**Nervous System Study Guide**

Describe the functions of the nervous system

Describe the structural and functional divisions of the nervous system

* CNS; PNS
* Somatic; Autonomic
* Sympathetic; Parasympathetic
* Sensory/afferent; motor/efferent

State the functions of neurons and neuroglia

* Neurons
* Glia
* Astrocytes
* Oligodendrocytes
* Microglia
* Ependymal cells
* Schwann cells
* Satellite cells

Describe the general structure of a neuron

Describe the myelin sheath and the difference between grey matter and white matter in the CNS

What is the role of the myelin sheath?

What is multiple sclerosis?

Define these terms

* Nuclei; ganglia
* Tract; nerve

Classify neurons according to structure and function

* Multipolar, bipolar, unipolar
* Sensory/afferent; interneuron/associative; motor/efferent

List the types of sensory receptors and their functions

Describe resting potential

Describe the events that lead to generation of an action potential:

* depolarization, graded potential, threshold, action potential, repolarization

Explain how neurons communicate at chemical synapse

Define:

* Reflex
* Reflex arc
* Somatic reflex
* Autonomic reflex

Describe a typical 5 element reflex arc

Identify the major regions of the brain and the functions of their subdivisions

(see table 7.1 page 241)

Describe which portions of the cerebral cortex are motor vs. sensory and the significance of the homunculi

Describe the protections of the brain:

* Skull
* Meninges
* CSF (know where the 4 ventricles are located and how CSF is produced)
* Blood-brain barrier

Discriminate between these homeostatic imbalances:

* Meningitis
* Hydrocephalus
* Concussion
* Contusion
* Cerebrovascular accident
* Transient ischemic attack
* Alzheimers
* Parkinsons
* Huntington’s disease

Describe the structure and function of the spinal cord

* Horns
* Columns
* Central canal
* Dorsal root
* Ventral root

Describe the structure of a nerve

* 31 pairs of spinal nerves
* 12 pairs of cranial nerves
* Have general knowledge of the regions served by the plexuses:
  + Cervical
  + Brachial
  + Lumbar
  + sacral

Contrast the effects of the parasympathetic and sympathetic nervous systems on the heart, lungs, digestive system and blood vessels