

Sensory, Motor, and Integrative Systems  
Chapter 16 Study Guide

1. What is a transducers?
2. What is the sensory receptor function?
3. What part of a neuron is the receptor?
4. What types of stimulus may depolarize a receptors?
5. What is the difference between general and special senses? Locations of each?
6. What is proprioception? Where are the receptors for proprioception located?
7. What are the proprioception structure called? Where is the sensation for proprioception sent? (hint: two different places!)
8. In motor control, what is the significance between intent and performance?
9. What brain structure compares the intent and the performance in motor control?
10. What term describes a motor program within the anterior horn of the spinal cord?
11. What is a nociceptor? Where are they not located?
12. What type of physical stimuli may activate a nociceptor?
13. What cytoplasmic chemicals may stimulate nociceptors?
14. Is pain a good or bad sensation? Explain. (Think about neuropathy or leprosy)
15. What is the difference between somatic and visceral pain?
16. What is an analgesic?
17. Why are opioids so dangerous? (Hint: intersection between two things.)
18. What is sound?
19. What is the difference between frequency and amplitude?
20. What is the function of the outer, middle, and inner ear?

21. What is the relationship between the tectorial membrane and the cochlear hair cells? What type of regulated gate is activated by the “tip link”?
22. Where do low-frequency sound disturb the basilar membrane?
23. Where do high frequency sound disturb the basilar membrane?
24. What is the organ of hearing called?
25. What are the different types of equilibrium detected by the ear?
26. Where is the location of the macula utriculi and macula sacculi?
27. What types of movements are detected by the macula utriculi and macula sacculi detect? (hint: two types)
28. When accelerating in a straight line while in a car which macula sensor is activated?
29. When accelerating in an elevator which macula sensor is activated?
30. What type of sensation is detected by the semicircular ducts?
31. Why do we need three semicircular ducts?
32. What is inside of the semicircular duct ampula?
33. What is the structure of the eye (lecture and lab objective)?
34. What are the three layers of the eye?
35. What layer of the eye detects light energy and converts it into an action potential?
36. What fluid compartment is in front of the lens?
37. What fluid compartment is behind the lens?
38. What are photoreceptors? Two types?
39. Which photoreceptor requires more stimulus to generate an action potential?
40. Which photoreceptor is concentrated at the center of the macula lutea?
41. Do we have photoreceptor at the optic disc? Explain. What is this locations nickname?

42. What is the photo-pupillary reflex? What muscles control this reflex?
43. What is emmetropia? Why is this logical from an evolutionary perspective?
44. What is the “focal plane” in vision?
45. What is hyperopia?
46. What is myopia?
47. What occurs to the shape of the eyeball in hyperopia? In myopia?
48. What three events must occur to adjust for a “near response”?
49. Explain eye strain in terms of accommodation. Why is the ciliary muscle contracted during “close up vision”?
50. What two molecules join to make the photo-pigment?
51. What are the two “physical states” of retinal? What is the precursor for retinal?
52. What happens to the eye when you have a Vitamin A deficiency?
53. What may happen if you eat too much preformed Vit A?
54. Define the following conditions: prebyopia, astigmatism, cataract, glaucoma
55. What nerve is associated with equilibrium?
56. What nerve is associated with hearing?
57. What is the name for cranial nerve eight?