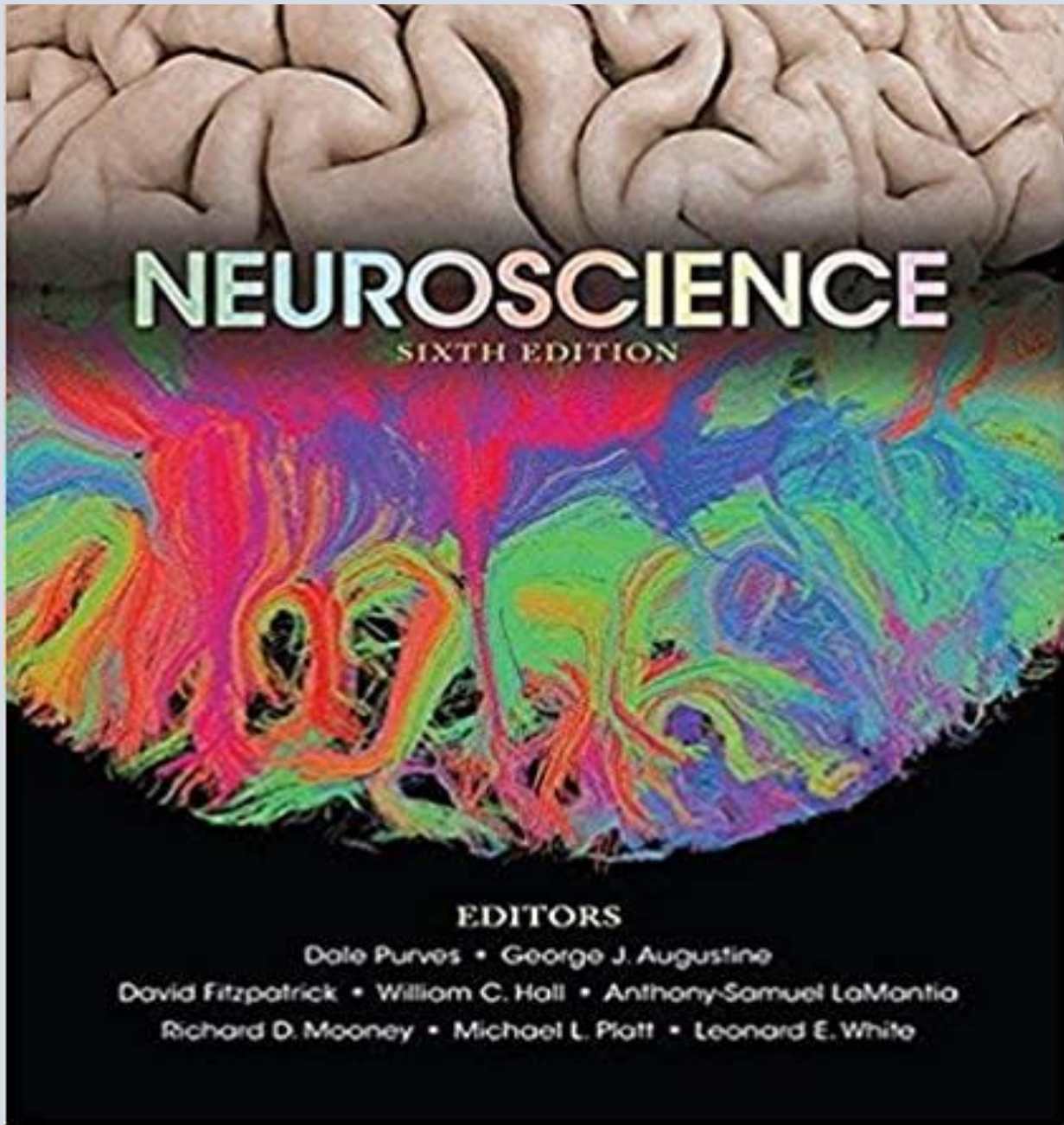


TEST BANK

NEUROSCIENCE/6TH EDITION

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Test Bank
to accompany
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Purves • Augustine • Fitzpatrick • Hall • LaMantia • Mooney • Platt • White

Chapter 1: Studying the Nervous System

Multiple Choice

1. Which part of DNA is transcribed into messenger RNA?

- a. Exon
- b. Intron
- c. Promoter
- d. Non-coding DNA
- e. Regulatory DNA

Answer: a

Textbook Reference: Genetics and Genomics

Bloom's Level: 2. Understanding

2. Genomics is the analysis of

- a. coding DNA sequences for a species.
- b. regulatory DNA sequences for an individual organism and a species.
- c. coding and regulatory DNA sequences for a species.
- d. coding and regulatory DNA sequences for an individual organism.
- e. coding and regulatory DNA of an individual organism or a species.

Answer: e

Textbook Reference: Genetics and Genomics

Bloom's Level: 1. Remembering

3. Which of Camillo Golgi's contributions enabled Santiago Ramón y Cajal to make observations that suggested that nerve cells are discrete entities?

- a. Articulation of the neuron doctrine
- b. Identifying the organelle later called the Golgi apparatus
- c. Development of a staining method based on impregnation with silver salts
- d. Improving the understanding of the pathophysiology of malaria
- e. Articulation of the reticular theory of nerve cell communication

Answer: c

Textbook Reference: Cellular Components of the Nervous System

Bloom's Level: 2. Understanding

4. The major proponent(s) of the neuron doctrine was(were)

- a. Camillo Golgi.
- b. Santiago Ramón y Cajal.
- c. Charles Sherrington.
- d. Santiago Ramón y Cajal and Charles Sherrington.

e. Camillo Golgi and Santiago Ramón y Cajal.

Answer: d

Textbook Reference: Cellular Components of the Nervous System

Bloom's Level: 1. Remembering

5. Which function is a characteristic primarily of neurons only, and not glia?

- a. Transmits action potentials
- b. Supports electrical signals
- c. Repairs the nervous system
- d. Prevents regeneration of the nervous system
- e. Produces myelin

Answer: a

Textbook Reference: Cellular Components of the Nervous System

Bloom's Level: 1. Remembering

6. In which part of a neuron would most of the endoplasmic reticulum be concentrated?

- a. Postsynaptic terminal
- b. Presynaptic terminal
- c. Axon
- d. Cell body
- e. Dendrite

Answer: d

Textbook Reference: Cellular Components of the Nervous System

Bloom's Level: 1. Remembering

7. Which intracellular component facilitates the processes of endocytosis and exocytosis underlying synaptic communication?

- a. Mitochondria
- b. Endoplasmic reticulum
- c. Cytoskeleton
- d. Golgi apparatus
- e. Nucleus

Answer: c

Textbook Reference: Cellular Components of the Nervous System

Bloom's Level: 2. Understanding

8. Most neurons have

- a. one axon hillock (initial segment).
- b. multiple axon hillocks (initial segments).
- c. one dendrite.
- d. one axon hillock (initial segment) and one dendrite.
- e. multiple axon hillocks (initial segments) and one dendrite.

Answer: a

Textbook Reference: Neurons

Bloom's Level: 1. Remembering

9. Which statement best describes the function of a neuron with multiple, highly branched dendrites and one axon?

- a. It passes information directly to multiple neurons.
- b. It cannot integrate information from multiple neurons.
- c. It receives information from only one other neuron.
- d. It integrates information from many neurons.
- e. The information it receives will not be relayed.

Answer: d

Textbook Reference: Neurons

Bloom's Level: 3. Applying

10. Which statement best describes most neurons?

- a. They receive information via axons.
- b. They transmit information to other cells via dendrites.
- c. They are polarized.
- d. They conduct signals bidirectionally.
- e. They transmit electrical signals via cytoplasmic continuity.

Answer: c

Textbook Reference: Neurons

Bloom's Level: 3. Applying

11. Compared with projection neurons, axons of local circuit neurons (interneurons)

- a. are longer.
- b. are shorter.
- c. have more synapses.
- d. have more branches.
- e. reach more postsynaptic neurons.

Answer: b

Textbook Reference: Neurons

Bloom's Level: 2. Understanding

12. An action potential is a(n) _____ change in the electrical potential across the nerve cell membrane.

- a. single
- b. all-or-nothing
- c. permanent
- d. random
- e. unidirectional

Answer: b

Textbook Reference: Neurons

Bloom's Level: 1. Remembering

13. The part of a synapse to which the contents of synaptic vesicles bind is called the

- a. presynaptic terminal.
- b. synaptic ending.
- c. axon terminal.

- d. terminal bouton.
- e. receptor.

Answer: e

Textbook Reference: Neurons

Bloom's Level: 1. Remembering

14. Which cell produces myelin in the nerves of the peripheral nervous system?

- a. Astrocyte
- b. Neuron
- c. Schwann cell
- d. Microglia
- e. Neural progenitor cell

Answer: c

Textbook Reference: Glial Cells

Bloom's Level: 1. Remembering

15. Which glial cell type serves as a resident immune cell in the central nervous system?

- a. Glial stem cell
- b. Astrocyte
- c. Microglia
- d. Oligodendrocyte
- e. Schwann cell

Answer: c

Textbook Reference: Glial Cells

Bloom's Level: 1. Remembering

16. In the mature central nervous system, glial stem cells with the properties of astrocytes can give rise to

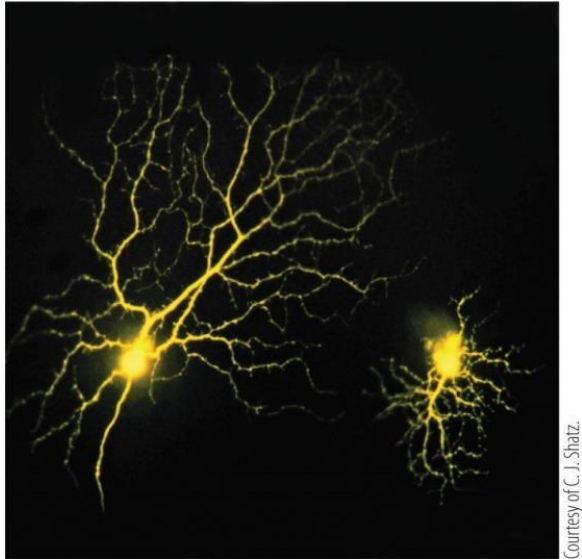
- a. astrocytes.
- b. neurons.
- c. oligodendrocytes.
- d. astrocytes and oligodendrocytes.
- e. astrocytes, oligodendrocytes, and neurons.

Answer: e

Textbook Reference: Glial Cells

Bloom's Level: 1. Remembering

17. Refer to the figure.



Which method was used to visualize the retinal neurons shown?

- a. Cresyl violet staining
- b. Intracellular injection of a fluorescent dye
- c. Intracellular injection of an enzyme
- d. Silver impregnation (the Golgi method)
- e. Nissl stain

Answer: b

Textbook Reference: Cellular Diversity in the Nervous System

Bloom's Level: 3. Applying

18. The in situ hybridization method is based on

- a. labeling specific neuronal components with antibodies.
- b. using nucleic acid probes to detect mRNAs that encode specific genes.
- c. using nucleic acid probes to detect specific proteins.
- d. injecting a fluorescent dye into a neuron.
- e. formation of an insoluble colored product within cell bodies.

Answer: b

Textbook Reference: Cellular Diversity in the Nervous System

Bloom's Level: 1. Remembering

19. In the knee-jerk reflex, the afferent neurons

- a. innervate leg flexor muscles.
- b. innervate leg flexor and extensor muscles.
- c. innervate leg extensor muscles.
- d. are sensory neurons.
- e. are cranial nerves.

Answer: d

Textbook Reference: Neural Circuits

Bloom's Level: 2. Understanding