Study Guide # 3

Human Anatomy

Chapter 13: Neural Tissue

1. Give an overview of the Central (CNS) and Peripheral (PNS) Nervous Systems. Make a diagram

connecting the sensory, interneuronal (integration center) and motor pathways.

1. What are the 2 different general types of cells in the nervous system? What are their roles?
2. What are the 3 different functional types of *neurons* in the nervous system? Their functions?
3. Describe the anatomy of a typical motor neuron. What is a myelin sheath? Significance?
4. What is the role of glial cells? Describe the roles of the 6 different types of glial cells in the NS.
5. What is gray matter? White matter? Nerve fiber? Nerve? Tract? Ganglion? Nucleus? Column?
6. Describe the arrangement and role of the 3 connective tissues around nerves.

**Chapter 14: Spinal Cord and Spinal Nerves**

1. Describe the gross anatomy of the length of spinal cord, naming the regions and structures.
2. Define a spinal nerve. How many are there? Describe the spinal nerve plexuses and locations.
3. Give examples of specific nerves arising from each the spinal nerve plexuses and their function.
4. Describe the cross-sectional anatomy of the “H” or “Butterfly” arrangement of the spinal cord.
5. Describe the role and arrangement of the *spinal* meninges, the layers and the spaces.
6. What is multiple sclerosis? A spinal tap? An epidural block? Amyotropic lateral sclerosis?
7. Describe a spinal reflex. Briefly compare monosynaptic and polysynaptic spinal reflexes.

**Chapter 15: Brain and Cranial Nerves**

1. Outline the major anatomical divisions of the adult brain. Include the subdivisions.
2. Explain the general functions of each above region of the brain. List elements of limbic system.
3. List the 5 cerebral lobes and their functions, including association areas. What is lateralization?
4. Where and what are the functions of *Association*, *Commissural* and *Projection* fibers?
5. What is the Blood Brain Barrier (BBB)? Describe Cerebral Spinal Fluid (CSF) and its roles.
6. Indicate how CSF is formed. How is it circulated? List the components and functions of CSF.
7. What are the ventricles of the brain? Describe their arrangement and their purpose.
8. Describe the *cranial* meninges. What is Meningitis? Hydrocephalus? Parkinson’s disease?
9. Be able to briefly describe the function of the 12 cranial nerves (if they are sensory, motor or

mixed nerves) and what symptoms may appear when they are damaged or destroyed.

**Chapter 17: The Autonomic Nervous System Chapter 18: The Special Senses**

1. Give an overview of the ANS in general; include the parasympathetic and sympathetic divisions.
2. List how the parasympathetic and sympathetic divisions differ *anatomically* and *functionally*.
3. Discuss the conduction of sound through the outer, middle and inner ear. What is deafness?
4. What is otitis media? Tinnitus? Otosclerosis? How is balance and equilibrium maintained?
5. Describe the anatomy of the eye, including tissue layers, chambers, cells and visual pathways.
6. Compare emmetropia, myopia, hyperopia and presbyopia in terms of focusing images on retina.
7. What is glaucoma and how does it arise? What is a cataract and how does it arise?