Study Guide – Tortora & Derrickson
Chapter 12 / Nervous Tissue (S2017)
(Note: all questions are on the "hot lsit")

1. What two structures make up the central nervous system (Fig 12.1)? Location?

2. Where is the peripheral nervous system located (Fig 12.1)?

3. What three nervous systems 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. What are the three significant structural neurons discussed in class and where are they located?

7. Draw a typical neuron and explain the function of its parts (Fig 12.2):

8. What is the most common type of structural neuron?

9. What structural neuron type brings action potentials to the spinal cord in somatic sensation?

10. What is the significance that a neuron lack of centrioles?

11. Are all neurons in the brain trapped in G zero? Explain

12. What are the seven neuroglia cells? Functions and locations? (Note – five in CNS and two in PNS)

13. What is myelin and what is its function? What type(s) of glia cells make myelin? Locations?

14. What features make the action potential travel faster?

15. What is the significance of the voltage regulate calcium gate at the end of an axon? What does it initiate?

16. How fast do action potentials move across your body?

17. What do we call the separation of charge particles across a plasma membrane?

18. What do we call the flow of charged particles over the surface of a plasma membrane?

19. What is hyperpolarization? Where does this occur?

20. What type of pump restores the plasma membrane to a resting membrane potential after being hyperpolarized?

21. How is an action potential stopped?

22. What is the difference between a graded potential and action potential (fig 12.15)?

23. What is a resting membrane potential (fig 12.12)? What cells have a RMP?

24. What is an action potential (Fig 12.20)?

25. What ions cross the plasma membrane during an action potential?

26. What ion movement is associated with depolarization?

27. What ion movement is associated with repolarization?

28. What types of cells have action potentials?

29. What factors contribute to the resting membrane potential? (fig 12.13)

30. What is the meaning of the phrase decremental?

31. What occurs during the depolarizing and repolarizing phase of an action potential?

32. What is the threshold? Where does this occur in a neuron?

33. What is the all or none principle?

34. What is the refractory period? Absolute vs relative?

35. What are the three parts of a synapse?

36. Where is the location of the presynaptic neuron and postsynaptic neuron?

37. What is the difference between a chemical and purely electrical synapse? What is the significance?

38. What is a neurotransmitters? Where are they produced and and where are they stored?

39. What is a neuromodulator?

40. Explain the function and structure of cholinergic synapses, GABA-ergic synapses, and adrenergic synapses? (see lecture slide)

41. What determines how the neurotransmitter affects the post synaptic cell?

42. What happens to the resting membrane potential during an excitatory postsynaptic potential and an inhibitory postsynaptic potential?

43. What is the difference between an IPSP and an EPSP?

44. What is a "neural circuit" (also called a motor pattern generator)? Function?

45. Are neurons in the central nervous system able to regenerate? Explain

46. Are neurons in the peripheral nervous system able to regenerate? Explain

47. What is a regeneration tube?

48. What is the structure of a synapse?