

Study Guide – Tortora & Derrickson
Chapter 12 / Nervous Tissue

Note: Questions marked with a * are low value questions / not on “hot list”

1. What two structures make up the central nervous system (Fig 12.1)?
2. What are the components of the peripheral nervous system (Fig 12.1)?
3. What are the three nervous systems which make up the peripheral nervous system (Fig 12.1)
4. How does the peripheral nervous system interact with the CNS (Fig 12.1)?
5. What are the three functional classes of neurons? What terms are used with these neurons that imply “direction” (Fig 12.3)?
6. Draw a representative neuron and explain the functions associated with the individual parts (Fig 12.2):
7. * Do all neurons “look alike” (Fig 12.3)?
8. What is the most common type of structural neuron?
9. What functional neuron type specializes in somatic sensation?
10. * Why is it significant that a mature neuron’s lack of centrioles?
11. * Are neurons in G zero? What is the difference between “most text book answers” vs what we know today? Explain
12. What is the function of the seven different neuroglia cells?
13. What glial cells are associated with the peripheral nervous system?
14. What is myelin and what is its function? What type of glia cells make myelin?
15. What do we call the separation of charge particles across a plasma membrane?
16. What do we call the flow of charged particles over the surface of a plasma membrane?
17. What are the four types of ion channels (fig 12.11)?
18. What is the difference between a graded potential and action potential (fig 12.15)?

19. What is a resting membrane potential (fig 12.12)? What cells have a RMP?
20. What is an action potential (Fig 12.20)? What types of cells have action potentials?
21. * What factors contribute to the resting membrane potential? (fig 12.13)
22. What is the meaning of the phrase decremental conduction?
23. What occurs during the depolarizing and repolarizing phase of an action potential?
24. What is threshold?
25. What is the all or none principle?
26. What is the refractory period?
27. What are the three parts of a synapse?
28. What is the relative location of presynaptic neurons and postsynaptic neurons?
29. What is the difference between a chemical and electrical synapse?
30. What is a neurotransmitters? Where are they produced and stored?
31. * What is a neuromodulator?
32. Explain the function and structure of cholinergic synapses, GABA-ergic synapses, and adrenergic synapses? (see lecture slide)
33. What determines how the neurotransmitter affects the post synaptic cell?
34. What happens to the resting membrane potential during an excitatory postsynaptic potential and an inhibitory postsynaptic potential?
35. What is the difference between an IPSP and an EPSP?
36. What is a “neural circuit” (also called a motor pattern generator) and what is their function?
37. Are neurons in the central nervous system able to regenerate? Explain
38. Are neurons in the peripheral nervous system able to regenerate? Explain