

Nervous Tissue – Chapter 12
Tortora & Derrickson

1. > What is the central nervous system's two divisions (Fig 12.1)? Locations?
2. Where is the peripheral nervous system located (Fig 12.1)?
3. > What is the peripheral nervous system's the three divisions? Target tissues? Functions?
4. >What ANS division prepares the body for action? For rest and restoration?
5. What is unique about the enteric nervous system?
6. > What are the three functional neurons? (Fig 12.5)
7. > What are the four structural neurons? Most common? Used in smell and vision? Used for somatic sensory?
8. What is the most common type of structural neuron?
9. >Where are unipolar neurons located? Significance?
10. What structural neuron carry action potentials to the spinal cord in a somatic sensation? Name given to this direction?
11. >What is a resting potential?
12. > Draw, label, and describe all the events associated with an action potential.
13. > Where within the structure of a neuron is a local potential and an action potential located? Which event occurs first?
14. What terms describe the direction of an action potential in the PNS?
15. >Do neurons have centrioles? Significance?
16. Are all neurons in G zero? Explain? What are the exceptions?
17. > What are the six neuroglia cells? Describe the function and location of each neuroglia cell. (Note – five in CNS and two in PNS) (Fig 12.6)
18. >What is myelin? Function?
19. > What two cells make myelin? Their locations? (Fig 12.7)

20. Explain how signals (local potentials and action potentials) are transmitted when you pick up a pencil and decide to write a sentence? (Fig 12.10)
21. > What features affect the speed of an action potential?
22. What is the significance of voltage regulate calcium gate at the end of a somatic motor neuron's axon? What does this initiate?
23. How fast do action potentials move across your body? Maximum speed limit?
24. What do we call the separation of charge particles across a plasma membrane?
25. > What do we call the flow of charged across the surface of a dendrite? Across the soma? Down the axon? Note: voltage VS current
26. > What occurs to the resting membrane potential when the plasma membrane is hyperpolarization? Significance? How may this occur? (Fig 12.4)
27. > What type of pump restores the plasma membrane to its resting membrane potential after the plasma membrane is hyperpolarized following an action potential?
28. > What terms may be used to define an action potentials and a local potential? (Fig 12.14, 12.15, and 12.26)
29. >What two tissue types may generate action potentials?
30. > What two ions cross the plasma membrane during an action potential? What is the significance of the sequential flow of these ions in an action potential? (Fig 12.3)
31. > What ion moves during the depolarization phase of an action potential? (Fig 12.10)
32. > What ion moves during the repolarizing phase of an action potential?
33. What is the major factor contributing to make the inner face of the plasma membrane negative? (fig 12.13)
34. Are action potentials and local potentials both decremental? Explain
35. What is the significance of an action potential threshold? In a neuron, where are action potentials generated? Be specific.
36. > What is the “all or none principle”? What event does this describe?
37. What is the refractory period? How are absolute vs relative refractory periods related?

38. > What is the structure of a synapse?
39. Why are synapses described as “electro-chemical” junctions?
40. What term describes a purely electrical synapse?
41. > What are the advantages and disadvantages between an electro-chemical synapse and a pure electrical synapse?
42. > What is a neurotransmitter? Where are they produced? Where are they stored? Where are they released from? (Fig 12.27)
43. What is a neuromodulator?
44. > Explain the function and structure of cholinergic synapses, GABA-ergic synapses, and adrenergic synapses? (see lecture slide)
45. > What determines how a neurotransmitter will affect the postsynaptic cell?
46. > What happens to the resting membrane potential during an excitatory postsynaptic potential? During an inhibitory postsynaptic potential? (Fig 12.26)
47. What is a “neural circuit” (also called a motor pattern generator)? Function? (Fig 12.28)
48. > After a car accident you wake up in a hospital and your legs are paralyzed. But the doctor can not tell you if you will ever walk again. Why? How may a regeneration tube determine your outcome? (Fig 12.29)