

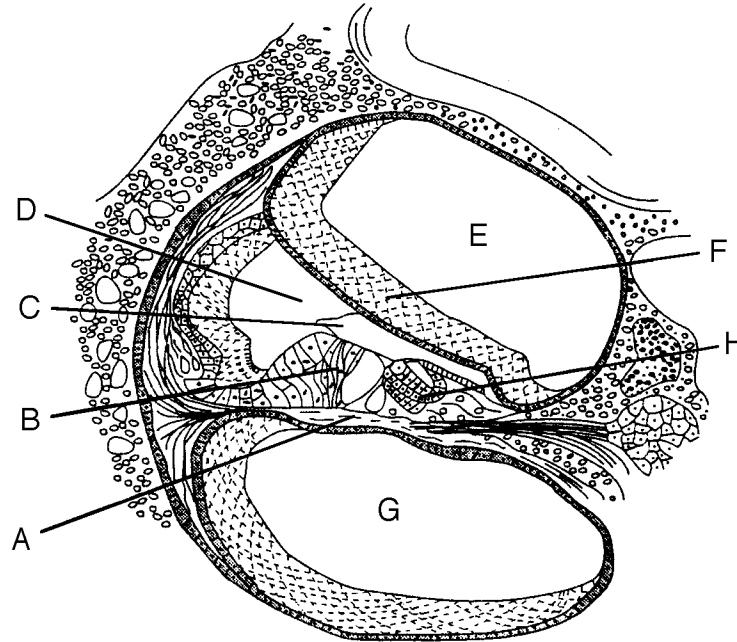
OK, same guidelines as before. You should be able to complete this exam in about 1.5 hours. Good Luck! Have a wonderful summer.

1. Which of the following statements about music perception is most in keeping with the Gestalt approach?
 - a. A series of alternating high- and low-pitched notes played quickly will be perceived as two distinct melodic lines.
 - b. We are much quicker in naming a song that we have heard before as opposed to one we haven't.
 - c. The experience and knowledge that the listener possesses will have a strong influence on the way he or she perceives music.
 - d. In the discrimination of complex sounds, people perform substantially better after receiving training.

2. Which of the following statements about tone combinations is correct?
 - a. When a tone is combined with another tone one octave lower, the ratios of their frequencies is 2/1.
 - b. The only major determinant of consonance is the ratio of the frequencies in the tone combination.
 - c. Tone combinations that have simple ratios for their frequencies always sound more pleasant than tone combinations with complex ratios.
 - d. Tone combinations that are pleasant in one culture are consistently rated as pleasant in another culture.

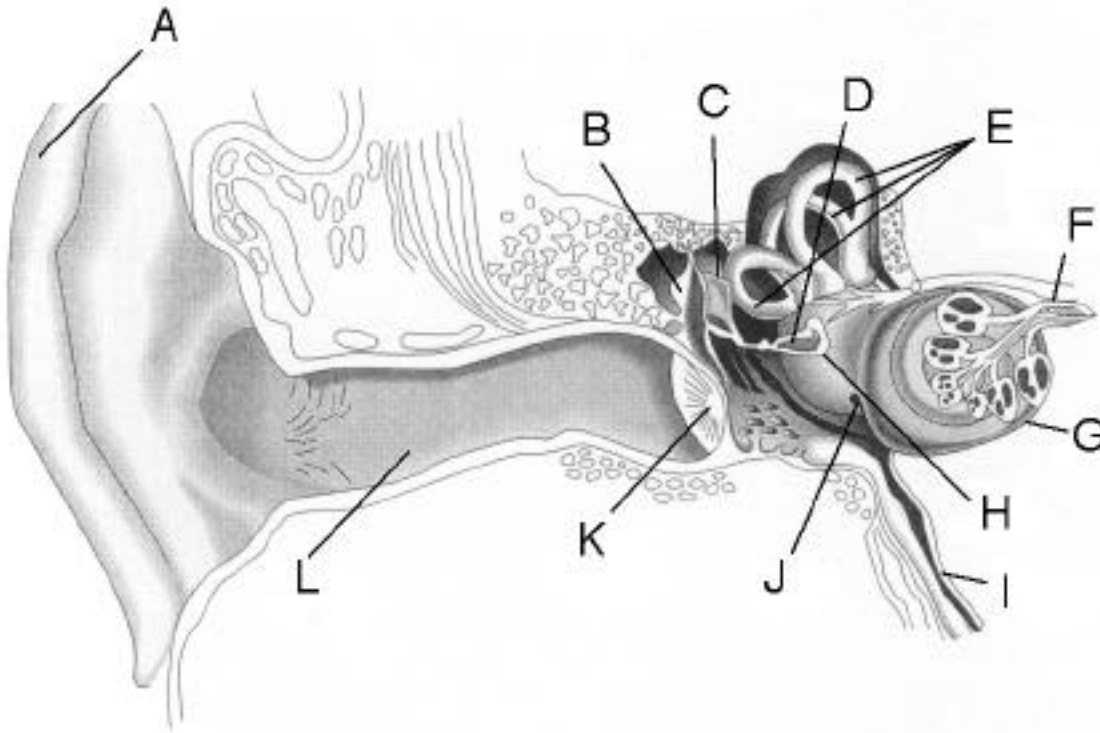
3. Research on timbre in music has demonstrated that
 - a. a musical tone sounds the same, whether it is played normally or backwards.
 - b. the decay segment of a tone doesn't seem to be useful in identifying the timbre of a tone.
 - c. the attack segment of a tone doesn't seem to be useful in identifying the timbre of a tone.
 - d. a musical tone is uniform in musical quality throughout its duration.

4. The psychological experience that corresponds to the physical quality of complexity (that is, the tone's sound quality) is called
 - a. pitch
 - b. loudness
 - c. timbre
 - d. synthesis



5. Use the figure above to label the parts of the inner ear shown below: (3 pts)
- | | |
|---------------------------|--------------------------|
| _____ Outer Hair Cells | _____ Tympanic Canal |
| _____ Inner Hair Cells | _____ Cochlear Duct |
| _____ Reissner's Membrane | _____ Vestibular Canal |
| _____ Basilar Membrane | _____ Tectorial Membrane |
6. What part of the auditory system allows for comparisons of both auditory and visual spatial information?
- superior colliculus
 - inferior colliculus
 - superior olivary nucleus
 - medial geniculate nucleus
7. A particular sound stimulates an area of the basilar membrane very close to the helicotrema. What could you infer about this sound?
- It is probably very loud.
 - It is probably not very loud.
 - It probably has a high pitch.
 - It probably has a low pitch.
8. Pure tones produce phase differences between the two ears that are most detectable for
- low frequency sounds
 - high frequency sounds
 - low amplitude sounds
 - high amplitude sounds

9. According to Békésy's research on place theory, why does the traveling wave die out more rapidly near the stapes?
- Because the basilar membrane is stiffer near the stapes than near the helicotrema.
 - Because the basilar membrane is more relaxed near the stapes than near the helicotrema.
 - Because a wave that travels as far as the stapes is unable to gather strength from external stimuli.
 - None of the above.



10. Match the labels from the figure above to each of the following parts of the auditory system: (5 pts)

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

11. Match the labels from the figure above to each of the following descriptions: (4 pts)

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

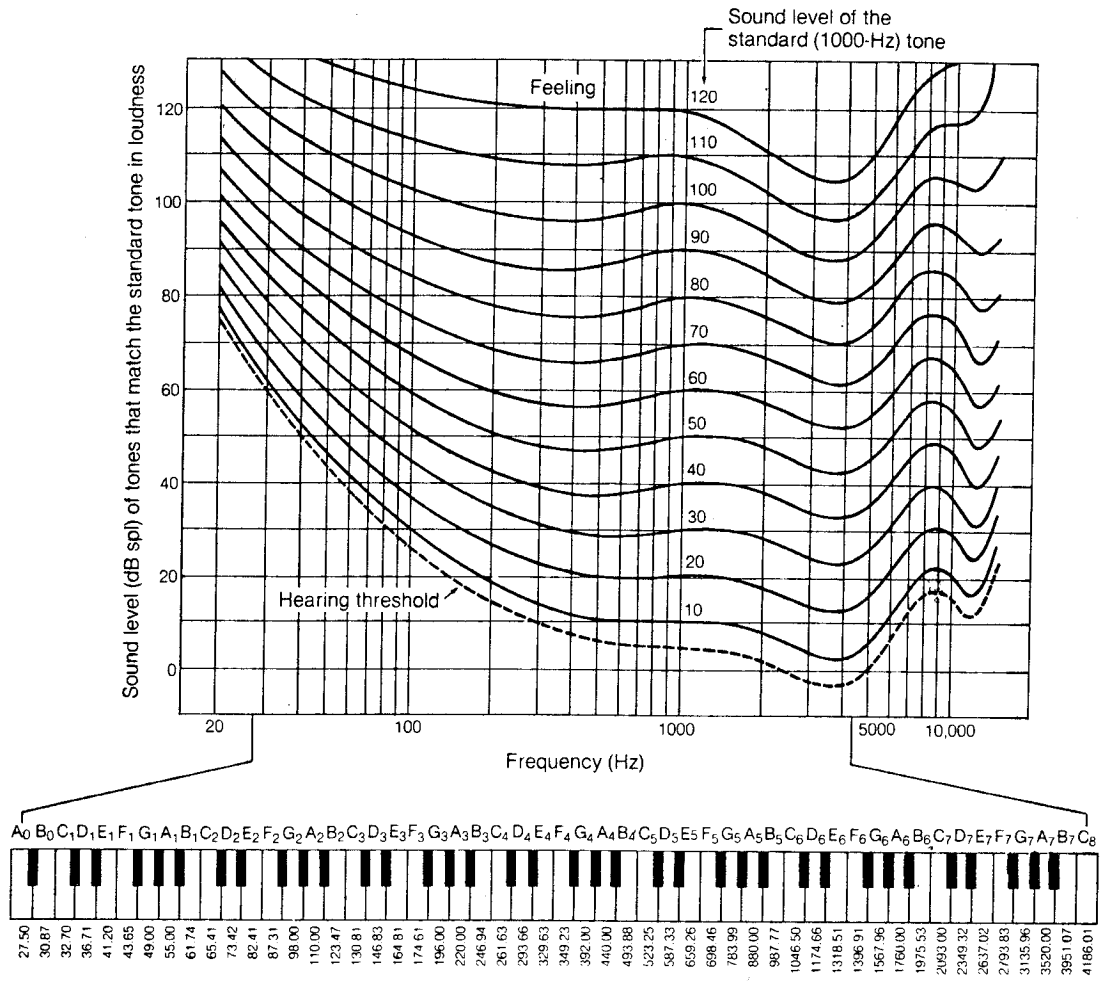
12. An important conclusion from Weber's law is that
- a. the just noticeable difference is always a constant.
 - b. when we start with an intense stimulus, we must make a large change in that stimulus in order for a change to be noticed.
 - c. Weber's fraction is the same for all sensory systems.
 - d. a one-to-one correspondence exists between physical stimuli and psychological reactions.

13. Briefly explain the process of Fourier analysis, with particular attention to how it works for complex sounds. (4 pts)

14. In the video about music, you saw several examples of timbre. Define timbre and provide two distinct examples of how the principle was illustrated in the video. (4 pts)

15. Timing/frequency information may well work to allow us to hear pitch, even though place information seems to be more crucial. Briefly describe the timing approach and the circumstances under which it appears to operate. (5 pts)

16. What sort of evidence would you offer as best supporting the place theory of pitch perception? (4 pts)



17. Using the Fletcher-Munson curves seen above, answer the following questions: (4 pts)

If you were to play your stereo at 60 dB, what frequency information would be lost?

Which of these two tones would appear to be louder? (Circle the correct one on each line)

- | | | |
|----------------------|----|-----------------------|
| 100 Hz tone at 60 dB | OR | 4000 Hz tone at 60 dB |
| 200 Hz tone at 60 dB | OR | 20 Hz tone at 80 dB |
| 300 Hz tone at 40 dB | OR | 50 Hz tone at 60 dB |

If you wanted to make a 100 Hz tone equal to a 1000-Hz tone at 40 dB, what amplitude would you need?

Answer the two essays below on the lined paper provided. Each essay is worth 20 pts.

Essay #1. Describe signal detection theory, and illustrate the advantages of signal detection theory over classical threshold theory. How would a signal detection experiment differ from an experiment using the method of constant stimuli?

Essay #2. 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.