

Study Guide for the final examination (Saturday, 2 May 2008, 16:30–19:00). Be able to answer the following questions and be familiar with the concepts involved in the answers.

1. What do the McCollough effect and the spiral aftereffect have in common? What implications does the later have for models of motion perception?
2. What is change blindness? What does this phenomenon imply about our capacity to process visual information?
3. Diagram the three parts of the auditory system: Outer, middle and inner ear. How is sound mapped onto the basilar membrane?
4. What are the three main physical dimensions of the sound stimulus? What are the three main psychological dimensions of the sound experience? What are the relationships and interdependencies among them?
5. What is the critical band? Describe three methods for measuring the critical band. In describing each method, give an example using a tone of 1000 Hz, whose critical band is about 150 Hz wide.
6. 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 some musical notes (e.g., the octave or the fifth) sound consonant when played together with the tonic and some other notes (e.g., the second or the seventh) sound dissonant when played with the tonic?
7. What are the three main components of the speech production system?
8. What is the relationship between the fundamental frequency and the frequency of the first two formants of a speech sound? What factors control the frequency of the first and second formants?
9. What are the four main types of nerve endings (“receptors”) in the skin? What are the properties of the nerves that lead from them to the brain (make a 2 x 2 table of the properties of their receptive field size and time characteristics of response).
10. Describe how you measure the two-point threshold. How do somatosensory receptive fields, as inferred from the two-point acuity thresholds, differ on different parts of the body?
11. Be able to identify the major components of the olfactory and the gustatory systems (not including the projections to the brain).
12. Are there primary tastes? Discuss evidence for or against. What is the relationship, if any, between the physical properties of an olfactory stimulus and the olfactory sensations evoked by it?

13. What is the distinction between taste and flavor? What role does the sense of smell play in the taste and the flavor of food?
14. What is the definition of a pheromone? Discuss two pieces of evidence that humans are able to communicate with each other by means of chemical stimuli.
15. Identify the principle sensory systems that allow us to orient ourselves in three-dimensional space.
16. Consider the **functional** properties of the visual system and the auditory system such as localization, object identification, basic sensory experiences. Discuss two ways in which these systems are similar and one way in which they are different.
17. There have been several recurrent themes about perceptual processing in this class. Identify one of these themes and discuss how it applies to two sensory systems of your choice by comparing and contrasting them with each other.