NERVOUS SYSTEM STUDYGUIDE

Diagrams: neuron, reflex arc, full brain, lateral view of brain, cranial nerves, eye and ear.

1. The nervous system is divided into the Central and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ systems.
2. The CNS includes what structures? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What are the three neurons involved in the nervous system? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. The Peripheral Nervous System includes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. The PNS is divided into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. The \_\_\_\_\_\_\_\_\_\_\_ is the voluntary nervous system of the PNS, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is involuntary.
7. The subdivision of the Autonomic system that is active during stressful situations that cause increased heart rate, “fight or flight” is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is active during normal conditions.
8. Label the following structures on the neuron and give their function: dendrites, axon, axon terminal & Schwann Cells?



1. Using the neuron above, what path does impulse travel through the neuron? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the gap between the axon terminal of one neuron and the dendrite of another? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the general term used for the chemicals released by neurons that stimulate other neurons, muscles or glands? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. According to the video we watched, approximately how long after conception are all the neurons an individual will have in their body develop? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is the difference between mylienated and unmylienated? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Which is considered “grey matter”? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ “white matter\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Neuroglial cells help neurons but they are unable to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. This neuroglial cell protects the neuron and connects it to the blood supply. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. These neuroglial cells have cilia, they line the CNS with spinal fluid and keeps it moving. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. The neuroglial cells that speed up an impulse are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They produce \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that surround the axon. Which is found in the CNS? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. This neuroglial cell protects the neuron by disposing of debris and other hazardous substances. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. List the three structures that make up the brainstem\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. List the 4 major portions of the brain:

1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21.List the 4 lobes of the Cerebral Hemisphere and what they control:

1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

--- Which of the 4 lobes is the largest\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. Compare & contrast a sulci and gyri:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. What structure connects the right and left side of the brain\_\_\_\_\_\_\_\_\_

24. Name the following parts of the Diencephalon:

1. Central relay center for sensory impulse;pain ,touch, and temperature:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Regulates visceral activities;links nervous & endocrine system:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Emotional center\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Short term memory\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25.List the three parts of the Brainstem:

1. Visual, auditory reflex center,head movement for hearing\_\_\_\_\_\_\_\_\_\_\_\_
2. Between midbrain and medulla, sensory impulse; breathing\_\_\_\_\_\_\_\_\_\_\_
3. Cardiac, vasomotor, and respiratory center;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

26. The area of the brain for balance and coordination?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. Describe where the spinal fluid is made\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

28. What is the job of the corpus callosum\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. How much blood must pass through the brain in order to maintain homeostasis? \_\_\_\_\_\_\_\_\_\_\_

30. Our cortex views the body with emphasis on which of the following parts? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

31. Sensory neurons are also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . They carry impulses from the PNS to the \_\_\_\_\_\_. 32. There \_\_\_\_\_\_\_\_\_\_\_\_\_ neurons form links with other neurons and direct sensory impulses.

 33. \_\_\_\_\_\_\_\_\_\_\_\_\_ neurons then carry the impulse back to muscles and organs.

34. What substances CAN pass through the blood-brain barrier? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Which substances cannot?

35. A neuron at rest is said to be \_\_\_\_\_\_\_\_\_\_\_\_ because there are more Na ions outside than inside. When the neurotransmitter attaches itself to the dendrite, the neuron’s membrane becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to Na+ which rushes in. Now the neuron is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As the action potential passes through the neuron, K+ move out of the neuron into the environment in an attempt to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the neuron. Once the impulse has moved through the neuron and no other stimulus is being transmitted, the neuron reestablishes the original polarized state by using the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pump which moves the \_\_\_\_\_\_\_ ions outside and the \_\_\_\_\_\_ ions back in.

36. Which cranial nerve is responsible for sensory information from the ear?

37. This part of the brain helps maintain homeostasis through input of external and internal sensory information.

38. An extremely rapid response to an emergency situation is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

39. List the three parts of a reflex arc:

 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

40. Compare an afferent and efferent nerve.

41.

1. Eye – what controls the size of the pupil? What is the sclera? Where is the image reflexed in the eye?
2. This part of the brain is the cardiac and respiratory center and also is responsible for vomiting, coughing and sneezing.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the ability to respond to a stimulus.

Know the location of the various plexus.

CSF is a watery broth made of blood plasma formed by the choroid plexus in the brain.

cerebellum medulla oblongata pons hypothalamus pituitary gland optic chisma

corpus callosum thalamus cerebral hemisphere pineal body

white matter grey matter dorsal root ganglion nerve fibers interneuron synapse

sensory neuron motor neuron

parietal lobe frontal lobe occipital lobe temporal lobe