C12 Study Guide (0723)
Nervous Tissue

C12_1

1 What are the three steps used by the nervous system to perform its task? What initiates the start?

2 What are the two divisions of the nervous system? What tissues are in each division?

3 Two Anatomical Divisions: See Slide C12_1 #7 // You need to be able to draw this illustration and label all boxes. What are the target tissues for each division? It is on the exam! (three questions)

4 What two systems regulate homeostasis? How?

5 What is the visceral motor system divisions? What is the function of each division? From where do these divisions originate?

6 What are the three functional regions of a neuron? What occurs in each region? What is the neuron's proper name for each region?

7 The neuron has a complex structure. What terms describe the function of the dendrite? What is another name for the neuron's cell body? What is inside the cell body? What terms describe the starting point for an action potential? What is axon's function? What is at the distal end of the axon? What is inside of this structure?

8 Draw a picture to illustrate the four events at a chemical synapse. See slide 12_1 #25 (it is on the test)

9 What terms are used to describe the functional classes of neurons? Note: two terms for each segment. What structural neurons are in each segment?

10 What is the structure and function of the six neuroglial cells? See C12_1 slide #36

11 What is myelin? Significance? What neuroglial cells make myelin? Process?

12 What determines the speed of an action potential? What is the top speed limit?

13 How may a peripheral motor nerve repair itself if the axon is broken? What are the two important conditions? What is the structure and function of the regeneration tube? What is macrophage role in this process?

C12_2

14 What is the charge across a plasma membrane for a resting membrane potential? What cells have resting membrane potentials? In a neuron, what initiates a local potential? Where? What will happen if the local potential is strong enough? How may local potentials be described? (C12_2 slide # 3 and slide #20)

15 What is the difference between voltage and current?

16 What side of the plasma membrane has a negative charge? How many mV (millivolts)? When a gate How are sodium and potassium ions concentrated across the plasma membrane during the resting membrane potential? If sodium ion gates are open then what will happen to the mV number? What is this called?

17 What are the only two tissue type able to be "excited"? What does this term imply?

18 Where do local potentials start? Where do they need to advance to in order to generate an action potential? What two terms describe this location?

19 Draw and label the voltage changes during an action potential (C12_2 slide #24). There are seven stages in an action potential. You need to understand the status of ion gates and movement of sodium and potassium during each of the seven stages. This illustration is on the exam and there are three questions covering this topic.

20 What three terms are used to define an action potential? Compare and contrast the local potential to an action potential as well as their locations?

21 How does the mV change during a depolarizing graded potential and a hyperpolarizing graded potential?

22 What is the difference between an absolute and relative refractory period? Significance?

23 Action potentials only occur across the axon. Axons maybe myelinated or unmyelinated. Which type of axon conducts action potentials faster? What is this type of conduction called? How would you describe the movement of this action potential?

24 What happens when the action potential reaches the end of the axon?

C12_3

25 What is the significance of the "neuron doctrine"? What do we call the molecule that diffuses across the gap described in the "neuron doctrine? How long does it take for the molecule to diffuse across this gap?

26 What are the three components of a synapse? (Review!)

27 Draw and label the "Structure of a Chemical Synapse" // What are the seven steps? (See 12_3 slide #7)

28 What is the significance of the number of synapses of a neurons dendrites and somas? Which neurons have the most?

29 What will determine the end result of an action potential, the neurotransmitter or the neurotransmitter's receptor?

30 There are hundreds neurotransmitters. What are the four main categories of neurotransmitters? What neurotransmitter is used at the neuromuscular junction? What are the catecholamines? What type of neurotransmitter is GABA?

31 What do endorphins and enkephalins do? Where? Class of chemicals? What is the difference between endogenous and exogenous as it applies to these two molecules?

32 What is the difference between an ianotropic and metabotropic receptor?

33 Use these three different synapses to explain modes of action: cholinergic, GABA, and excitatory adrenergic. Indicate if the synapse is ionotropic or metabotropic? Why?

34 What are the three methods used to stop synaptic transmission? Explain

35 What is the difference between temporal and spatial summation?

36 What occurs to the resting membrane potential if there is an excitatory or inhibitory post synaptic potential? (See C12_3 slide # 61 & 64)

C12_4

37 What is the function of a neural network?

38 Study the slide, What Are Memories? (C12_4 slide #9) What is the significance of each type of memory?