The Senses Study Guide

This study guide covers MOST of the material that will be on the test. Remember, I test on the lecture notes (including pictures), labs, study guide, and assignments. Also, all the short answer test questions are listed below. This study guide is not an assignment, however, the test is primarily based off the questions on this study guide.

1. What is sensory adaptation?
2. What is a sensation?
3. What is the only cutaneous sensation that a person cannot adapt to?
4. Distinguish between the following types of sensory receptors: chemoreceptors, nociceptors, thermoreceptors, proprioceptors, and photoreceptors.
5. Distinguish between crude touch and discriminative touch.
6. Differentiate between the 5 types of pain mentioned in your notes.
7. What is proprioception?
8. What area of the brain are conscious, somatic sensations interpreted within the brain?
9. Do chemoreceptors work better in humid or arid environments? Why?
10. What are the 4 taste sensations not reliant on smell? Of these 4 sensations, which produces the strongest sensation? Why? (Hint: think poison.)
11. Are taste receptors sensitive to all 4 basic tastes? (The answer is the opposite of no.)
12. What senses contain the only neurons that actually regenerate?
13. Which sense has the strongest link to memories and emotions? Why?
14. What are pheromones?
15. Are men or women usually more sensitive to smells? Are younger or older people more sensitive to smells? Do you smell funny?
16. What are some other types of tastes?
17. **Know the anatomy of the ear.**
   18. Air enters and leaves the middle ear via the ______________________. This maintains equal pressure on both sides of the eardrum.
19. Is the function of the tympanic membrane?
20. What are the auditory ossicles? What is their function?
21. What is the cochlea? What are the hair cells? What happens if hair cells are damaged or killed? Can hair cells regenerate?
22. Know how sound is transmitted through the ear.
23. Which is louder: sounds with large amplitudes or sounds with small amplitudes? Explain why.
24. What frequency of sound can the human ear hear?
25. Distinguish between conduction deafness and sensineural deafness.
26. What is the name of the gland that produces tears? Is crying unique to humans?
27. **Know the anatomy of the eye**
   28. Which area of the eye contains the sharpest visual acuity?
29. What part of the eye contains the photoreceptors?
30. What is the blind spot?
31. How does the lens of the eye accommodate to near and far objects? (This is known as accommodation.)
32. Distinguish between the aqueous humor and the vitreous humor.
33. Distinguish between the rods and the cones? What type of sensory receptor are these?
34. Which three wavelengths of light are cones sensitive to?
35. What is rhodopsin? Iodopsin?
36. Distinguish between light and dark adaptation.
37. What area of the brain is the primary visual cortex located?
38. Distinguish between myopia and hyperopia.
39. What causes astigmatism?

**Short Answer Questions**
1. Explain why your nose runs during and immediately after a good cry.
2. Contraction of a muscle usually puts more tension on a structure, but contraction of the ciliary muscle puts less tension on the lens. Explain how.

3. What is happening to the photoreceptors from the time you first enter a dark room from the bright outdoors until your vision returns?

4. Mrs. Smith has an immune disorder that causes dry mouth. She complains to her doctor that she has lost her sensation of taste. How so?

5. Mammals can hear much fainter sounds than can reptiles, and mammalian ears have three structural features that most reptile ears lack: (1) an auricle, (2) ossicles, and (3) hair cells in the cochlea. Explain how each of these features helps enhance hearing.

6. Why do most stars “disappear” when you look directly at them?

7. Explain why your ears “pop” as you rapidly move from a higher elevation to a lower elevation (such as driving from Tahoe towards Benicia).

8. The retina of nocturnal mammals is composed primarily of rods, and almost completely lacks cones. Explain why having a retina almost completely composed of rods is a beneficial adaptation for nocturnal mammals.

9. After a person smokes a cigarette, they cannot smell the smoke on their clothes but a nonsmoker can. Why is this so?