IV. THE NERVOUS SYSTEM

1. Neuron:
   1. Dendrite:
   2. Cell body:
   3. Axon:
   4. Synapse:
   5. Neurotransmitters:

A. The Resting Potential

1. the internal charge of a cell is \_\_\_\_\_\_\_\_\_\_\_\_, thanks to the action of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. resting potential voltage: \_\_\_\_\_\_\_

B. The Action Potential

1. voltage-gated proteins:

2. threshold potential:

3. during this process \_\_\_\_\_ ions leave the cell, and \_\_\_\_\_\_ ions enter

4. voltage then returns to resting

C. Speeding up the Action Potential

1. myelin sheath:

2. nodes of Ranvier:

3. MS and action potential:

D. Strength of the Signal

1. How is a stronger signal generated when needed?

E. Transmitting an Impulse Between Neurons

1. what happens when an action potential reaches a synapse?

2. excitatory vs. inhibitory neurotransmitters:

F. Nervous System Organization

1. ganglia (annelids, mollusks):

2. ganglia + sensory organs (arthropods):

3. vertebrate system includes \_\_\_\_\_\_\_\_\_\_\_\_

G. The Vertebrate Nervous System

1. Central Nervous System (CNS):

2. Peripheral Nervous System (PNS):

3. Types of neurons

a. sensory neurons:

b. motor neurons:

c. interneurons:

H. The Central Nervous System

1. Brain

a. type of neurons:

b. cerebrum:

c. cerebellum:

d. brainstem / medulla oblongata:

e. hypothalamus:

2. Spinal cord

a. types of neurons:

b. glial cells:

I. The Peripheral Nervous System

1. sensory system:

2. motor system:

a. somatic system:

i. acetylcholine:

ii. all somatic system neurotransmitters are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. autonomic system:

i. sympathetic division:

ii. parasympathetic division:

J. The Senses

1. sense organs transmit signals from the environment through the \_\_\_\_\_\_ to the \_\_\_\_\_.

a. vision

i. eyes can sense \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ii. rods:

iii. cones:

iv. path of action potential impulse:

v. retina:

vi. lens:

vii. pupil:

viii. cornea:

b. hearing

i. ears (aka \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) sense \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of air molecules

ii. auditory ossicles:

iii. cochlea:

iv. auditory nerve:

c. taste and smell

i. taste buds / chemoreceptors:

a. 4 main taste sensations:

ii. olfactory epithelium:

d. somatic senses

i. senses included:



