

SECTION 50-3 REVIEW

TRANSMISSION OF NERVE IMPULSES

VOCABULARY REVIEW Define the following terms.

1. dendrite _____

2. axon terminal _____

3. action potential _____

4. neurotransmitter _____

5. synaptic cleft _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. Myelin sheaths surround
a. dendrites. b. the spinal cord. c. axons. d. synapses.
- _____ 2. The initiation of an action potential
a. causes the membrane potential to become more negative.
b. requires sodium ions move into the neuron.
c. originates in Schwann cells.
d. happens at axon terminals.
- _____ 3. A typical neuron has more than one
a. nucleus. b. axon. c. dendrite. d. All of the above
- _____ 4. Action potentials require
a. sodium ions. b. gated channels. c. diffusion. d. All of the above
- _____ 5. In a neuron, neurotransmitters are stored in
a. the cell body. c. vesicles within dendrites.
b. the cytoplasm of the nucleus. d. vesicles within axon terminals.

SHORT ANSWER Answer the questions in the space provided.

- Describe how a neurotransmitter can affect the activity of a postsynaptic neuron. _____

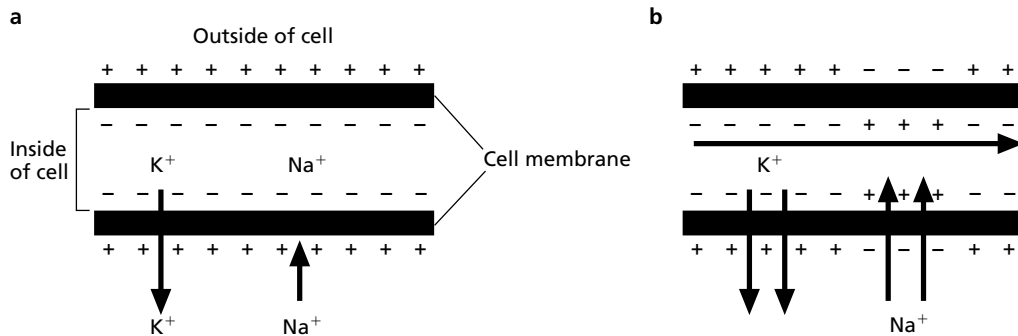
- Describe the relative concentrations of sodium and potassium ions inside and outside a neuron at resting potential. _____

- Explain why action potentials move through axons in only one direction: away from the cell body, toward the axon terminal. _____

- Critical Thinking** In myelinated axons, ions can cross the cell membrane only at the nodes of Ranvier. How does myelination increase the speed of an action potential? _____

STRUCTURES AND FUNCTIONS Use the figures below to answer the following questions.

The figures below represent the cell membrane of an axon at different states of activity.



- Explain why sodium ions do not cross the cell membrane in figure *a*. _____

- Describe what is happening in figure *b*. _____

- What are two factors that cause the movement of sodium and potassium ions as shown in figure *b*? _____

HRW material copyrighted under notice appearing earlier in this work.