Psychology of Perception
Psychology 4165-100
Fall 2004

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MUEN D-156, 9:30–10:45 T & R

Study Guide for the final examination (Monday, 13 December 2004, 10:30–13:00). Be able to answer the following questions and be familiar with the concepts involved in the answers. Material from the first exam, the homework and lab assignments will also be included on the exam.

1. Why is the spatial frequency content of visual stimuli important to vision? What is the contrast sensitivity function and how does it differ between infants and adults?

2. What are the relationships among the following visual concepts: Intensity, dominant wavelength, purity, hue, saturation, and brightness? Which of these are physical and which are psychological?

3. What are the major types of color deficiencies and what are their causes?

4. When a person loses one eye, why is depth perception not lost?

5. Describe the "size/distance" (size constancy) hypothesis of certain visual illusions. Pick two such illusions and explain them in terms of this hypothesis.

6. In stereoscopic vision, where must an object be located in relation to the Vieth-Müller circle to have zero retinal disparity?

7. Describe the monocular and binocular depth cues used by the visual system.

8. Diagram the three parts of the auditory system: Outer (Pinna, external auditory canal, tympanic membrane), middle (maleus, incus, stapes, eustation tube) and inner ear (oval window, round window, cochlea, auditory nerve). How is sound mapped onto the basilar membrane?

9. What are the relationships among the following auditory concepts: Amplitude, frequency, complexity, loudness, pitch, and timbre? Which of these are physical and which are psychological?

10. What is the critical band? Describe three psychophysical methods for measuring it.

11. According to Plomp and Levelt (1965), how far apart in frequency must two sine wave tones be in order to sound maximally unpleasant? Why do two complex musical tones sound so special when played together if their fundamental frequencies have a frequency ratio of 2:1 or 3:2?

12. In speech sounds, what is the relationship between the fundamental frequency and its harmonics and the frequencies of the three main formants? What factors influence the frequency of the first and second formants?

13. Consider the **functional** properties of the visual system and the auditory system. Discuss two ways in which these systems are similar and one way in which they are different.

14. Are there primary tastes? Define "primary" and discuss evidence for or against. Discuss Amoore's "lock and key" concept of taste and smell perception.

15. Diagram the major parts of the chemosensory system: tongue, nose, turbinate bones, olfactory epithelium, olfactory receptor, receptor cilia, olfactory nerve, cribiform plate, olfactory bulb, olfactory tract.

16. How did Susan Schiffman (1974) use multidimensional scaling (MDS) to investigate taste and smell and how do her findings relate to Amoore's theory of molecular properties?

17. Can humans communicate information to each other by means of chemical molecules carried in the air? Discuss two pieces of evidence supporting your answer.