**STUDY GUIDE PERIPHERAL NERVOUS SYSTEM**

**VOCABULARY**

Neuron Glial cell Ganglion

Nerve Schwann cell Satellite cell

Sympathetic/Parasympathetic Afferent/Efferent Receptor

Synapse Neurotransmitter Perikaryon

Dendrite Axon/Axoplasm Node of Ranvier

Neurokeratin network Synapse Anterograde/Retrograde

Synaptic cleft Synaptic vesicle Fast/slow axonal transport

Endoneurium/Perineurium/Epineurium Motor end plate

Cleft/Incisure of Schmidt-Lanterman Nissl bodies

**OBJECTIVES AND QUESTIONS**

1. Understand the organization of the PNS with regard to where nerve cell bodies are located (Hint: ganglia) and what makes up the nerve (Hint: ensheathed axons).
2. What is the Nissl substance? (Hint: stacks of RER in perikaryon). Do axons have the ability to synthesize proteins? (Hint: no). How do proteins get form the site of synthesis to the nerve terminals) (Hint: anterograde fast transport of vesicles on MTs and slow transport down concentration gradient). How do old membranes and waste products get to the lysosomes in the perikaryon? (Hint: retrograde transport on MTs).
3. Understand in basic terms chemical transmission across the synapse. How does the chemical signal get converted into an electrical one in the postsynaptic cell?
4. How is the connective tissue of the nerve organized? (Hint: it’s just like muscle). How are the collagen fibers arranged? (Hint: longitudinally)
5. What is the myelin sheath? (Hint: concentric layers of Schwann cell cytoplasm encircling axons). What do Nodes of Ranvier represent? What about clefts/incisures of Schmidt-Lanterman? How can these be distinguished histologically? What is in the clefts/incisures of Schmidt-Lanterman? (Hint: Schwann cell cytoplasm).
6. What is the neurotransmitter at the motor end plate? Relate synaptic transmission at the motor end plate to muscle contraction. How is the neurotransmitter removed from the synaptic cleft? (Hint: enzymatic degradation and reuptake by the presynaptic cell in clatherin coated vesicles).

1. What are the functions of the cells of the peripheral nervous system? (Hint: neurons- electrical impulses APA action potentials down axons and chemical impulses at synapses; Schwann cells – myelin sheath; satellite cells – homeostasis, ion exchange, etc., don’t forget about fibroblasts!)