TEST BANK

NEUROSCIENCE/6TH EDITION

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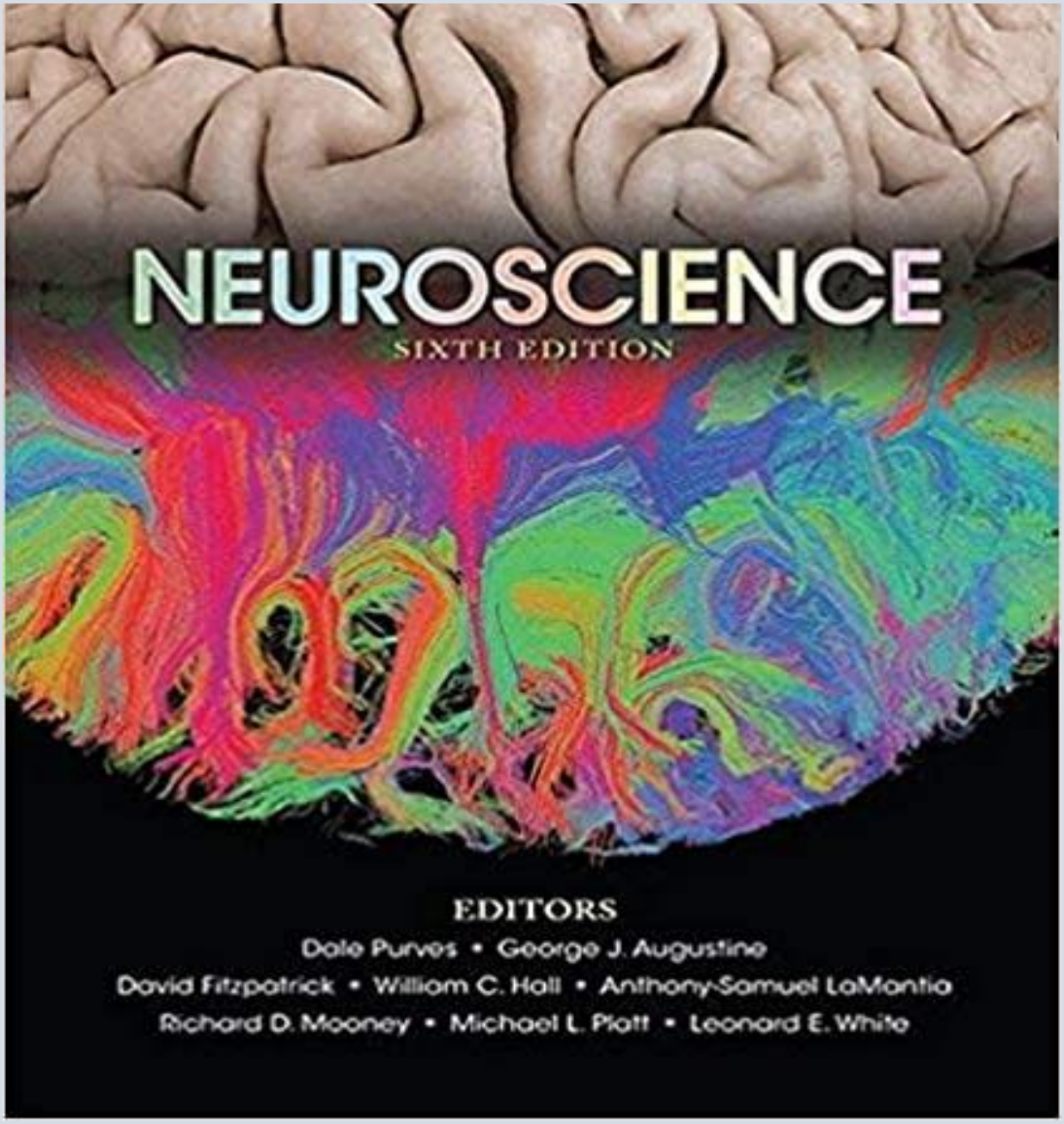

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to accompany
Neuroscience, Sixth Edition
Purves • Augustine • Fitzpatrick • Hall • LaMantia • Mooney • Platt • White

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.

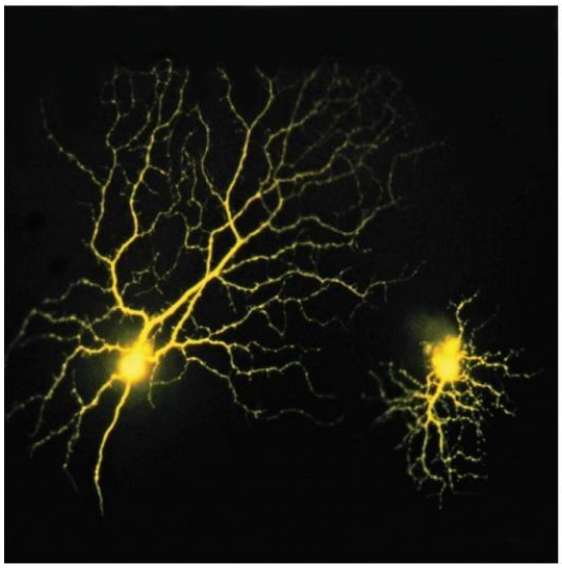
d. terminal bouton.
e. receptor.
Answer: e
Textbook Reference: Neurons
Bloom's Level: 1. Remembering

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