Change the amplitude of one of the tones.
 - c. Add a third tone.
 - d. Change the frequency of the tones so they form a simple ratio.

7. The two phonemes /b/ and /p/ differ from each other in [reprise question!!]
 - a. place of articulation.
 - b. manner of articulation.
 - c. dynamics.
 - d. voicing.

8. The perceptual systems do not always work in isolation — they often interact. Which of the following *most* supports this statement?
 - a. the McGurk effect
 - b. phonemic restoration
 - c. duplex perception
 - d. transposition

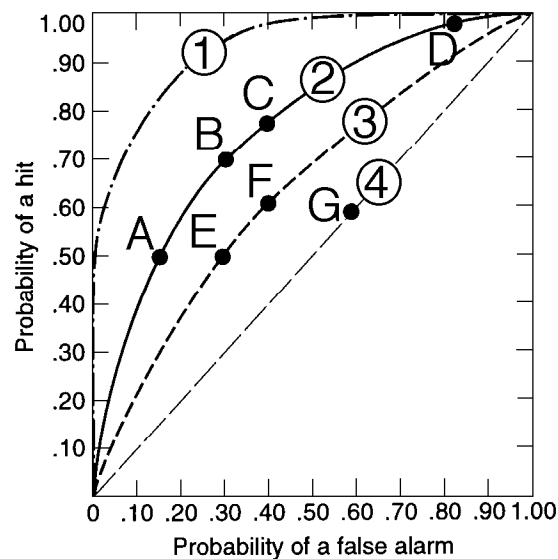
9. What is the point of subjective equality (PSE)? [2 pts]

10. In signal detection theory, one factor that influences sensitivity (d') is
 - a. how much the observer is paid for the task.
 - b. how much the observer is paid for correct responses.
 - c. the likelihood that the signal is being presented.
 - d. the intensity of the stimulus.

11. How are you able to localize high-frequency auditory stimuli? If my magic wand could turn you into a mouse, what would change? [2 pts]

12. According to the motor theory of speech perception,
- humans are able to connect the auditory stimuli they hear with the way these sounds are produced by the speaker.
 - the way we perceive speech is analogous to the operation of the motor of a car.
 - babies develop speech perception at about the same time they develop fine motor coordination.
 - we make barely audible noises in our throats when we listen to another person speaking.
13. Suppose that a study using classical psychophysics showed that women who have participated in prepared childbirth classes have lower thresholds for pain than control women. Why might a variation of that study using the signal detection theory be valuable?
- SDT could give us a more accurate estimate of the just noticeable difference.
 - SDT could tell us whether the difference was due to a difference in sensitivity or a difference in criterion.
 - SDT would provide more accurate thresholds.
 - SDT would provide quicker thresholds.
14. Briefly describe the octave illusion (Deutsch), focusing on what is illusory. [2 pts]
15. Suppose that a single tone is presented continuously for half an hour in the place where you work. What will happen to your auditory perception?
- The sound will become increasingly louder.
 - The sound will become increasingly softer until it is barely noticeable.
 - You will experience a slight decline in the loudness of the sound.
 - High frequency tones become louder; low frequency tones become softer.
16. Define timbre and briefly describe the components of a sound that produce timbre. [2 pts]
17. Which structure is thought to be crucial in sound localization?
- the superior olivary nucleus
 - the eardrum
 - the lateral geniculate nucleus
 - Area 17 of the cerebral cortex

18. Rachel is first presented with one tone and then a second tone that originates a short distance from the source of the first. She reports, however, that they both come from the same source. Why may this be?
- She has had some inner hair cell damage.
 - She is experiencing auditory adaptation.
 - The two tones are separated by less than the minimum audible angle.
 - The two tones are separated by more than the minimum audible angle.



19. Use the figure above to answer the following questions. (Curves are labeled with numbers, and respondents are labeled with letters.) [4 pts]

Which curve indicates the greatest sensitivity?	
Which curve would be obtained from a complete overlapping of the Noise and Signal + noise distributions?	
Along curve 2, which respondent is the most conservative?	
Which respondent appears to be guessing?	
Along which curve would a respondent obtain the highest ratio of hits to false alarms?	

20. How are amplitude and frequency related in the perception of loudness? What would be the best evidence you could provide to illustrate the relationship? [2 pts]

21. Why is the cone of confusion a problem for localization?
- The head is large enough that it creates interaural time differences.
 - The head is large enough that it creates phase differences.
 - High frequency tones especially lead to interaural intensity differences.
 - All sounds originating from this area have the same interaural differences.

22. In the space below, list the three classical methods of psychophysics as articulated by Fechner. Briefly describe each method. [3 pts]

Method	Procedure

23. I'm sure that you found some of these questions to be easy. You may well have found some of them to be difficult. But surely you've learned something really neat or important in the second half of this semester that you haven't had an opportunity to demonstrate thus far on the exam. Do so now.