**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**BSC2093C – Review Sheet for Nervous Tissue**

**1. Name the 3 parts of a neuron. 1. 2. 3.**

**Which part contains the nucleus?**

**What are Nissl bodies and where are they located?**

**2. Complete the table for the following types of Neuroglial cells –**

**Neuroglial Type CNS/PNS? Function**

**1. astrocyte**

**2. ependymal cell**

**3. microglial cell –**

**4. oligodendrocyte –**

**5. Schwann cell –**

**3. Name the 2 “functional” parts of the Peripheral Nervous System.**

**a. b.**

**4. Compare graded and action potentials by completing the following table.**

**Characteristic Graded Potential Action Potential**

**1. origin**

**2. type of channels-**

**3. propagation? –**

**4. duration –**

**5. size of potential-**

**6. refractory period? –**

**5. Tell the difference between a Voltage-gated and a Ligand-gated channel.**

**Name a location where there is a ligand-gated channel –**

**Does an action potential result from ligand or voltage-gated channels? –**

**6. In a resting neuron, the inside of the neuron is \_\_\_\_\_\_\_\_\_\_\_ charged compared to the outside of the**

**neuron, creating a resting potential. This resting potential results from the unequal distribution of ions.**

**Specifically, \_\_\_\_\_\_\_ ions are more common outside the neuron because #1 the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**is operating and #2 the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are closed. The charge inside the neuron results by of**

**the presence of large numbers of charged \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**7. When a neuron is stimulated and the “strength” of the stimulus exceeds the threshold of the neuron,**

**a series of changes occurs that results in a “depolarization”. Specifically what happens to the –**

**a. membrane channels-**

**b. the difference in potential(polarity) between inside and outside the neuron -**

**8. Eventually the potential difference between inside and outside the neuron is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (atabout 30mV). At this point, \_\_\_\_\_\_\_\_\_\_\_ gates open while \_\_\_\_\_\_\_\_\_\_\_ gates close, and the potential difference between outside and inside the neuron returns to the pre-stimulation level.**

**This process is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**9. Tell the difference between the Absolute and Relative Refractory period.**

**10. In unmyelinated neurons the action potential or nerve impulse is “propagated” down the length of**

**the \_\_\_\_\_\_\_\_ portion of the neuron by a process called \_\_\_\_\_\_\_\_\_\_\_\_\_ conduction. In myelinated**

**neurons, however, \_\_\_\_\_\_\_\_\_\_\_\_\_ conduction occurs when the nerve impulse “jumps” from one**

**\_\_\_\_\_\_ to the next\_\_\_\_\_\_\_. This method \_\_\_\_\_\_\_\_\_\_\_\_\_ the speed of nerve impulse transmission.**

**What other factor affects the speed of propagation of nerve impulses?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**11. When a nerve impulse reaches the \_\_\_\_\_\_\_ of one neuron, the depolarization opens \_\_\_\_\_\_\_\_gated**

**channels and \_\_\_\_\_\_\_\_\_\_ ions flow into the neuron. This action causes release of \_\_\_\_\_\_\_\_\_\_\_\_\_**

**from synaptic \_\_\_\_\_\_\_\_\_\_\_\_. This material diffuses across a gap to what is called the\_\_\_\_\_\_\_\_\_\_\_\_**

**neuron where it attaches to \_\_\_\_\_\_\_\_\_\_\_\_\_ in the membrane. This binding opens \_\_\_\_\_\_\_\_\_\_ gated**

**channels, allowing \_\_\_\_\_\_\_\_ ions to enter the neuron and cause generation of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**12. In some cases the amount of chemical released at the \_\_\_\_\_\_\_\_\_\_\_(the gap between 2 neurons)**

**is not sufficient to stimulate the next neuron, but if the first neuron “fires” several times, the accumulated amount of the chemical may become enough to exceed the \_\_\_\_\_\_\_\_\_\_\_ of the second neuron, triggering a\_\_\_\_\_\_\_\_\_\_\_\_\_.This process is known as\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_(2 words needed).**

**13. Scientists have learned that there are many kinds of neurotransmitter chemicals. The amino acids**

**\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ are excitatory amino acids while \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ are**

**inhibitory. Name 4 catecholamines that function as neurotransmitters-**

**a. b. c. d.**

**14. Which part of a sensory neuron is located in the dorsal root of a spinal nerve?**

**Which part of a sensory neuron is located in the dorsal root ganglion?**

**Which kind of neuron is found within the ventral root? \_\_\_\_\_\_\_\_\_\_\_Which specific part of**

**that neuron is located in the ventral root? \_\_\_\_\_\_\_\_\_\_\_\_**

**Which kind of neuron is found only in the Central Nervous System? \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Neurons is the posterior white matter of the spinal cord are this type of neuron\_\_\_\_\_\_\_\_\_,**

**carry this kind of information\_\_\_\_\_\_\_\_\_\_\_\_\_ and are myelinated/unmyelinated?**

**16. Tell the difference between Continuous and Saltatory Conduction of the Nerve Impulse.**

**18. Be able to explain the process of regeneration and repair of nervous tissue. Know whether it**

**occurs in the CNS, the PNS, or both and what conditions are necessary for regeneration to occur.**