

**TEST BANK**

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psychology



third edition

# 2 The Biological Perspective

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**Key: Answer, Page, Type, Learning Objective, Level**

**Type**

*A=Applied*

*C=Conceptual*

*F=Factual*

**Level**

*(1)=Easy; (2)=Moderate; (3)=Difficult*

**LO=Learning Objective**

**SG=Used in Study Guide**

**p=page**

## **MULTIPLE CHOICE**

### **An Overview of the Nervous System**

**Learning Objective 2.1** - What are the nervous system, neurons, and nerves, and how do they relate to one another?

1. The function of the \_\_\_\_\_ is to carry information to and from all parts of the body.  
a) soma

*Incorrect. The primary responsibility of the soma is to maintain the life of the neuron.*

- b) synapse
- c) nervous system

*Correct. Sending information to and from all parts of the body is the primary function of the nervous system.*

- d) endorphins

**ANS: c, p. 46, F, LO=2.1, (1)**

**% correct 91 a= 2 b= 4 c= 91 d=33 r = .32**

**% correct 100 a= 0 b= 0 c= 100 d= 0 r = .00**

APA: LO 1.2

2. The nervous system is defined as \_\_\_\_\_.

- a) a complex network of cells that carries information to and from all parts of the body

*Correct. The nervous system is a complex network of cells that carry information to and from all parts of the body.*

- b) a specialized cell that makes up the brain and nervous system
- c) all nerves and neurons that are not contained in the brain and spinal cord but that run throughout the body itself

*Incorrect. The nervous system includes networks of neurons that are in the brain and spinal cord.*

- d) a gland located in the brain that secretes human growth hormone

**ANS: a, p. 46, F, LO=2.1, (1)**

**% correct 92 a= 92 b= 1 c= 6 d= 1 r = .27**

**% correct 94 a= 94 b= 1 c=4 d= 0 r = .26**

APA: LO 1.2

3. The two main divisions of the nervous system are the \_\_\_\_\_ and \_\_\_\_\_.

- a) brain; spinal cord
- b) autonomic; somatic nervous systems

*Incorrect. The autonomic and somatic nervous systems are divisions of the peripheral nervous system.*

- c) peripheral nervous system; central nervous system

*Correct. These are the two main divisions of the nervous system.*

- d) glands; muscles

**ANS: c, p. 46, F, LO=2.1, (1)**

**% correct 73 a=8 b= 18 c= 73 d=0 r = .42**

**% correct 68 a= 18 b= 13 c= 68 d= 0 r = .47**

APA: LO 1.2

4. The branch of life sciences which involves the structure and function of the brain and nervous system, while also focusing on the relationship between learning and behavior, is called \_\_\_\_\_.

- a) neuroscience

*Correct. This is the branch of life sciences that covers these topics.*

- b) bioscience

*Incorrect. The correct answer is a.*

- c) brain Scientology

- d) neurostemology

**ANS: a, p. 47, F, LO=2.1, (1)**

APA: LO 1.2

5. The part of the neuron whose name literally means “branch” is \_\_\_\_\_.

- a) axon

*Incorrect. B is the correct answer.*

- b) dendrite

*Correct. Dendrite comes from the word tree.*

- c) myelin

- d) soma

**ANS: b, p. 47, F, LO=2.1, (1)**

**% correct 77 a= 20 b= 77 c= 1 d= 1 r = .32**

APA: LO 1.2

6. A specialized cell that makes up the nervous system that receives and sends messages within that system is called a \_\_\_\_\_.

- a) glial cell

*Incorrect. Glial cells serve as a structure for neurons.*

- b) neuron

*Correct. A neuron is a specialized cell that makes up the nervous system that receives and sends messages within that system.*

- c) cell body

- d) myelin sheath

**ANS: b, p. 47, F, LO=2.1, (1), SG**

**% correct 96 a= 4 b= 96 c= 0 d= 0 r = .19**

**% correct 97 a= 2 b= 97 c= 1 d= 0 r = .39**

APA: LO 1.2

7. What term is used to describe a specialized cell that makes up the nervous system and receives and sends messages within that system?

- a) neuron

*Correct. A neuron is a specialized cell that makes up the nervous system and receives and sends messages within that system.*

- b) glial cell

*Incorrect. Glial cells serve as a structure for neurons.*

- c) myelin sheath

- d) dendritic spine

**ANS: a, p. 47, F, LO=2.1, (1)**

**% correct 96 a= 96 b= 3 c= 1 d= 0 r = .25**

**% correct 95 a= 95 b= 4 c= 1 d= 0 r = .27**

APA: LO 1.2

8. The branchlike structures that receive messages from other neurons are called \_\_\_\_\_.

a) axons

*Incorrect. Axons send but do not receive messages.*

b) nerve bundles

c) dendrites

*Correct. Dendrites receive messages from other neurons.*

d) synapses

**ANS: c, p. 47, F, LO=2.1, (1)**

**% correct 84 a= 10 b= 2 c= 84 d= 4 r = .39**

**% correct 83 a=11 b= 0 c= 83 d= 5 r = .31**

APA: LO 1.2

9. Which part of the neuron is responsible for maintaining the life of the cell?

a) axon

b) soma

*Correct. The soma is responsible for maintaining the life of the cell.*

c) dendrite

d) cell membrane

*Incorrect. The soma is responsible for maintaining the life of the cell.*

**ANS: b, p. 47, F, LO=2.1, (2)**

**% correct 70 a= 5 b= 70 c= 2 d= 23 r = .37**

**% correct 74 a= 0 b= 74 c= 26 d= 1 r = .32**

APA: LO 1.2

10. The part of a neuron that contains the nucleus and keeps the entire cell alive and functioning is the \_\_\_\_\_.

a) axon

b) cell membrane

*Incorrect. The soma is responsible for maintaining the life of the cell.*

c) dendrite

d) soma

*Correct. The soma is responsible for maintaining the life of the cell.*

**ANS: d, p. 47, F, LO= 2.1, (1)**

**% correct 67 a= 7 b= 23 c= 2 d= 67 r = .56**

APA: LO 1.2

11. Dendrite is to axon as:

a) send is to receive.

*Incorrect. This is the opposite of the correct answer.*

b) send is to regulate.

c) receive is to send.

*Correct. Dendrites are treelike parts of the neuron that are designed to receive messages. The axon sends messages to other neurons.*

d) receive is to release.

**ANS: C, p. 47, C, LO=2.1, (2)**

APA: LO 1.2

12. Which part of a neuron is attached to the soma and carries messages out to other cells?

a) soma

b) axon

*Correct. The axon carries messages to other cells.*

c) dendrite

*Incorrect. Dendrites receive messages.*

d) cell membrane

**ANS: b, p. 47, F, LO= 2.1, (1)**

**% correct 81 a= 2 b= 81 c= 14 d= 4 r = .31**

APA: LO 1.2

13. The function of the neuron's axon is to \_\_\_\_\_.

- a) carry messages to other cells

*Correct. The function of the axon is to carry messages to other cells.*

- b) regulate the neuron's life processes
- c) receive messages from neighboring neurons

*Incorrect. Dendrites, not axons, receive messages.*

- d) insulate against leakage of electrical impulses

**ANS: a, p. 47, F, LO=2.1, (2)**

**% correct 67 a= 67 b= 2 c= 10 d= 21 r = .41**

**% correct 80 a= 80 b= 6 c= 13 d= 2 r = .30**

APA: LO 1.2

14. \_\_\_\_\_ receive messages from other neurons and \_\_\_\_\_ send messages to other neurons.

- a) Axons; dendrites

*Incorrect. Axons send messages, and dendrites receive messages.*

- b) Axon; soma
- c) Soma; glial cells
- d) Dendrites; axons

*Correct. Dendrites receive messages, and axons send messages to other cells.*

**ANS: d, p. 47, F, LO=2.1, (2)**

**% correct 71 a= 23 b= 3 c= 4 d= 71 r = .39**

**% correct 78 a= 17 b= 3 c= 1 d= 78 r = .46**

APA: LO 1.2

15. Which of the following best represents the order in which a neuron receives and transmits information?

- a) dendrites, cell body, axon, axon terminals

*Correct. The dendrite receives a message, the cell body processes it, the axon takes a message to the axon terminals, and the terminal buttons release neurotransmitters.*

- b) axon terminals, dendrites, cell body, axon
- c) cell body, dendrites, axon terminals, axon

*Incorrect. Every part of this answer is out of the correct order.*

- d) axon, cell body, dendrites, axon terminals

**ANS: A, p. 47-51, C, LO=2.1-2.2, (2)**

APA: LO 1.2

16. Your teacher asks you to describe the sequence of parts of a neuron that the impulse travels during neural conduction. Which of the following sequences will you offer?

- a) dendrites, axon, soma, synaptic knob
- b) terminal buttons, axon, soma, dendrites
- c) axon, soma, dendrites, synaptic knob

*Incorrect. The neural impulse begins with the receipt of messages from the dendrites.*

- d) dendrites, soma, axon, synaptic knob

*Correct. This answer describes the correct sequence.*

**ANS: d, pp. 47-54, A, LO=2.1-2.2, (3)**

APA: LO 1.2

17. Neurons make up \_\_\_\_\_% of the brain whereas glial cells make up \_\_\_\_\_%.

- a) 50; 50
- b) 25; 75
- c) 10; 90
- d) 5; 95

**ANS: c, p. 48, F, LO=2.1, (2)**

APA: LO 1.2

18. The two types of glial cells are called \_\_\_\_\_ and \_\_\_\_\_.

- a) occipital; lobitical
- b) oligodendrocytes; Schwann cells

*Correct. These are the two types according to the text.*

c) occipital; Schwann

*Incorrect. B is the correct answer.*

d) oligodendrocytes; lobitical

**ANS: b, p. 48, F, LO=2.1, (3)**

APA: LO 1.2

19. Glial cells make up \_\_\_\_\_ of the brain's cells.

a) 10 percent

*Incorrect. Neurons make up ten percent of the cells in the brain.*

b) 70 percent

c) 80 percent

d) 90 percent

*Correct. Ninety percent of the brain is composed of glial cells.*

**ANS: d, p. 48, F, LO=2.1, (3)**

APA: LO 1.2

20. What are two roles of glial cells?

a) acting as insulation and providing structure to surrounding neurons

*Correct. This answer defines two roles of glial cells.*

b) shaping cells and moving new neurons into place

*Incorrect. Glial cells provide structure and insulation to neurons.*

c) regulating metabolic activity and serving as pain detectors

d) monitoring neural transmission and releasing hormones in the brain

**ANS: a, p. 48, C, LO=2.1, (3)**

**% correct 59 a= 59 b= 4 c= 11 d= 22 r = .32**

**% correct 61 a= 61 b= 8 c= 7 d= 24 r = .32**

APA: LO 1.2

21. A cell in the human nervous system whose primary function is to provide insulation and structure for neurons on which they may develop and work is called a(n) \_\_\_\_\_.

a) epidermal cell

b) adipose cell

c) glial cell

*Correct. Glial cells serve as a structure on which neurons develop and work.*

d) myelin sheath

*Incorrect. The myelin sheath does not serve as a structure on which neurons develop and work.*

**ANS: c, p. 48 F, LO=2.1, (2)**

**% correct 46 a= 3 b= 1 c= 46 d= 51 r = .34**

APA: LO 1.2

22. What is the function of myelin?

a) to serve as a structure for neurons

*Incorrect. This is the function of glial cells, not myelin.*

b) to monitor neural activity

c) to speed up the neural impulse

*Correct. Myelin speeds up the neural impulse.*

d) to produce neurotransmitters

**ANS: c, p. 48, F, LO=2.1, (2)**

**% correct 71 a= 14 b= 7 c= 71 d= 9 r = .33**

**% correct 62 a= 28 b= 3 c= 62 d= 8 r = .44**

APA: LO 1.2

23. Which of the following is true about myelin?

a) It's a fatty substance.

*Correct. Myelin is made up of a fatty type of tissue called glial cells.*

b) It is covered by axons.

*Incorrect. Myelin covers axons. It is not covered by axons.*

c) It inhibits neural communication.

d) It slows down neuronal operations.

**ANS: A, p. 48, F, LO=2.1, (2)**

APA: LO 1.2

24. One purpose of the \_\_\_\_\_ is to speed up the neural message traveling down the axon.

- a) receptor site
- b) axon terminal

*Incorrect. The axon terminal does not speed up the neural impulse.*

- c) myelin

*Correct. Myelin speeds up the neural impulse.*

- d) synaptic vesicle

**ANS: c, p. 48, C, LO=2.1, (2)**

**% correct 78 a= 2 b= 8 c= 78 d= 13 r = .31**

APA: LO 1.2

25. A group of axons bundled together coated in myelin that travels together through the body is called a \_\_\_\_\_.

- a) a synaptic vesicle
- b) nerve

*Correct. Bundles of myelin-coated axons travel together in cables called nerves.*

- c) neurilemma

*Incorrect. Neurilemma enable damaged neurons to repair themselves.*

- d) a myelinated pathway

**ANS: b, p. 48, F, LO=2.1, (1)**

**% correct 60 a= 20 b= 60 c= 6 d= 14 r = .49**

APA: LO 1.2

26. A nerve is a group of \_\_\_\_\_ bundled together.

- a) axons

*Correct. Nerves are bundles of myelin-coated axons.*

- b) interneurons
- c) dendrites

*Incorrect. Dendrites are part of the neuron.*

- d) glial cells

**ANS: a, p. 48, F, LO=2.1, (2)**

**% correct 37 a= 37 b= 37 c= 8 d= 18 r = .31**

APA: LO 1.2

27. Juan's toe was severed and was quickly sewn back on by a surgeon. As a result, he regained some function and feeling in his toe. Which of the following are responsible for Juan's ability to regain function and feeling in his toe?

- a) myelin

*Incorrect. Myelin speeds up the neural impulse.*

- b) glial cells

- c) dendrites

- d) neurilemma

*Correct. Neurilemma enable damaged neurons to repair themselves.*

**ANS: d, p. 48, A, LO=2.1, (3)**

APA: LO 1.2

28. When a cell is "at rest," it is in a state called the \_\_\_\_\_.

- a) stopping point
- b) obcipation junction

*Incorrect. This is a fictitious word.*

- c) resting potential

*Correct. A cell at rest is in a state called the resting potential.*

- d) action potential

**ANS: c, p. 49, F, LO=2.1, (1)**

**% correct 85 a= 1 b= 0 c= 85 d= 13 r = .41**

APA: LO 1.2

29. The charge that a neuron at rest maintains is due to the presence of a high number of \_\_\_\_\_ charged ions inside the neuron's membrane.

- a) actively
- b) passively
- c) negatively

*Correct. Negatively charged ions inside of the neurons membrane is what gives rise to a negative resting potential.*

- d) positively

*Incorrect. It is during the action potential the positively charged ions flow into the neuron and outnumber the negatively charged ions.*

**ANS: C, p. 49, C, LO=2.1, (2)**

APA: LO 1.2

30. When the electric potential in a cell is in action versus a resting state, this electrical charge reversal is known as the \_\_\_\_\_.

- a) resting potential

*Incorrect. This would be when a cell continued to be at rest.*

- b) excitation reaction
- c) action potential

*Correct. This is the state where the electrical charge is reversed.*

- d) permeable reaction

**ANS: c, p. 49, C, LO=2.1, (1)**

**% correct 75 a= 14 b= 10 c= 75 d= 1 r = .31**

APA: LO 1.2

31. The term "fire" when referring to neural transmission indicates that a neuron:

- a) has become less positive in charge.
- b) has received, in its dendrites, appropriate inputs from other neurons.

*Correct. A neuron fires after the dendrites receive enough stimulation to trigger the cell body to generate an action potential.*

- c) is unable to transmit information to another neuron.
- d) has become more negative in charge.

*Incorrect. In fact, the firing state of the neuron occurs when it generates a positive charge rather than a negative charge.*

**ANS: B, p. 49, C, LO=2.1, (2)**

APA: LO 1.2

32. What do we call the state of a neuron when it is not firing a neural impulse?

- a) action potential

*Incorrect. Action potential is the state a neuron is in when firing a neural impulse.*

- b) resting potential

*Correct. Resting potential is the state a neuron is in when not firing a neural impulse.*

- c) myelination signal
- d) transmission impulse

**ANS: b, p. 49, F, LO=2.1, (1)**

**% correct 84 a= 11 b= 84 c= 1 d=4 r = .18**

APA: LO 1.2

33. The state during which a neuron contains more negatively charged ions inside the cell than outside the cell and is not firing is referred to as the \_\_\_\_\_.

- a) action potential

*Incorrect. Action potential is the state a neuron is in when firing.*

- b) quiet potential
- c) synaptic potential
- d) resting potential

*Correct. Resting potential is the state a neuron is in when a cell is not firing a neural impulse.*

**ANS: d, p. 49, F, LO=2.1, (2)**

**% correct 85 a= 4 b= 4 c= 7 d= 85 r = .19**



APA: LO 1.2

34. During action potential, the electrical charge inside the neuron is \_\_\_\_\_ the electrical charge outside the neuron.

- a) positive compared to

*Correct. There are more positively charged ions inside the cell than outside.*

- b) larger than
- c) negative compared to

*Incorrect. During resting potential, the inside is more negatively charged.*

- d) smaller than

**ANS: a, p. 49, C, LO=2.1, (2)**

APA: LO 1.2

35. When a neuron fires, it fires in a(n) \_\_\_\_\_ fashion as there is no such thing as “partial” firing.

- a) all-or-none

*Correct. This is the term used to describe how neurons fire according to the book.*

- b) rapid fire
- c) accidental patterned
- d) quick successioned

*Incorrect. This is not the term referred to by the book*

**ANS: a, p. 51, C, LO=2.1 (2)**

APA: LO 1.2

36. “All or none” is the principle stating that \_\_\_\_\_.

- a) a neuron either fires or does not fire

*Correct. A neuron either fires or does not fire.*

- b) a neuron fires at full strength or not at all

*Incorrect. Neurons can fire at different strengths.*

- c) all the dendrites must be receiving messages telling the neuron to fire or it will not fire at all
- d) all somas must be receiving messages telling the neuron to fire or it will not fire at all

**ANS: a, p. 51, F, LO=2.1, (2)**

**% correct 54 a= 54 b= 31 c= 10 d= 5 r = .37**

**% correct 41 a= 41 b= 52 c= 4 d= 3 r = .29**

APA: LO 1.2

## Neurons and Nerves: Building the Network

**Learning Objective 2.2** - How do neurons use neurotransmitters to communicate with each other and with the body?

37. The swellings or knobs at the end of the axon are called \_\_\_\_\_.

- a) axon terminals

*Correct. The axon terminals are located at the ends of the axon.*

- b) synaptic vesicles

*Incorrect. Synaptic vesicles are structures within the synaptic knobs.*

- c) synapses
- d) receptor sites

**ANS: a, p. 51, F, LO=2.2, (1)**

APA: LO 1.2

38. What is the term used to describe the bulbs located at the end of the axon?

- a) axon terminals

*Correct. The axon terminals are located at the end of the axon.*

- b) synaptic vesicles

*Incorrect. Synaptic vesicles are structures within the synaptic knobs.*

- c) synapses
- d) receptor sites

**ANS: a, p. 51, F, LO=2.2, (2)**

**% correct 59 a= 59 b= 15 c= 3 d= 22 r = .48**

**% correct 52 a= 52 b= 20 c= 13 d= 15 r = .38**

APA: LO 1.2

39. What is the term used to describe the rounded areas on the ends of the axon terminals?

- a) synaptic vesicles

*Incorrect. Synaptic vesicles are structures within the synaptic knobs.*

- b) axons
- c) dendrites
- d) synaptic knobs

*Correct. Synaptic knobs are located at the tip of each axon terminal.*

**ANS: d, p. 51, F, LO=2.2, (2)**

**% correct 73 a= 24 b= 1 c= 2 d= 73 r = .33**

**% correct 75 a= 19 b= 1 c= 5 d= 75 r = .20**

APA: LO 1.2

40. The saclike structures found inside the synaptic knob containing chemicals are called \_\_\_\_\_.

- a) axon terminals

*Incorrect. The axon terminals are limblike structures.*

- b) synapses
- c) synaptic vesicles

*Correct. Synaptic vesicles are structures within the synaptic knobs.*

- d) receptor sites

**ANS: c, p. 51, F, LO=2.2, (1)**

**% correct 69 a= 5 b= 8 c= 69 d= 17 r = .53**

**% correct 64 a= 20 b= 12 c= 64 d= 14 r = .45**

APA: LO 1.2

41. Which of the following are tiny sacs in a synaptic knob that release chemicals into the synapse?

- a) synaptic vesicles

*Correct. Synaptic vesicles are structures within the synaptic knobs.*

- b) synaptic nodes
- c) terminal buttons

*Incorrect. Terminal buttons are the same as synaptic knobs.*

- d) synaptic gaps

**ANS: a, p. 51, F, LO=2.2 (2)**

**% correct 65 a= 65 b= 22 c= 10 d= 3 r = .36**

APA: LO 1.2

42. A chemical found in the synaptic vesicles which, when released, has an effect on the next cell is called a \_\_\_\_\_.

- a) glial cell
- b) neurotransmitter

*Correct. Neurotransmitters are stored in the synaptic vesicles.*

- c) precursor cell
- d) synapse

*Incorrect. The synapse is the space between the synaptic knob of one cell and the dendrites of the next cell.*

**ANS: b, p. 52, F, LO=2.2, (1), SG**

**% correct 74 a= 4 b= 74 c= 4 d= 18 r = .34**

APA: LO 1.2

43. The term *neurotransmitter* refers to \_\_\_\_\_.

- a) a chemical found in the synaptic vesicles that is released into the synapse

*Correct. Neurotransmitters are chemicals.*

- b) any one of a number of chemical compounds that increase the activity of the endocrine system  
c) the chemical substance found in the cell membrane

*Incorrect. The neurotransmitter is found in the synaptic vesicle.*

- d) the DNA contained in the nucleus of every neuron

**ANS: a, p. 52, F, LO=2.2, (2)**

APA: LO 1.2

44. The fluid-filled space between the synaptic knob of one cell and the dendrites of the next cell is called the \_\_\_\_\_.

- a) receptor site

*Incorrect. Molecules that float across the synapse fit themselves into receptor sites, thus activating the next cell.*

- b) synapse

*Correct. The synapse is the space between the axon of a sending neuron and the dendrites of a receiving neuron.*

- c) synaptic knob

- d) axon terminal

**ANS: b, p. 52, F, LO=2.2, (1)**

APA: LO 1.2

45. The action potential causes neurotransmitters to be released into the \_\_\_\_\_.

- a) myelin sheath

- b) axon

- c) synapse

*Correct. Neurotransmitters are released into the synapse.*

- d) synaptic vesicle

*Incorrect. Neurotransmitters are stored in the synaptic vesicle.*

**ANS: c, p. 52, F, LO=2.2, (2)**

**% correct 59 a= 8 b= 11 c= 59 d= 22 r = .32**

**% correct 56 a= 5 b= 16 c= 56 d= 27 r = .35**

APA: LO 1.2

46. \_\_\_\_\_ are holes in the surface of the dendrites or certain cells of the muscles and glands that are shaped to fit only certain neurotransmitters.

- a) Neurotransmitters

- b) Axons

- c) Synaptic vesicles

*Incorrect. Neurotransmitters are stored in the synaptic vesicle.*

- d) Receptor sites

*Correct. Molecules that float across the synapse fit themselves into receptor sites like keys fitting into a lock, thus activating the next cell.*

**ANS: d, p. 52, F, LO=2.2, (1)**

APA: LO 1.2

47. Which structure is like a locked door that only certain neurotransmitter keys can unlock?

- a) synapses

*Incorrect. Synapses are microscopic fluid-filled spaces between neurons.*

- b) receptor sites

*Correct. Only certain neurotransmitters can fit into receptor sites.*

- c) neural chiasm

- d) response terminals

**ANS: b, p. 52, C, LO=2.2, (2)**

APA: LO 1.2

48. \_\_\_\_\_ synapses make it more likely that a neuron will send its message to other neurons, whereas \_\_\_\_\_ synapses make it less likely that a neuron will send its message.

- a) Excitatory; inhibitory

*Correct. Excitatory synapses turn cells on and inhibitory ones turn cells off.*

- b) Inhibitory; excitatory

*Incorrect. Inhibitory synapses turn cells off and excitatory ones turn cells on.*

- c) Augmentation; depletion  
d) Depletion; augmentation

**ANS: a, p. 52, C, LO=2.2, (2)**

**% correct 89 a= 89 b= 8 c= 3 d= 0 r = .48**

APA: LO 1.2

49. Agonist is to antagonist as:

- a) neuromodulator is to neurotransmitter.  
b) reuptake is to receptor.  
c) mimic is to block.

*Correct. Agonists mimic neurotransmitters by stimulating specific receptor sites, and antagonists block receptor sites.*

- d) block is to mimic.

*Incorrect. This is the opposite of the correct answer.*

**ANS: C, p. 52, C, LO=2.2, (2)**

APA: LO 1.2

50. Curare, a poison, works by \_\_\_\_\_.

- a) blocking receptor sites and acting as an antagonist for acetylcholine

*Correct. This drug acts as an antagonist for acetylcholine.*

- b) stimulating the release of excessive amounts of acetylcholine

*Incorrect. This drug inhibits the release of acetylcholine.*

- c) stimulating the release of neurotransmitters  
d) inhibiting the production of inhibitory neurotransmitters

**ANS: a, p. 52, C, LO=2.2, (3)**

**% correct 30 a= 30 b= 26 c= 20 d= 24 r = .23**

**% correct 41 a= 41 b= 24 c= 22 d= 13 r = .22**

APA: LO 1.2

51. After being bitten by a black widow spider, Jean starts to convulse. This is a result of

- a) a lack of GABA being released into her blood stream \_\_\_\_\_.

*Incorrect. The correct answer is d.*

- b) a resurgence of neurotransmitters overstimulating her brain stem  
c) a surge of chemicals blocking the transmission of fluids to the spinal cord  
d) a flood of acetylcholine releasing into the body's muscle system

*Correct. This is the result of the bite. The result can also include death.*

**ANS: d, pp. 52-53, A, LO=2.2 (3)**

APA: LO 1.2

52. The poison of the black widow spider works by stimulating the release of excessive amounts of \_\_\_\_\_.

- a) acetylcholine

*Correct. The venom stimulates the release of excessive amounts of acetylcholine.*

- b) dopamine  
c) endorphins

*Incorrect. The venom works by stimulating the release of excessive amounts of acetylcholine.*

- d) serotonin

**ANS: a, pp. 52-53, F, LO=2.2, (3)**

APA: LO 1.2

53. \_\_\_\_\_ plays a critical role as a neurotransmitter that stimulates muscles to contract.

- a) Acetylcholine

*Correct. Acetylcholine is an excitatory neurotransmitter that stimulates muscles to contract.*

- b) GABA

*Incorrect. GABA is an inhibitory neurotransmitter.*

- c) Dopamine  
d) Endorphin

**ANS: a, p. 53, F, LO=2.2, (1)**

APA: LO 1.2

54. Sara has been experiencing a serious memory problem. An interdisciplinary team has ruled out a range of causes and believes that a neurotransmitter is involved. Which neurotransmitter is most likely involved in this problem?

a) GABA

*Incorrect. GABA has a tranquilizing effect.*

b) dopamine

c) serotonin

d) acetylcholine

*Correct. Acetylcholine is found in a part of the brain responsible for forming new memories.*

**ANS: d, p. 53, A, LO=2.2, (2), SG**

**% correct 33 a= 0 b= 26 c=41 d= 33 r = .19**

APA: LO 1.2

55. Which of the following neurotransmitters functions as a common inhibitory neurotransmitter in the brain?

a) serotonin

b) GABA

*Correct. GABA is an inhibitory neurotransmitter.*

c) acetylcholine

*Incorrect. Acetylcholine is an excitatory neurotransmitter.*

d) norepinephrine

**ANS: b, p. 53, F, LO=2.2, (1)**

APA: LO 1.2

56. GABA functions as\_\_\_\_\_.

a) the major neurotransmitter involved in voluntary movements

b) an inhibitory neurotransmitter in the brain

*Correct. GABA is an inhibitory neurotransmitter.*

c) the neurotransmitter responsible for slowing intestinal activity during stress

d) the major excitatory neurotransmitter in the brain

*Incorrect. GABA is an inhibitory neurotransmitter.*

**ANS: b, p. 53, F, LO=2.2, (2)**

APA: LO 1.2

57. The effect of alcohol is to enhance the effect of \_\_\_\_\_, which causes the general inhibition of the nervous system associated with getting drunk.

a) GABA

*Correct. GABA is an inhibitory neurotransmitter.*

b) serotonin

c) dopamine

d) acetylcholine

*Incorrect. Acetylcholine is not associated with the effects of alcohol.*

**ANS: a, p. 53, F, LO=2.2, (3)**

APA: LO 1.2

58. Which neurotransmitter is associated with sleep, mood, and appetite?

a) GABA

*Incorrect. GABA is associated with helping calm anxiety.*

b) serotonin

*Correct. Serotonin is associated with mood, sleep, and appetite.*

c) dopamine

d) acetylcholine

**ANS: b, p. 53, F, LO=2.2, (1)**

**% correct 60 a= 6 b= 60 c= 25 d= 8 r = .26**

APA: LO 1.2

59. Andy has decided to seek medical help for mood disturbances and appetite problems. Which neurotransmitter is most likely involved in the problems Andy is experiencing?

a) GABA

*Incorrect. GABA is involved in sleep and inhibits movement but is not associated with mood or appetite.*

b) dopamine

c) serotonin

*Correct. Serotonin is associated with mood and appetite.*

d) acetylcholine

**ANS: c, p. 53, A, LO=2.2, (2)**

APA: LO 1.2

60. Endorphins are \_\_\_\_\_.

a) found where neurons meet skeletal muscles

b) less powerful than enkaphalins

c) pain-controlling chemicals

*Correct. Endorphins are pain-controlling chemicals.*

d) radically different in function from neurotransmitters

*Incorrect. Endorphins are neurotransmitters.*

**ANS: c, pp. 53-54, F, LO=2.2, (2)**

**% correct 74 a= 4 b= 7 c= 74 d= 15 r = .41**

APA: LO 1.2

61. Pain-controlling chemicals in the body are called \_\_\_\_\_.

a) neural regulators

*Incorrect. Not all neural regulators are endorphins.*

b) histamines

c) androgens

d) endorphins

*Correct. Endorphins are pain-controlling chemicals.*

**ANS: d, pp. 53-54, F, LO=2.2, (1)**

**% correct 81 a= 3 b= 7 c= 8 d= 81 r = .42**

APA: LO 1.2

62. Because they have similar chemical structures, morphine and heroin are able to lock into receptor sites for \_\_\_\_\_.

a) GABA

*Incorrect. Opiates are not able to lock into GABA receptor sites.*

b) serotonin

c) dopamine

d) endorphins

*Correct. Endorphins are a natural substance that has the same effect as opiates.*

**ANS: d, p. 54, C, LO=2.2, (3)**

APA: LO 1.2

63. Reuptake is \_\_\_\_\_.

a) a chemical that is released into the synaptic gap

*Incorrect. Reuptake is a process.*

b) a protein molecule on the dendrite or cell body of a neuron that will interact only with specific neurotransmitters

c) a process by which neurotransmitters are sucked back into the synaptic vesicles

*Correct. This is the definition of reuptake.*

d) a chemical that plays a role in learning and attention

**ANS: c, p. 54, F, LO=2.2, (1)**

**% correct 77 a= 7 b= 13 c= 77 d= 3 r = .41**

APA: LO 1.2

64. Isabella is putting mustard on her hot dog. She realizes she has put too much and sucks up some of it back into the squeeze bottle. This process is similar to

- a) the action potential.
- b) receptor site bindings.
- c) binding specificity.

*Incorrect. Binding specificity refers to the fact that Iran's receptor sites are designed to receive only one specific neurotransmitter.*

- d) reuptake.

*Correct. Recall take occurs when excess neurotransmitters are reabsorbed into the sending neuron.*

**ANS: D, p. 54, A, LO=2.2, (3)**

APA: LO 1.2

65. How is acetylcholine removed from the synapse?

- a) It is broken down by an enzyme.

*Correct. It is broken down by an enzyme.*

- b) It is taken back up in the synapse.

*Incorrect. It is broken down by an enzyme.*

- c) It dissipates in the surrounding body fluids.

- d) Acetylcholine is one of the few neurotransmitters that is continually present in the synapse.

**ANS: a, p. 54, C, LO=2.2, (3)**

APA: LO 1.2

## The Central Nervous System – The “Central Processing Unit”

### Learning Objective 2.3 - How do the brain and spinal cord interact?

66. The brain and spinal cord are two components of the\_\_\_\_\_.

- a) central nervous system

*Correct. The brain and spinal cord are two components of the central nervous system.*

- b) somatic nervous system

- c) peripheral nervous system

*Incorrect. The two components of the peripheral nervous system are the autonomic and somatic nervous systems.*

- d) autonomic nervous system

**ANS: a, p. 56, F, LO=2.3, (1)**

**% correct 100 a= 100 b= 0 c= 0 d= 0 r = .00**

**% correct 94 a= 94 b= 2 c= 1 d= 2 r = .39**

APA: LO 1.2

67. The central nervous system consists of \_\_\_\_\_.

- a) the parasympathetic and sympathetic divisions

*Incorrect. These are divisions of the autonomic nervous system.*

- b) the brain and spinal cord

*Correct. The brain and spinal cord are the two most basic components of the central nervous system.*

- c) muscles and glands

- d) sense organs and sensory neurons

**ANS: b, p. 56, F, LO=2.3, (1)**

**% correct 77 a= 17 b= 77 c= 0 d= 6 r = .24**

**% correct 82 a= 16 b= 82 c= 1 d= 2 r = .32**

APA: LO 1.2

68. Which part of the nervous system takes the information received from the senses, makes sense out of it, makes decisions, and sends commands out to the muscles and the rest of the body?

- a) spinal cord

*Incorrect. The spinal cord carries messages to and from the body to the brain.*

- b) brain

*Correct. That is the responsibility of the brain.*

- c) reflexes

- d) interneurons

**ANS: b, p. 56, C, LO=2.3, (1), SG**

**% correct 85 a= 7 b= 85 c= 1 d= 7 r = .21**

APA: LO 1.2

69. The long bundle of neurons that carries messages to and from the body to the brain and is responsible for very fast, lifesaving reflexes is called the \_\_\_\_\_.

a) spinal cord

*Correct. The spinal cord carries messages to and from the body to the brain.*

b) brain

*Incorrect. The brain receives messages from the spinal cord.*

c) reflexes

d) interneurons

**ANS: a, p. 56, F, LO=2.3, (1)**

**% correct 89 a= 89 b= 0 c= 2 d= 9 r = .31**

APA: LO 1.2

70. Which of the following is a long bundle of neurons that functions as a carrier of messages from the body to the brain and from the brain to the body and is responsible for certain reflexes?

a) spinal cord

*Correct. The spinal cord carries messages to and from the body to the brain.*

b) cerebellum

c) somatic nervous system

*Incorrect. The somatic nervous system carries information from the senses to the central nervous system (CNS) and from the CNS to voluntary muscles of the body.*

d) amygdala

**ANS: a, p. 56, F, LO=2.3, (2)**

**% correct 77 a= 77 b= 2 c= 19 d= 2 r = .29**

APA: LO 1.2

71. Which of the following are the three basic types of neurons?

a) reflexes, sensory neurons, motor neurons

*Incorrect. Reflexes are not a type of neuron.*

b) sensory neurons, motor neurons, stem cells

c) motor neurons, stem cells, reflexes

d) interneurons, sensory neurons, motor neurons

*Correct. All of these are neurons.*

**ANS: d, pp. 56-57, F, LO=2.3, (1)**

**% correct 89 a= 3 b= 7 c= 0 d= 89 r = .36**

**% correct 79 a= 13 b= 8 c= 0 d= 79 r = .31**

APA: LO 1.2

72. Neurons that carry information from the senses to the spinal cord are called \_\_\_\_\_.

a) motor neurons

b) interneurons

*Incorrect. Interneurons connect sensory neurons to the motor neurons.*

c) sensory neurons

*Correct. Sensory neurons carry information from the senses to the spinal cord.*

d) reflexes

**ANS: c, p. 57, F, LO=2.3, (1)**

**% correct 75 a= 19 b= 5 c= 75 d= 0 r = .32**

**% correct 80 a= 11 b= 9 c= 80 d= 1 r = .28**

APA: LO 1.2

73. LaKeisha stepped on a piece of glass and quickly pulled her foot away from that sharp object. Which of the following are responsible for sending a message to the muscles in LaKeisha's foot, resulting in her pulling her foot away from the piece of glass?

a) motor neurons

*Correct. Motor neurons carry messages from the central nervous system to the muscles of the body.*

b) interneurons



*Incorrect. Interneurons connect the sensory neurons to the motor neurons.*

- c) sensory neurons
- d) reflexes

**ANS: a, p. 57, A, LO=2.3, (3)**

**% correct 58 a= 58 b= 2 c= 18 d= 521 r = .27**

APA: LO 1.2

74. Neurons found in the center of the spinal cord that receive information from the sensory neurons and send commands to the muscles through the motor neurons are called\_\_\_\_\_.

- a) motor neurons

*Incorrect. Motor neurons carry messages from the central nervous system to the muscles of the body.*

- b) interneurons

*Correct. Interneurons connect the sensory neurons to the motor neurons.*

- c) sensory neurons
- d) reflexes

**ANS: b, p. 57, F, LO=2.3, (1)**

APA: LO 1.2

75. Which of the following are responsible for acting as a facilitator of communication between neurons?

- a) motor neurons

*Incorrect. Motor neurons carry messages from the central nervous system to the muscles of the body.*

- b) interneurons

*Correct. Interneurons connect the sensory neurons to the motor neurons.*

- c) sensory neurons
- d) reflexes

**ANS: b, p. 57, C, LO=2.3, (3)**

**% correct 80 a= 8 b= 80 c= 8 d= 3 r = .37**

APA: LO 1.2

76. Mary put her hand on a hot stove. Which neuron is responsible for sending a pain message up her spinal column, where it would then enter into the main area of the cord?

- a) motor neuron
- b) interneuron

*Incorrect. Sensory neurons carry information from the senses to the spinal cord.*

- c) sensory neuron

*Correct. Sensory neurons carry information from the senses to the spinal cord.*

- d) reflex

**ANS: c, p. 57, A, LO=2.3, (2)**

**% correct 90 a= 5 b= 3 c= 90 d= 1 r = .27**

APA: LO 1.2

77. Cameron touches a hot iron and immediately pulls his hand away. His quick response occurs because\_\_\_\_\_.

- a) the pain message goes up the spinal column to the central area of the spinal cord instead of going all the way to the brain

*Correct. Pain messages are spinal reflexes and the response is automatic.*

- b) the brain has registered that pain is occurring and responds quickly

*Incorrect. This type of pain message does not go all the way to the brain.*

- c) his glands have secreted chemical messengers called hormones
- d) neurons in the spinal cord touch end to end to increase response speed

**ANS: a, p. 57, A, LO=2.3, (3)**

APA: LO 1.2

78. Why do many reflexes, such as pulling your hand away from a hot iron, happen so quickly?

- a) They involve the neurotransmitter GABA rather than dopamine.
- b) The message involved does not have to go all the way to the brain.

*Correct. The message goes to the central area of the spinal cord and not up to the brain.*

- c) The speed of processing is faster in the frontal lobes than in the occipital lobes.
- d) The path that reflexes follow to the brain is direct and does not involve any neurotransmitters.

*Incorrect. The message involved does not have to go all the way to the brain.*

**ANS: b, p. 57, C, LO=2.3, (3)**

**% correct 49 a= 17 b= 49 c= 14 d= 21 r = .51**

APA: LO 1.2

79. Jack suffered a brain injury as a result of hitting his head while waterskiing. One of the problems that developed was that Jack could not pronounce certain words correctly for a long period of time until he had extensive speech therapy and can now speak as he did before his accident. This is an example of the brain's \_\_\_\_\_ which allowed the structure and function of his brain cells to change to adjust to the trauma.

- a) adaptology
- b) stagnation
- c) neuroplasticity

*Correct. This allowed Jack's brain to adapt after the trauma.*

- d) reflex arc

*Incorrect. Neuroplasticity accounts for Jack's brain to allow him to speak correctly despite damage.*

**ANS: c, p. 58, A, LO=2.3, (2)**

APA: LO 1.2

80. Neuroplasticity is most evident in which of the following circumstances?

- a) during the elderly years

*Incorrect. As your authors point out, plasticity is higher during childhood than in later years.*

- b) when we learn something new or store new information

*Correct. Learning or store new information would cause the brain to change its structure slightly, which demonstrates plasticity.*

- d) when we are trying to undo previous pruning
- c) when reuptake of excess neurotransmitters is taking place.

**ANS: B, p. 58, A, LO=2.3, (2)**

APA: LO 1.2

## **The Peripheral Nervous system—Nerves on the Edge**

**Learning Objective 2.4** - How do the somatic and automatic nervous systems allow people and animals to interact with their surroundings and control the body's autonomic functions?

81. Which statement is untrue about the peripheral nervous system (PNS)?

- a) The PNS consists of the brain and spinal cord.

*Correct. These are parts of the central nervous system (CNS)*

- b) The PNS consists of the nerves and neurons not in the central nervous system (CNS).

*Incorrect. This is an accurate definition of the PNS.*

- c) The PNS allows the brain and spinal cord to coordinate with sensory systems.
- d) The PNS allows the brain and spinal cord to coordinate with muscles and glands in the body.

**ANS: a, p. 59, F, LO=2.4, (2)**

APA: LO 1.2

82. The peripheral nervous system consists of \_\_\_\_\_.

- a) all the nerve cells that are not in the brain and spinal cord

*Correct. The peripheral nervous system consists of all the nerve cells that are not in the brain and spinal cord.*

- b) all nerves in the brain and the spinal cord

*Incorrect. The central nervous system consists of the brain and spinal cord.*

- c) the spinal cord and autonomic system
- d) the brain and the autonomic system

**ANS: a, p. 59, F, LO=2.4, (1)**

**% correct 69 a= 69 b= 6 c= 15 d= 10 r = .45**

APA: LO 1.2

83. The division of the nervous system that allows the brain and the spinal cord to communicate with the sensory systems of the eyes, ears, skin, and mouth, and allows the brain and spinal cord to control the muscles and glands of the body is called the \_\_\_\_\_.

- a) peripheral nervous system

*Correct. The peripheral nervous system allows the brain and spinal cord to communicate with the sensory systems and control the muscles and glands.*

- b) central nervous system

*Incorrect. The peripheral nervous system enables the central nervous system, which consists of the brain and spinal cord, to communicate with the sensory systems and control the muscles and glands.*

- c) endocrine system

- d) secondary nervous system

**ANS: a, p. 59, C, LO=2.4, (1)**

**% correct 69 a= 69 b= 22 c= 7 d= 1 r = .43**

APA: LO 1.2

84. The peripheral nervous system consists of the \_\_\_\_\_ and the \_\_\_\_\_ nervous systems.

- a) autonomic; somatic

*Correct. The peripheral nervous system consists of the autonomic and somatic nervous systems.*

- b) autonomic; sympathetic

- c) parasympathetic; somatic

- d) parasympathetic; sympathetic

*Incorrect. These are the two divisions of the autonomic nervous system.*

**ANS: a, p. 59, F, LO=2.4, (2)**

**% correct 53 a= 53 b= 7 c= 5 d= 35 r = .33**

**% correct 57 a= 57 b= 11 c= 7 d= 25 r = .40**

APA: LO 1.2

85. Voluntary muscles are controlled by the \_\_\_\_\_ nervous system.

- a) somatic

*Correct. The somatic nervous system controls voluntary muscles.*

- b) autonomic

*Incorrect. The autonomic nervous system controls involuntary muscles.*

- c) sympathetic

- d) parasympathetic

**ANS: a, p. 59, F, LO=2.4, (1)**

**% correct 69 a= 69 b= 17 c=11 d= 3 r = .46**

APA: LO 1.2

86. The subdivision of the peripheral nervous system that is made up of all nerves carrying messages from the senses to the central nervous system and all nerves carrying messages from the central nervous system to skeletal muscles is called the \_\_\_\_\_.

- a) autonomic nervous system

*Incorrect. The autonomic nervous system consists of nerves that control all of the involuntary muscles, organs, and glands.*

- b) parasympathetic nervous system

- c) somatic nervous system

*Correct. This describes the somatic nervous system.*

- d) central nervous system

**ANS: c, p. 59, F, LO=2.4, (1)**

**% correct 59 a= 25 b= 13 c= 59 d= 3 r = .46**

APA: LO 1.2

87. In the peripheral nervous system, \_\_\_\_\_ carry messages from special sense receptors in the skin, muscles, and other internal and external sense organs to the spinal cord.

- a) autonomic nerves

- b) sensory pathway neurons

*Correct. Sensory pathway neurons carry messages from sense receptors.*

- c) motor pathway neurons

*Incorrect. Motor pathway neurons travel from the central nervous system to the voluntary muscles.*

- d) autonomic neurons

**ANS: b, p. 59, F, LO=2.4, (1)**

APA: LO 1.2

88. Vladimir is typing on the computer keyboard. The motion of his fingers on the keys is probably being controlled by\_\_\_\_\_.

- a) the autonomic nervous system
- b) sensory pathway neurons

*Incorrect. These neurons makes up the nerves that come from the sensory organs.*

- c) motor pathway neurons

*Correct. Movements of fingers are associated with motor pathway neurons, which control voluntary muscles.*

- d) autonomic neurons

**ANS: c, p. 59, A, LO=2.4, (3)**

APA: LO 1.2

89. Every deliberate action you make, such as pedaling a bike, walking, scratching, or smelling a flower, involves neurons in the \_\_\_\_\_ nervous system.

- a) sympathetic
- b) somatic

*Correct. The somatic nervous system controls voluntary muscle movement.*

- c) parasympathetic
- d) autonomic

*Incorrect. The autonomic nervous system consists of nerves that control all of the involuntary muscles, organs, and glands.*

**ANS: b, pp. 59-60, C, LO=2.4, (2), SG**

**% correct 50 a= 12 b= 50 c= 12 d= 25 r = .23**

**% correct 60 a= 14 b= 60 c= 11 d= 14 r = .21**

APA: LO 1.2

90. As she walks out of the living room, Gloriann turns out the light. In this example, Gloriann's \_\_\_\_\_ is active.

- a) sympathetic nervous system
- b) parasympathetic nervous system
- c) autonomic nervous system

*Incorrect. Turning out the light requires voluntary muscle movement.*

- d) somatic nervous system

*Correct. Turning out the light requires voluntary muscle movement.*

**ANS: d, pp. 59-60, A, LO=2.4, (2)**

**% correct 48 a= 8 b= 14 c= 30 d= 48 r = .42**

APA: LO 1.2

91. Involuntary muscles are controlled by the \_\_\_\_\_ nervous system.

- a) somatic

*Incorrect. The somatic nervous system controls voluntary muscles.*

- b) autonomic

*Correct. The autonomic nervous system controls involuntary muscles like the heart, stomach, and intestines.*

- c) sympathetic

- d) parasympathetic

**ANS: b, p. 60, F, LO=2.4, (1), SG**

**% correct 64 a= 14 b= 64 c= 14 d= 9 r = .27**

APA: LO 1.2

92. The subdivision of the peripheral nervous system that consists of nerves that control all of the involuntary muscles, organs, and glands is called the \_\_\_\_\_ nervous system.

- a) somatic

*Incorrect. The somatic nervous system controls voluntary muscles.*

- b) autonomic

*Correct. The autonomic nervous system controls involuntary muscles and glands.*

- c) sympathetic

d) parasympathetic

**ANS: b, p. 60, F, LO=2.4, (1)**

**% correct 71 a= 10 b= 71 c= 10 d= 7 r = .26**

APA: LO 1.2

93. When you see someone you have a crush on and your heart pounds, your hands get sweaty, and your cheeks feel hot, your \_\_\_\_\_ is/are active.

- a) skeletal nervous system
- b) spinal reflexes
- c) autonomic nervous system
- d) somatic nervous system

*Correct. The autonomic nervous system controls involuntary muscles and glands.*

- d) somatic nervous system

*Incorrect. The somatic nervous system controls voluntary muscles.*

**ANS: c, p. 60, A, LO=2.4, (2)**

APA: LO 1.2

94. The autonomic nervous system has two divisions called the \_\_\_\_\_ and the \_\_\_\_\_.

- a) central; peripheral

*Incorrect. The two divisions of the autonomic nervous system are the sympathetic and parasympathetic nervous systems.*

- b) sympathetic; parasympathetic

*Correct. These are the divisions of the autonomic nervous system.*

- c) receptors; effectors

- d) limbic; endocrine

**ANS: b, p. 60, F, LO=2.4, (1)**

**% correct 96 a= 4 b= 96 c= 0 d= 0 r = .19**

**% correct 91 a= 6 b= 91 c= 1 d= 3 r = .22**

APA: LO 1.2

95. Which component of the nervous system mobilizes the body in times of stress?

- a) central
- b) somatic
- c) sympathetic
- d) parasympathetic

*Correct. The sympathetic nervous system mobilizes the body in times of stress.*

- d) parasympathetic

*Incorrect. The parasympathetic nervous system restores the body to normal functioning after arousal.*

**ANS: c, p. 60, F, LO=2.4, (1)**

**% correct 60 a= 8 b= 12 c= 60 d= 20 r = .37**

**% correct 69 a= 3 b= 10 c= 69 d= 17 r = .47**

APA: LO 1.2

96. The part of the autonomic nervous system that is responsible for reacting to stressful events and bodily arousal is called the \_\_\_\_\_ nervous system.

- a) central
- b) somatic
- c) sympathetic
- d) parasympathetic

*Correct. The sympathetic nervous system is responsible for reacting to stressful events and bodily arousal.*

- d) parasympathetic

*Incorrect. The parasympathetic nervous system restores the body to normal functioning after arousal.*

**ANS: c, p. 60, F, LO=2.4, (1)**

**% correct 66 a= 5 b= 9 c= 66 d= 19 r = .40**

**% correct 79 a= 1 b= 5 c= 79 d= 14 r = .40**

APA: LO 1.2

97. As Molly is walking across campus, a car swerves toward her. Her heart races and sweat breaks out as she jumps out of harm's way. This mobilization of energy is due to the action of Molly's \_\_\_\_\_.

- a) somatic nervous system
- b) skeletal nervous system

- c) parasympathetic nervous system

*Incorrect. The parasympathetic nervous system restores the body to normal functioning after arousal.*

- d) sympathetic nervous system

*Correct. The sympathetic nervous system is responsible for reacting to stressful events and bodily arousal.*

**ANS: d, p. 60, A, LO=2.4, (2)**

**% correct 73 a= 11 b= 0 c= 16 d= 73 r = .48**

**% correct 81 a= 11 b= 0 c= 9 d= 81 r = .51**

APA: LO 1.2

98. The branch of the autonomic nervous system that restores the body to normal functioning after arousal and is responsible for day-to-day functioning of the organs and glands is called the\_\_\_\_\_.

- a) spinal cord  
b) somatic nervous system  
c) sympathetic nervous system

*Incorrect. The sympathetic nervous system is responsible for reacting to stressful events and bodily arousal.*

- d) parasympathetic nervous system

*Correct. The parasympathetic nervous system restores the body to normal functioning after arousal.*

**ANS: d, p. 60-61, F, LO=2.4 (1)**

**% correct 66 a= 2 b= 9 c= 23 d= 66 r = .37**

APA: LO 1.2

99. Malcolm is studying alone in his room late at night when he hears a loud noise downstairs. His heartbeat increases significantly and his breathing becomes shallow. He wonders if a burglar has entered the house and decides to investigate. When he gets downstairs he discovers his cat has knocked over a plant stand. His body begins to relax and return to normal. Which part of his nervous system is responsible for returning Malcolm to a normal state?

- a) spinal cord  
b) somatic nervous system  
c) sympathetic nervous system

*Incorrect. The sympathetic nervous system mobilizes the body in times of stress.*

- d) parasympathetic nervous system

*Correct. The parasympathetic nervous system restores the body to normal functioning after arousal.*

**ANS: d, p. 60-61, A, LO=2.4, (2)**

APA: LO 1.2

### **Distant Connections: The Endocrine Glands**

**Learning Objective 2.5** - How do the hormones released by glands interact with the nervous system and affect behavior?

100. Hormones are chemicals that are secreted and go directly into \_\_\_\_\_.

- a) the bloodstream

*Correct. Hormones are secreted by endocrine glands and go into the bloodstream.*

- b) specific organs  
c) nerve endings  
d) the brain

*Incorrect. Hormones go directly into the bloodstream.*

**ANS: a, p. 62, F, LO=2.5, (1)**

**% correct 59 a= 59 b= 12 c= 8 d= 21 r = .42**

APA: LO 1.2

101. Endocrine glands\_\_\_\_\_.

- a) secrete hormones directly into the bloodstream

*Correct. Endocrine glands do secrete hormones.*

- b) are chemicals released into the bloodstream

*Incorrect. Glands are not chemicals; they are organs that secrete chemicals.*

- c) are an extensive network of specialized cells  
d) are a thin layer of cells coating the axons

**ANS: a, p. 62, F, LO=2.5, (1)**

**% correct 91 a= 91 b= 5 c= 2 d= 2 r = .56**

APA: LO 1.2

102. Hormones are\_\_\_\_\_.

- a) the female gonads
- b) chemicals released into the bloodstream by the endocrine glands

*Correct. This is the definition of hormones.*

- c) chemicals found in the synaptic vesicles, which when released have an effect on the next cell

*Incorrect. This is the definition of neurotransmitters, not hormones.*

- d) the male gonads

**ANS: b, p. 62, F, LO=2.5, (1)**

APA: LO 1.2

103. Which endocrine gland controls all of the other endocrine glands?

- a) thyroid

*Incorrect. The thyroid gland does not control other endocrine glands.*

- b) adrenal

- c) thymus

- d) pituitary

*Correct. The pituitary gland controls all other endocrine glands.*

**ANS: d, p. 63, F, LO=2.5, (1)**

APA: LO 1.2

104. The idea that the pituitary gland is the “master gland”:

- a) is completely accurate and appropriate.

*Incorrect. The pituitary gland is controlled by the hypothalamus, so to suggest that calling it the master gland is completely accurate is something of a misnomer.*

- b) is completely inaccurate since it doesn't control any other glands or related structures.

- c) is true; yet, it is still controlled by the brain.

*Correct. The pituitary gland can be thought of as the master of the endocrine system, but it is still controlled by the hypothalamus in the brain.*

- d) is a matter of debate since many other researchers refer to the adrenal gland as the “master gland.”

**ANS: C, p. 63, C, LO=2.5, (2)**

APA: LO 1.2

105. The hormone released by the pineal gland that reduces body temperature and prepares you for sleep is \_\_\_\_\_.

- a) melatonin

*Correct. The pineal gland secretes melatonin.*

- b) DHEA

- c) parathormone

- d) thyroxin

*Incorrect. The thyroid secretes thyroxin, which regulates metabolism.*

**ANS: a, p. 63, F, LO=2.5, (1) SG**

APA: LO 1.2

106. Tim is overweight. His physician has decided to test him to see if there is a problem with the regulation of his metabolism. Which endocrine gland will be the focus of diagnostic testing?

- a) adrenal

*Incorrect. The adrenal glands have nothing to do with metabolism. They secrete sex hormones and hormones that regulate salt intake.*

- b) thymus

- c) thyroid

*Correct. The thyroid gland regulates metabolism.*

- d) pancreas

**ANS: c, p. 63, A, LO=2.5, (3)**

APA: LO 1.2

107. Denise just received the results of a complete physical that found her body is not producing enough insulin. Which of the following endocrine glands is affecting her body's ability to produce insulin?

a) adrenal

*Incorrect. The adrenal glands have nothing to do with insulin. They secrete sex hormones and hormones that regulate salt intake.*

b) thymus

c) thyroid

d) pancreas

*Correct. The pancreas controls the level of blood sugar in the body.*

**ANS: d, p. 63, A, LO=2.5, (3)**

APA: LO 1.2

108. The sex glands, which secrete hormones that regulate sexual development and behavior as well as reproduction, are called \_\_\_\_\_.

a) the pancreas

b) the gonads

*Correct. Gonads are sex glands.*

c) cortisol

*Incorrect. Cortisol is a hormone that is released when the body experiences stress.*

d) the hypothalamus

**ANS: b, p. 64, F, LO=2.5, (1)**

**% correct 87 a= 1 b= 87 c= 3 d= 9 r = .50**

APA: LO 1.2

109. The \_\_\_\_\_, located on the top of the kidneys, secrete(s) hormones that regulate salt intake, control stress reactions, and provide a secondary source of sex hormones affecting the sexual changes that occur during adolescence.

a) adrenal glands

*Correct. The adrenal glands secrete sex hormones and hormones that regulate salt intake.*

b) thymus gland

c) thyroid gland

d) gonads

*Incorrect. The gonads only secrete sex hormones.*

**ANS: a, p. 64, F, LO=2.5, (1)**

APA: LO 1.2

110. Joe is very anxious over an upcoming exam. Consequently, his adrenal glands will probably produce \_\_\_\_\_.

a) more testosterone

b) less estrogen

*Incorrect. Nothing about Joseph circumstance would result in a change in production of estrogen.*

c) more cortisol

*Correct. Stressful or tense situations cause the HPA axis to produce more cortisol in the adrenal glands.*

d) less cortisol

**ANS: C, p. 64, A, LO=2.5, (2)**

APA: LO 1.2

### **Learning Objective 2.6 - How do psychologists study the brain and how it works?**

111. Insertion into the brain of a thin insulated wire through which is sent an electrical current that destroys the brain cells at the tip of the wire is called \_\_\_\_\_.

a) deep lesioning

*Correct. Deep lesioning destroys brain cells.*

b) ESB

*Incorrect. ESB stimulates brain cells.*

c) EEG

d) CT scanning



**ANS: a, p. 65, F, LO=2.6, (1)**

APA: LO 1.2

112. Sometimes in order to study parts of an animal's brain, researchers may deliberately damage a part of the brain. They accomplish this by placing into the brain a thin insulated wire through which they send an electrical current that destroys the brain cells at the tip of the wire. This technique is called \_\_\_\_\_.

- a) deep lesioning

*Correct. Deep lesioning destroys brain cells.*

- b) ESB

*Incorrect. ESB stimulates brain cells.*

- c) EEG

- d) CT scan

**ANS: a, p. 65, C, LO=2.6, (2)**

APA: LO 1.2

113. Insertion into the brain of a thin insulated wire through which is sent an electrical current that stimulates the brain cells at the tip of the wire is called \_\_\_\_\_.

- a) deep lesioning

*Incorrect. Deep lesioning destroys brain cells.*

- b) ESB

*Correct. ESB stimulates brain cells.*

- c) EEG

- d) CT scan

**ANS: b, p. 66, F, LO=2.6, (1)**

APA: LO 1.2

114. A brain-imaging method that takes computer-controlled X-rays of the brain is called \_\_\_\_\_.

- a) electroencephalography (EEG)

- b) magnetic resonance imaging (MRI)

*Incorrect. MRI is a brain-imaging method using radio waves and magnetic fields of the body.*

- c) positron emission tomography (PET)

- d) computed tomography (CT)

*Correct. CT scans take computer-controlled X-rays of the brain.*

**ANS: d, p. 67, F, LO=2.6 (1)**

**% correct 30 a= 16 b= 42 c= 11 d= 30 r = .30**

APA: LO 1.2

115. Ali is in the hospital about to undergo a brain-imaging process that involves taking many X-rays from different angles aided by the use of a computer. What type of imaging technique is being used?

- a) electroencephalography (EEG)

- b) magnetic resonance imaging (MRI)

*Incorrect. MRI is a brain-imaging method using radio waves and magnetic fields of the body.*

- c) positron-emission tomography (PET)

- d) computed tomography (CT)

*Correct. CT scans take computer-controlled X-rays of the brain.*

**ANS: d, p. 67, A, LO=2.6, (2)**

**% correct 37 a= 18 b= 42 c= 4 d= 37 r = .30**

APA: LO 1.2

116. A brain-imaging method using radio waves and magnetic fields of the body to produce detailed images of the brain is called \_\_\_\_\_.

- a) electroencephalography (EEG)

- b) magnetic resonance imaging (MRI)

*Correct. MRI is a brain-imaging method using radio waves and magnetic fields of the body.*

- c) positron emission tomography (PET)

- d) computed tomography (CT)

*Incorrect. CT scans use X-rays.*

**ANS: b, p. 67, F, LO=2.6, (1)**

**% correct 64** a= 19 b= 64 c= 7 d= 10 r = .20

**% correct 81** a= 17 b= 81 c= 0 d= 2 r = .29

APA: LO 1.2

117. Rashad is in the hospital and is about to undergo a brain-imaging process that involves placing him inside a magnetic field so that a computer can create three-dimensional images of his brain. What procedure is he about to undergo?

- a) electroencephalography (EEG)
- b) magnetic resonance imaging (MRI)

*Correct. MRI is a brain-imaging method using radio waves and magnetic fields of the body.*

- c) computed tomography (CT)

*Incorrect. CT scans use X-rays.*

- d) positron emission tomography (PET)

**ANS: b, p. 67, A, LO=2.6, (2)**

**% correct 93** a= 4 b= 93 c= 0 d= 4 r = .29

APA: LO 1.2

118. Electroencephalograph is to electroencephalogram as \_\_\_\_\_.

- a) recording is to machine

*Incorrect. This would be the opposite of the correct answer.*

- b) machine is to tracing

*Correct. Electroencephalograph is a machine. That machine produces a tracing called an electroencephalogram.*

- c) brain is to wave

- d) sleep is to awake

**ANS: B, p. 67, C, LO=2.6, (3)**

APA: LO 1.2

119. Small metal disks are pasted onto Miranda's scalp and they are connected by wire to a machine that translates the electrical energy from her brain into wavy lines on a moving piece of paper. From this description, it is evident that Miranda's brain is being studied through the use of \_\_\_\_\_.

- a) a CT scan

*Incorrect. CT scans take computer-controlled X-rays of the brain.*

- b) functional magnetic resonance imaging

- c) a microelectrode

- d) an electroencephalogram

*Correct. Electroencephalograms record brain wave patterns.*

**ANS: d, p. 67, A, LO=2.6, (2) SG**

**% correct 81** a= 10 b= 5 c= 4 d= 81 r = .35

APA: LO 1.2

120. Which of the following is a machine designed to record the brain wave patterns produced by electrical activity of the surface of the brain?

- a) deep lesioning

- b) ESB

*Incorrect. ESB is insertion of a thin insulated wire into the brain.*

- c) EEG

*Correct. EEG records brain wave patterns.*

- d) CT scan

**ANS: c, p. 67, F, LO=2.6, (1)**

**% correct 54** a= 0 b= 11 c= 54 d= 35 r = .29

**% correct 79** a= 2 b= 7 c= 79 d= 15 r = .38

APA: LO 1.2

121. Which equipment is used to monitor brain waves?

- a) CT scans

*Incorrect. A CT scan is a brain-imaging method.*

- b) functional magnetic resonance imaging

- c) microelectrode

d) electroencephalogram

*Correct. Electroencephalograms monitor brain waves.*

**ANS: d, p. 67, F, LO=2.6, (1)**

**% correct 31 a= 27 b= 19 c= 22 d= 31 r = .37**

APA: LO 1.2

122. If Mindy's doctor has taken a series of images of her brain using X-rays, then she has likely had a(n) \_\_\_\_\_.

a) EEG

*Incorrect. An electroencephalogram is a graphical representation of the electrical activity in the brain.*

b) MRI

c) CT

*Correct. CT scans use x-rays to create such images.*

d) PET

**ANS: C, p. 67, A, LO=2.6, (3)**

APA: LO 1.2

123. A brain-imaging method called \_\_\_\_\_ takes advantage of the magnetic properties of different atoms to take sharp, three-dimensional images of the brain.

a) electroencephalography (EEG)

b) magnetic resonance imaging (MRI)

*Correct. MRI is a brain-imaging method using radio waves and magnetic fields of the body.*

c) positron emission magnetography (PEM)

d) computed tomography (CT)

*Incorrect. CT scans use X-rays.*

**ANS: B, p. 67, C, LO=2.6, (1)**

APA: LO 1.2

124. Which of the following is a brain-imaging method in which radioactive sugar is injected into the subject and a computer compiles a color-coded image of the activity of the brain?

a) electroencephalography (EEG)

b) computed tomography (CT)

c) positron emission tomography (PET)

*Correct. PET scan provides a color-coded image of the activity of the brain.*

d) functional magnetic resonance imaging (fMRI)

*Incorrect. fMRI does not involve radioactive sugar.*

**ANS: c, p. 68, F, LO=2.6, (1)**

**% correct 48 a= 25 b= 12 c= 48 d= 13 r = .37**

APA: LO 1.2

125. Libby's physician refers her to a medical center in order to have the biochemical activity in her brain analyzed. She is given an injection of a radioactive glucose-like substance and then is told to lie down with her head in a scanner. The technique being used is \_\_\_\_\_.

a) positron emission tomography

*Correct. PET involves injecting a radioactive glucose into the patient.*

b) functional magnetic resonance imaging

*Incorrect. fMRI does not involve injecting the patient with glucose.*

c) microelectrode recording.

d) an electroencephalogram

**ANS: a, p. 68, A, LO=2.6, (2)**

APA: LO 1.2

126. A researcher wants to obtain a "movie" of changes in the activity of the brain using images from different time periods. Which of these would be the best choice for this researcher?

a) electroencephalography (EEG)

b) computed tomography (CT)

c) positron emission tomography (PET)

*Incorrect. PET provides a color-coded image of the activity of the brain, not moving images of the brain.*

d) functional magnetic resonance imaging (fMRI)

*Correct. fMRI takes MRI images and combines them into a moving image of the brain.*

**ANS: d, p. 69, A, LO=2.6, (2)**

**% correct 40 a= 25 b= 18 c= 15 d= 40 r = .20**

APA: LO 1.2

127. Marika needs to have a neuroimaging test that will track the activity of her brain, along with changes in her brain oxygen levels. Which of the following offers an alternative to PET scans, with the advantage of using radioactive tracers that are easier to monitor?

- a) electroencephalography (EEG)
- b) computed tomography (CT)
- c) functional positron emission tomography (fPET)

*Incorrect. There is no neuroimaging technique called fPET*

- d) single photo emission computed tomography (SPECT)

*Correct. SPECT offers this stated benefit over PET scans.*

**ANS: d, p. 68, A, LO=2.6, (2)**

**% correct 43 a= 31 b= 11 c= 14 d= 43 r = .24**

APA: LO 1.2

128. Which of the following is the primary benefit of SPECT over PET?

- a) SPECT is a non-invasive neuroimaging technique, while PET is invasive.
- b) SPECT offers the benefit of using radioactive tracers that are easier to monitor than PET.

*Correct. SPECT allows the use of tracers that can be more easily tracked than PET scans.*

- c) SPECT allows monitoring of actual brain activity, while PET does not.
- d) SPECT offers monitoring of brain oxygen changes, while PET does not.

*Incorrect. Both PET and SPECT can track changes in brain oxygenation levels.*

**ANS: b, p. 68, C, LO=2.6, (2)**

APA: LO 1.2

### **From the Bottom Up: The Structures of the Brain**

**Learning Objective 2.7 - What are the different structures of the bottom part of the brain and what do they do?**

129. The \_\_\_\_\_ is a structure in the brain stem responsible for life-sustaining functions, such as breathing and heart rate.

- a) reticular activating system
- b) pons

*Incorrect. The pons plays a role in sleep, dreaming, left–right body coordination, and arousal.*

- c) medulla

*Correct. The medulla is responsible for life-sustaining functions.*

- d) cerebellum

**ANS: c, pp. 69-70, F, LO=2.7, (1)**

**% correct 59 a= 3 b= 19 c= 59 d= 18 r = .27**

**% correct 60 a= 3 b= 14 c= 60 d= 22 r = .22**

APA: LO 1.2

130. An auto accident rendered Chris's nervous system unable to send messages for him to breathe, so he is on a respirator. Which brain structure was damaged in the accident?

- a) pons

*Incorrect. The pons plays a role in sleep, dreaming, left–right body coordination, and arousal.*

- b) medulla

*Correct. The medulla is responsible for breathing.*

- c) cerebellum

- d) reticular formation

**ANS: b, pp. 69-70, A, LO=2.7, (3)**

**% correct 48 a= 10 b= 48 c= 37 d= 5 r = .22**

APA: LO 1.2

131. The brain is divided into several different structures on the bottom part of the brain referred to as the

“hindbrain.” Which of the parts of the brain listed below is NOT located in the hindbrain?

- a) medulla
- b) pons
- c) cerebellum

*Incorrect. This part of the brain is in the hindbrain.*

- d) thalamus

*Correct. This part of the brain is in the forebrain.*

**ANS: d, pp. 69-70, F, LO=2.7, (3)**

APA: LO 1.2

132. The point at which the nerves from the left side of the body cross over into the right side of the brain, and vice versa, is the \_\_\_\_\_.

- a) reticular activating system
- b) pons

*Incorrect. The pons connects the top of the brain to the bottom.*

- c) medulla

*Correct. This is the point where nerves cross over.*

- d) cerebellum

**ANS: c, p. 69-70, F, LO=2.7, (2)**

APA: LO 1.2

133. The \_\_\_\_\_ is a structure in the brain stem that plays a role in sleep, dreaming, left–right body coordination, and arousal.

- a) reticular activating system
- b) pons

*Correct. The pons plays a role in sleep, dreaming, left–right body coordination, and arousal.*

- c) medulla

*Incorrect. The medulla is responsible for life-sustaining functions but does not play a role in sleep, dreaming, and arousal.*

- d) cerebellum

**ANS: b, p. 69-70, F, LO=2.7, (1)**

APA: LO 1.2

134. A college student is having difficulty staying awake during the day and sleeping through the night. Her difficulties are MOST likely due to problems in the \_\_\_\_\_.

- a) hippocampus

*Incorrect. The hippocampus is responsible for the formation of long-term memory and does not play a role in keeping people awake and alert.*

- b) pons

*Correct. The pons plays a role in sleep, dreaming, and arousal.*

- c) medulla

- d) cerebellum

**ANS: b, p. 69-70, A, LO=2.7, (3)**

**% correct 44 a= 15 b=44 c= 25 d= 16 r = .22**

**% correct 41 a= 31 b= 41 c= 12 d= 16 r = .47**

APA: LO 1.2

135. Which of the following is responsible for the ability to selectively attend to certain kinds of information in one’s surroundings and become alert to changes?

- a) reticular formation

*Correct. The reticular formation plays a role in selective attention.*

- b) pons

*Incorrect. The pons plays a role in sleep, dreaming, and arousal but not in selective attention.*

- c) medulla

- d) cerebellum

**ANS: a, p. 69-70, F, LO=2.7, (1)**

APA: LO 1.2

136. What is the main function of the reticular formation?

- a) to control thinking
- b) to regulate emotions
- c) to control levels of alertness

*Correct. The reticular formation controls levels of alertness.*

- d) to coordinate involuntary rapid fine-motor movements.

*Incorrect. This is the role of the cerebellum.*

**ANS: c, p. 69-70, F, LO=2.7, (1)**

**% correct 37 a= 3 b= 30 c= 37 d= 30 r = .20**

APA: LO 1.2

137. Alice is typing her term paper in the computer lab. Although a class is going on just a few feet away, she does not seem to notice. Which part of the brain allows Alice to focus on her typing and ignore the distractions that surround her?

- a) reticular formation

*Correct. The reticular formation is responsible for selective attention.*

- b) pons

*Incorrect. The pons plays a role in sleep, dreaming, and arousal but not in selective attention.*

- c) medulla

- d) cerebellum

**ANS: a, p. 69-70, A, LO=2.7, (2)**

APA: LO 1.2

138. The cerebellum \_\_\_\_\_.

- a) controls blood pressure
- b) is involved in emotional behavior
- c) coordinates involuntary rapid fine-motor movement

*Correct. The cerebellum does coordinate involuntary rapid fine-motor movement.*

- d) relays messages from the sensory receptors

*Incorrect. The cerebellum coordinates involuntary rapid fine-motor movement.*

**ANS: c p. 69-70, F, LO=2.7, (1)**

**% correct 65 a= 4 b= 14 c= 65 d= 17 r = .25**

APA: LO 1.2

139. Which of the following coordinates involuntary rapid fine-motor movement?

- a) medulla
- b) pons
- c) reticular formation

*Incorrect. The reticular formation is not involved in movement.*

- d) cerebellum

*Correct. The cerebellum coordinates involuntary rapid fine-motor movement.*

**ANS: d, p. 69-70 F, LO=2.7, (1)**

APA: LO 1.2

140. Damage to the cerebellum is likely to disrupt which of the following?

- a) playing basketball

*Correct. The cerebellum coordinates movements that have to happen in rapid succession.*

- b) sleeping

*Incorrect. The pons plays a role in sleep and dreaming, not in movement.*

- c) homeostasis

- d) thinking

**ANS: a, p. 69-70, A, LO=2.7, (3)**

APA: LO 1.2

141. Since Jessica suffered a head injury in a car accident 3 months ago, she has not experienced dreams as she had in the past. She used to dream vivid, active dreams. Which part of her brain most likely was affected during the car accident which is related to her problem dreaming?

- a) pons

*Correct. The pons have been shown to influence sleep and dreaming as well as arousal.*

- b) cerebellum
- c) cerebral cortex
- d) pituitary gland

*Incorrect. The correct answer is the pons.*

**ANS: a, p. 69-70, A, LO=2.7, (2)**

**% correct 46 a= 46 b= 22 c=32 d= 1 r = .40**

APA: LO 1.2

142. Katie has grown up sleeping with a fan running in her room since she was an infant. This provides white noise to drown out the television programs being watched by other family members who were still awake. In an effort to save electricity, her mother has started coming into her room and turning her fan off after she thinks Katie is asleep. However, each time Katie wakes up and asks for the fan to be turned back on. Katie is selectively attending to certain kinds of information in her surroundings has been linked to the \_\_\_\_\_ part of the brain.

- a) reticular formation

*Correct. Research has shown that the RF in the brain would be sensitive to this difference in the environment.*

- b) pons
- c) cerebellum
- d) medulla

*Incorrect. The correct answer is the reticular formation*

**ANS: a, p. 69-70, A, LO=2.7, (2)**

APA: LO 1.2

143. Jennifer has been diagnosed with spinocerebellar degeneration. The first stage of the disease involve tremors and unsteady gate. In the later stages, she will be unable to stand, walk, and will be uncoordinated in her movements. This disease affects the \_\_\_\_\_ part of the brain.

- a) hippocampus
- b) amygdala
- c) cerebellum

*Correct. This is the part of the brain which is affected by this disease.*

- d) cerebral cortex

*Incorrect. This is not the part of the brain that is effected.*

**ANS: c, pp. 70-71, A, LO=2.7, (2)**

APA: LO 1.2

144. Tracey has been unable to participate in her gymnastics class and is very uncoordinated since she was involved in an accident where she suffered a head injury. As a result of the accident, she was likely to have suffered damage to her \_\_\_\_\_.

- a) cerebellum

*Correct. This part of the brain controls coordination and balance.*

- b) medulla
- c) cerebral cortex
- d) hypothalamus

*Incorrect. This is not the correct part of the brain that controls these functions.*

**ANS: a, pp. 70-71, A, LO=2.7, (2)**

APA: LO 1.2

145. If a person is described as “punch-drunk,” then it is quite likely that he or she is \_\_\_\_\_.

- a) suffering the effects of chronic alcohol consumption
- b) delirious due to addiction furthered by the nucleus accumbens
- c) suffering from sleep deprivation due to damage to the pons

*Incorrect. As your authors point out, the term punchdrunk often refers to somebody who has received serious and repeated head trauma resulting in damage to the cerebellum.*

- d) an aging prizefighter with damage to the cerebellum.

*Correct. Repeated trauma to the brain can cause damage to the cerebellum, which will result in difficulties with motor coordination or balance.*

**ANS: D, pp. 70-71, A, LO=2.7, (1)**

APA: LO 1.2

146. If your \_\_\_\_\_ was damaged, you might walk oddly and have trouble standing normally.

- a) pons
- b) medulla

*Incorrect. The tool is responsible for life-sustaining functions like respiration and circulation.*

- c) cerebellum

*Correct. The cerebellum is responsible for balance and fine motor coordination.*

- d) amygdala

**ANS: C, pp. 70-71, A, LO=2.7, (2)**

APA: LO 1.2

**Learning Objective 2.8** - What are the structures of the brain that control emotion, learning, memory, and motivation?

147. Which of the following is a group of several brain structures located under the cortex and involved in learning, emotion, memory, and motivation?

- a) limbic system

*Correct. This structure is involved in learning, memory, emotion, and motivation.*

- b) cerebellum
- c) cerebral cortex
- d) cerebrum

*Incorrect. The cerebrum consists of the cerebral hemispheres and connecting structures.*

**ANS: a, p. 71, F, LO=2.8, (1)**

**% correct 54 a= 54 b= 14 c= 20 d= 12 r = .29**

**% correct 50 a= 50 b= 21 c= 22 d= 7 r = .44**

APA: LO 1.2

148. The structures of the limbic system play an important role in \_\_\_\_\_ and \_\_\_\_\_.

- a) heart rate; breathing
- b) breathing; decision making
- c) memory; emotion

*Correct. These structures play a role in memory and emotion.*

- d) spatial tasks; sequential tasks

*Incorrect. The limbic system does not play an important role in these tasks.*

**ANS: c, p. 71 F, LO=2.8, (1)**

**% correct 58 a= 28 b= 5 c= 58 d= 8 r = .30**

**% correct 44 a= 26 b= 22 c=44 d= 7 r = .40**

APA: LO 1.2

149. What part of the brain acts as a relay station for incoming sensory information?

- a) hypothalamus

*Incorrect. The hypothalamus regulates sleep, hunger, thirst, and sex.*

- b) thalamus

*Correct. The thalamus acts as a relay station.*

- c) cerebellum

- d) pituitary gland

**ANS: b, p. 71, F, LO=2.8, (1)**

**% correct 48 a= 19 b= 48 c= 25 d= 8 r = .53**

**% correct 48 a= 22 b= 48 c= 22 d= 8 r = .48**

APA: LO 1.2

150. Signals from the neurons of which sense are not sent to the cortex by the thalamus?

- a) hearing
- b) smell

*Correct. Signals from the neurons of the sense of smell go directly into special parts of the brain called olfactory bulbs that are the structures responsible for smell.*

- c) taste



*Incorrect. Signals from the neurons involved in taste are sent to the cortex by the thalamus.*

d) vision

**ANS: b, p. 72, F, LO=2.8, (2)**

APA: LO 1.2

151. The thalamus could be thought of as being analogous to a(n) \_\_\_\_\_.

a) airline hub

*Correct. If you think of an airline hub as being the place where planes go before they depart for their final destination, you will see the analogy to the thalamus.*

b) speedway

c) police station

d) bus stop

*Incorrect. This analogy does not work, because all people at the bus stop get on the same bus that goes to the same place. The thalamus routes sensory information to the correct part of the cerebrum for processing.*

**ANS: A, p. 71, C, LO=2.8, (2)**

APA: LO 1.2

152. The thalamus is often compared to a(n) \_\_\_\_\_.

a) triage nurse

*Correct. As your authors note, the thalamus is often compared with a triage nurse because it routes sensory information to different parts of the cerebral cortex.*

b) fast food menu

*Incorrect. There is really nothing about this answer that could be considered correct.*

c) stop sign

d) bus stop

**ANS: A, p. 71, C, LO=2.8, (2)**

APA: LO 1.2

153. Jerry loves the smell of the grass after it rains. This is a result of his \_\_\_\_\_ which have received signals from neurons in his sinus cavity.

a) thalamus

b) olfactory bulbs

*Correct. This is the part of the brain that is related to the sense of smell.*

c) opticfactory Bulbs

d) hippocampus

*Incorrect. The correct answer is the olfactory bulbs.*

**ANS: b, p. 72, A, LO=2.8, (1)**

**% correct 75 a= 14 b= 75 c= 0 d= 12 r = .43**

APA: LO 1.2

154. Which part of the brain is very small but extremely powerful and controls the pituitary gland?

a) hippocampus

b) thalamus

*Incorrect. The thalamus acts as a relay station for incoming sensory information.*

c) hypothalamus

*Correct. The hypothalamus is very small but extremely powerful and controls the pituitary gland.*

d) amygdala

**ANS: c, p. 72, F, LO=2.8, (2)**

APA: LO 1.2

155. Eating, drinking, sexual behavior, sleeping, and temperature control are most strongly influenced by the \_\_\_\_\_.

a) hippocampus

b) thalamus

*Incorrect. The thalamus acts as a relay station for incoming sensory information and is not involved in eating, drinking, sexual behavior, sleeping, and temperature control.*

c) hypothalamus

*Correct. The hypothalamus regulates sleep, hunger, thirst, and sex.*

d) amygdala

**ANS: c, p. 72, F, LO=2.8, (2) SG**

**% correct 50 a= 12 b= 24 c= 50 d= 14 r = .21**

**% correct 59 a= 8 b= 11 c= 59 d= 22 r = .32**

APA: LO 1.2

156. Which of the following is a likely effect of damage to the hypothalamus?

- a) reduced use of left arm
- b) deregulation of hormones

*Correct. The hypothalamus regulates the pituitary gland and, therefore, damage can result in the deregulation of hormones.*

- c) development of aphasia

*Incorrect. Damage to Broca's and Wernicke's area plays a role in the development of aphasia.*

- d) reduced ability to reason

**ANS: b, p. 72, C, LO=2.8, (2)**

APA: LO 1.2

157. The \_\_\_\_\_ is the part of the brain responsible for the formation of long-term memories.

- a) hippocampus

*Correct. The hippocampus is responsible for the formation of long-term memories.*

- b) hypothalamus

*Incorrect. The hypothalamus regulates sleep, hunger, thirst, and sex and is not involved in memory.*

- c) fornix
- d) amygdala

**ANS: a, p. 72, F, LO=2.8, (1)**

**% correct 59 a= 59 b= 19 c= 0 d= 22 r = .45**

APA: LO 1.2

158. If you have a problem remembering things that happened a year ago, doctors might check for damage to the \_\_\_\_\_ area of the brain.

- a) hippocampus

*Correct. The hippocampus is responsible for the formation of long-term memories.*

- b) hypothalamus

*Incorrect. The hypothalamus regulates sleep, hunger, thirst, and sex, but not memory.*

- c) fornix
- d) amygdala

**ANS: a, p. 72, A, LO=2.8, (2)**

APA: LO 1.2

159. The \_\_\_\_\_ is located within the temporal lobe on each side of the brain and if electrically stimulated it may produce dream-like or memory-like experiences.

- a) thalamus
- b) amygdala

*Incorrect. The Hippocampus produces this result.*

- c) hypothalamus
- d) hippocampus

*Correct. This part of the brain produces this result.*

**ANS: d, p. 72, F, LO=2.8, (2)**

APA: LO 1.2

160. People suffering from Alzheimer's disease have much lower levels of acetylcholine in the \_\_\_\_\_.

- a) hippocampus

*Correct. Acetylcholine is involved in the memory function of the hippocampus.*

- b) hypothalamus

*Incorrect. The hypothalamus regulates sleep, hunger, thirst, and sex, but not memory.*

- c) fornix
- d) amygdala

**ANS: a, p. 72, F, LO=2.8, (3)**

APA: LO 1.2

161. Which of the following brain structures is located near the hippocampus and is responsible for fear responses and memory of fear?

- a) hippocampus
- b) hypothalamus

*Incorrect. The hypothalamus regulates sleep, hunger, thirst, and sex, not fear responses.*

- c) fornix
- d) amygdala

*Correct. The amygdala is responsible for fear responses and memory of fear.*

**ANS: d, p. 72 F, LO=2.8, (1)**

**% correct 37 a= 3 b= 51 c= 8 d= 37 r = .29**

APA: LO 1.2

162. Rats that have a damaged \_\_\_\_\_ will show no fear when placed next to a cat.

- a) hippocampus
- b) hypothalamus

*Incorrect. The hypothalamus regulates sleep, hunger, thirst, and sex, not fear responses.*

- c) fornix
- d) amygdala

*Correct. The amygdala is responsible for fear responses and memory of fear.*

**ANS: d, p. 72, C, LO=2.8, (3)**

**% correct 49 a= 27 b= 23 c= 1 d= 49 r = .52**

APA: LO 1.2

163. Stan has been extremely afraid of cats since he was scratched as a 5-year-old. Whenever he sees a cat, he remembers the time he was scratched across his face and starts to feel afraid. If a cat comes towards him, he often runs away immediately as he is afraid of being scratched again. Stan's behaviors and recollection of this trauma is a result of the \_\_\_\_\_ in the limbic system.

- a) hippocampus
- b) thalamus
- c) amygdala

*Correct. This is the part of the brain which controls many fear responses and memories.*

- d) medulla

*Incorrect. The correct answer is the Amygdala*

**ANS: c, p. 72, A, LO=2.8, (3)**

APA: LO 1.2

164. As Joe walks to his car late at night, he hears footsteps behind him. Feeling afraid, Joe grips his keys and quickens his pace. It is likely that Joe's \_\_\_\_\_ has been activated

- a) hypothalamus

*Incorrect. The hypothalamus would be responsible for activating the fight or flight system, but only after the amygdala interpreted a fearful or threatening response.*

- b) hippocampus
- c) amygdala

*Correct. The amygdala processes the emotions of anger and fear.*

- d) cerebellum

**ANS: C, p. 72, A, LO=2.8, (2)**

APA: LO 1.2

165. The outermost part of the brain that is made up of tightly packed neurons and is only a tenth of an inch thick is called the \_\_\_\_\_.

- a) amygdala
- b) medulla
- c) cerebellum

*Incorrect. The cerebellum is not the outermost part of the brain.*

- d) cortex

*Correct. The outermost part of the brain is called the cortex.*

**ANS: d, p. 73, F, LO=2.8, (1)**

APA: LO 1.2

**Learning Objective 2.9** - What parts of the cortex control the different senses and the movement of the body?

166. The cortex is divided into two sections referred to as \_\_\_\_\_.

- a) cerebral hemispheres

*Correct. The two sections of the cortex are called cerebral hemispheres.*

- b) cerebellums

*Incorrect. The cerebellum is not a section of the cortex.*

- c) corpus callosums

- d) neurotransmitters

**ANS: a, p. 74, F, LO=2.9, (1)**

**% correct 91 a= 91 b= 3 c= 5 d= 0 r = .29**

APA: LO 1.2

167. The thick band of neurons that connects the right and left cerebral hemispheres is called the \_\_\_\_\_.

- a) cortex

*Incorrect. The cortex is the outermost part of the brain.*

- b) cerebrum

- c) corpus callosum

*Correct. The corpus callosum connects the right and left cerebral hemispheres.*

- d) cerebellum

**ANS: c, p. 74, F, LO=2.9, (1)**

**% correct 90 a= 3 b= 1 c= 90 d= 5 r = .51**

**% correct 81 a=0 b= 4 c= 81 d= 15 r = .54**

APA: LO 1.2

168. Which of the following is the section of the brain located at the rear and bottom of each cerebral hemisphere and contains the visual centers of the brain?

- a) occipital lobe

*Correct. The occipital lobes contain the visual centers of the brain.*

- b) parietal lobe

*Incorrect. The parietal lobe contains the somatosensory cortex, not the visual centers.*

- c) temporal lobe

- d) frontal lobe

**ANS: a, p. 74-75, F, LO=2.9, (1)**

APA: LO 1.2

169. After a head injury a person reports that she is unable to see, although her eyes are uninjured. A doctor would suspect an injury in the \_\_\_\_\_ lobe.

- a) occipital

*Correct. The occipital lobes contain the visual centers of the brain.*

- b) parietal

*Incorrect. The parietal lobes contain the somatosensory cortex, not the visual centers.*

- c) temporal

- d) frontal

**ANS: a, p. 74-75, A, LO=2.9, (2)**

APA: LO 1.2

170. Which of the following regions contains the primary visual cortex?

- a) occipital lobe

*Correct. The occipital lobes contain the primary visual cortex.*

- b) parietal lobe

*Incorrect. The parietal lobes contain the somatosensory cortex, not the primary visual cortex.*

- c) temporal lobe

d) frontal lobe

**ANS: a, p. 74-75, F, LO=2.9, (1)**

**% correct 82 a= 82 b= 4 c= 14 d= 0 r = .47**

APA: LO 1.2

171. The part of the occipital lobe that is responsible for receiving visual information from the eyes is called the \_\_\_\_\_.

a) primary visual cortex

*Correct. The occipital lobes contain the primary visual cortex.*

b) somatosensory cortex

*Incorrect. The parietal lobes contain the somatosensory cortex.*

c) temporal lobe

d) frontal lobe

**ANS: a, p. 75, F, LO=2.9, (1)**

**% correct 74 a= 74 b= 18 c= 8 d= 3 r = .30**

**% correct 79 a= 79 b= 14 c= 5 d= 2 r = .36**

APA: LO 1.2

172. The section of the brain responsible for interpreting the visual information in the primary visual cortex is called the \_\_\_\_\_.

a) visual association cortex

*Correct. This part of the brain is responsible for interpreting visual information.*

b) somatosensory cortex

*Incorrect. The somatosensory cortex processes information from the skin and internal body receptors for touch, temperature, and body position, not visual information.*

c) temporal lobe

d) frontal lobe

**ANS: a, p. 75, F, LO=2.9, (1)**

APA: LO 1.2

173. Damage to the \_\_\_\_\_ would result in an inability to identify and comprehend what is seen through the eyes.

a) visual association cortex

*Correct. This part of the brain is responsible for interpreting visual information.*

b) primary visual cortex

*Incorrect. The primary visual cortex receives visual information from the eyes but does not interpret it.*

c) temporal lobe

d) frontal lobe

**ANS: a, p. 75, C, LO=2.9, (3)**

**% correct 20 a= 20 b= 26 c= 36 d= 19 r = .30**

APA: LO 1.2

174. Suzie Q. was rollerblading when a cat jumped right in front of her causing her to fall. She landed on the back of her head at which point she saw "stars." Which lobe would have been most affected by this fall given what she saw?

a) frontal

b) temporal

*Incorrect. The temporal lobe is not involved in visual processing, so it would not be the best answer to this question.*

c) parietal

d) occipital

*Correct. If Susie is having an artificial visual experience, it is due to trauma to her occipital lobe.*

**ANS: D, p. 75, A, LO=2.9, (2)**

APA: LO 1.2

175. John has decided to start to learn how to wrestle. His first day at practice, a seasoned wrestler slams the back of his head to the mat. John was shaken and reported to the trainer that he "saw stars" after he hit his head. As a result of "seeing stars," John's \_\_\_\_\_ was temporarily affected as a result of the slam.

a) corpus callosum

b) occipital lobe

*Correct. This part of the brain is in the back of the head and controls vision.*

- c) parietal lobes

*Incorrect. This is not correct as the occipital lobe controls vision.*

- d) somatosensory cortex

**ANS: b, p. 75, A, LO=2.9, (3)**

**% correct 92 a= 2 b= 92 c= 3 d= 3 r = .34**

APA: LO 1.2

176. Which of the following regions contains the somatosensory cortex?

- a) occipital lobe

*Incorrect. This region contains the primary visual cortex.*

- b) parietal lobe

*Correct. The parietal lobes contain the somatosensory cortex.*

- c) temporal lobe

- d) frontal lobe

**ANS: b, p. 75, F, LO=2.9, (2)**

APA: LO 1.2

177. The \_\_\_\_\_ lobes are located at the top and back of each cerebral hemisphere, containing the centers for touch, body position, and temperature.

- a) frontal

- b) temporal

*Incorrect. The temporal lobes are responsible for the sense of hearing and meaningful speech, not for touch, body position, or temperature.*

- c) occipital

- d) parietal

*Correct. The parietal lobes contain the centers for touch, body position, and temperature.*

**ANS: d, p. 75, F, LO=2.9, (3)**

APA: LO 1.2

178. Suppose Al is trying to decide whether the shower is hot enough to step in, Hal is listening to his MP3 player, and Sal is looking at a beautiful painting in an art museum. Which individual is using his parietal lobe?

- a) Al

*Correct. The processing of "touch" information like this is handled by the parietal lobe.*

- b) Hal

*Incorrect. Auditory processing is handled by the temporal lobe, not the parietal lobe.*

- c) Sal

- d) Hal and Sal are, but Al is not.

**ANS: A, p. 75, A, LO=2.9, (3)**

APA: LO 1.2

179. Darla was in an automobile accident that resulted in an injury to her brain. Her sense of touch has been affected. Which part of the brain is the most likely site of the damage?

- a) frontal lobe

- b) temporal lobe

*Incorrect. The temporal lobes are responsible for the sense of hearing and meaningful speech, not touch.*

- c) occipital lobe

- d) parietal lobes

*Correct. The parietal lobes contain the centers for touch, taste, and temperature.*

**ANS: D, p. 75, A, LO=2.9, (3)**

**% correct 65 a= 20 b= 11 c= 4 d= 65 r = .30**

**% correct 62 a= 18 b= 16 c= 5 d= 62 r = .32**

APA: LO 1.2

180. Which of the following regions contains the auditory cortex?

- a) temporal lobes

*Correct. The temporal lobes contain the auditory cortex.*

- b) parietal lobes

*Incorrect. The parietal lobes contain the somatosensory cortex but not the auditory cortex.*

- c) frontal lobes
- d) occipital lobes

**ANS: a, pp. 75-76, F, LO=2.9, (1)**

**% correct 63 a= 63 b=7 c= 22 d= 7 r = .44**

APA: LO 1.2

181. The part of the brain located just behind the temples, containing neurons responsible for the sense of hearing and meaningful speech, is called the \_\_\_\_\_.

- a) temporal lobes

*Correct. The temporal lobes are responsible for the sense of hearing and meaningful speech.*

- b) parietal lobes

*Incorrect. The parietal lobes are not involved with hearing or speech.*

- c) frontal lobes
- d) occipital lobes

**ANS: a, pp. 75-76, F, LO=2.9, (1)**

**% correct 72 a= 72 b= 15 c= 8 d= 5 r = .51**

**% correct 79 a= 79 b= 12 c= 4 d= 5 r = .40**

APA: LO 1.2

182. Bobby B. was rollerblading when a cat jumped right in front of him causing him to fall. When he fell, he landed on the side of his head. Shortly afterwards, Bobby complained that he could not understand what people were saying to him. Which lobe would have been most affected by this fall given what he experienced?

- a) frontal
- b) temporal

*Correct. The comprehension of language is one of the many tasks handled by the temporal lobe.*

- c) parietal
- d) occipital

*Incorrect. The occipital lobe is really responsible for visual processing, and does not play any role in the comprehension of language.*

**ANS: B, pp. 75-76, A, LO=2.9, (3)**

APA: LO 1.2

183. Which of the following lobes are involved in planning, memory, and personality?

- a) temporal lobes

*Incorrect. This part of the brain is responsible for the sense of hearing and meaningful speech, not planning, memory, or personality.*

- b) parietal lobes
- c) frontal lobes

*Correct. The frontal lobes are involved in planning, memory, and personality.*

- d) occipital lobes

**ANS: c, p. 76, F, LO=2.9, (1)**

**% correct 70 a= 11 b= 0 c= 70 d= 18 r = .30**

**% correct 70 a= 10 b= 2 c= 70 d= 18 r = .34**

APA: LO 1.2

184. Joella was rollerblading when a cat jumped right in front of her causing her to trip and fall. When she fell, she partially landed on the front side of her head near her forehead. Shortly afterwards, Joella exhibited symptoms similar to that of Phineas Gage. Which lobe would have been most affected by this fall?

- a) frontal

*Correct. Phineas Gage suffered extreme trauma to the frontal lobe of his brain, impacting all sorts of functions including his personality.*

- b) temporal

*Incorrect. The famous story of Phineas Gage gave us insight into the functioning of the frontal lobe of the brain.*

- c) parietal
- d) occipital

**ANS: A, p. 76, A, LO=2.9, (2)**

APA: LO 1.2

185. Phineas Gage tragically had a tamping iron propelled through his head. Both left and right sides of the prefrontal cortex were severely damaged. As a result of the accident, Phineas Gage

- a) died from his injuries.
- b) suffered loss of his arms and legs.
- c) lost his sense of hearing.

*Incorrect. Hearing is handled by the temporal lobe, not the frontal lobe of the brain.*

- d) suffered a change in personality.

*Correct. After Phineas Gage's accident, his personality changed dramatically.*

**ANS: D, p. 76, A, LO=2.9, (1)**

APA: LO 1.2

186. Ito was driving through a rough part of town late at night when a stray bullet hit the front side of his head. Both the left and right sides of his prefrontal cortex were severely damaged. As a result of the accident, Ito most likely

- a) died from his injuries.
- b) suffered loss of his arms and legs.
- c) lost his sense of hearing.
- d) suffered a change in personality.

*Correct. Personality changes could be a result of damage to the frontal lobes of the brain, as in the famous case of Phineas Gage.*

**ANS: D, p. 76, A, LO=2.9, (2)**

APA: LO 1.2

187. Ever since he suffered a brain injury by falling from a ladder, Zack's wife has continued to tell the doctor that his personality has changed. He used to be fun loving and care-free, but he is now more critical and yells at his children for seemingly little reason. Zack is likely to have suffered damage to the \_\_\_\_\_ of his cortex.

- a) occipital lobe

*Incorrect. If his vision was affected, this would be accurate.*

- b) parietal lobe
- c) temporal lobe
- d) frontal lobe

*Correct. The frontal lobes are connected to personality and decision making processes.*

**ANS: D, p. 76, A, LO=2.9, (3)**

APA: LO 1.2

188. Warren is having trouble deciding what he wants to eat for breakfast. Which lobe of his brain is especially active as he makes his selection?

- a) temporal

*Incorrect. This part of the brain is responsible for the sense of hearing and meaningful speech.*

- b) parietal
- c) frontal

*Correct. The frontal lobes are responsible for decision-making skills.*

- d) occipital

**ANS: c, p. 76, A, LO=2.9, (3)**

**% correct 64 a= 10 b= 21 c= 64 d= 5 r = .42**

**% correct 66 a= 8 b= 26 c= 66 d= 1 r = .38**

APA: LO 1.2

189. \_\_\_\_\_ are fired when an animal performs an action or when the animal observes that same action being performed. For example, an infant will mimic the facial expressions of adults.

- a) Mirror neurons

*Correct. Mirror neurons are fired.*

- b) Statue neurons
- c) Facial neurons
- d) Observation neurons

*Incorrect. This is a fictitious name for a neuron.*

**ANS: a, p. 76, C, LO=2.9, (3)**

APA: LO 1.2



190. Marta was in an automobile accident and suffered an injury to her brain resulting in paralysis of her left arm. What part of Marta's brain was injured?

- a) auditory association area
- b) motor cortex

*Correct. The motor cortex is responsible for sending motor commands to the muscles of the somatic nervous system.*

- c) association areas
- d) somatosensory cortex

*Incorrect. This area processes information from the skin and internal body receptors for touch, temperature, and body position but is not involved with arm muscles.*

**ANS: b, p. 76, A, LO=2.9, (3)**

**% correct 82 a= 0 b= 82 c= 5 d= 11 r = .36**

APA: LO 1.2

191. Messages from the brain to the muscles and glands in the body begin their journey in the \_\_\_\_\_.

- a) auditory association area
- b) motor cortex

*Correct. Messages from the brain to the muscles and the glands begin their journey in the motor cortex.*

- c) association areas
- d) somatosensory cortex

*Incorrect. This area is not involved with muscles and glands.*

**ANS: b, p. 76, F, LO=2.9, (2)**

APA: LO 1.2

**Learning Objective 2.10** - What parts of the cortex are responsible for higher forms of thought, such as language?

192. Incoming sensory messages are made sense of in \_\_\_\_\_.

- a) Broca's area

*Incorrect. Broca's area is devoted to the production of speech rather than helping people make sense of incoming sensory input.*

- b) the motor projection areas
- c) the association areas

*Correct. The association areas help people make sense of incoming sensory input.*

- d) Wernicke's area

**ANS: c, p. 76, F, LO=2.10, (1)**

**% correct 41 a= 20 b= 14 c= 41 d= 25 r = .49**

APA: LO 1.2

193. The area of the frontal lobe that is devoted to the production of fluent speech is \_\_\_\_\_ area.

- a) Broca's

*Correct. Broca's area is devoted to the production of fluent speech.*

- b) Gall's
- c) Wernicke's

*Incorrect. Wernicke's area is devoted to the production of meaningful language.*

- d) Korsakoff's

**ANS: a, p. 77, F, LO=2.10, (3)**

**% correct 74 a= 74 b= 3 c= 19 d= 4 r = .31**

**% correct 73 a= 73 b= 3 c= 21 d= 4 r = .27**

APA: LO 1.2

194. Bill was admitted to the hospital last week after he fell. When Bill's son visited, he found his father was unable to get words out in a smooth, connected fashion. If Bill's difficulty speaking is due to brain damage, what is the likely location of the damage?

- a) Broca's

*Correct. Broca's area is devoted to the production of fluent speech.*

- b) Gall's
- c) Wernicke's

*Incorrect. Wernicke's area is devoted to the production of meaningful language.*

- d) Korsakoff's

**ANS: a, p. 77, A, LO=2.10, (3)**

**% correct 75 a= 75 b= 2 c= 22 d= 2 r = .35**

APA: LO 1.2

195. The area at the back of the temporal lobe that is crucial in the ability to listen, process, and understand what others are saying is \_\_\_\_\_ area.

a) Broca's

*Incorrect. Broca's area is devoted to the production of fluent speech.*

b) Gall's

c) Wernicke's

*Correct. Wernicke's area is devoted to the production of meaningful language.*

d) Korsakoff's

**ANS: c, p. 77, F, LO=2.10, (1)**

**% correct 49 a= 37 b= 8 c= 49 d= 6 r = .35**

APA: LO 1.2

196. Mary suffered a head injury in a car accident last week. Since that time she is able to speak fluently but uses the wrong words when expressing herself. Mary may be exhibiting \_\_\_\_\_ aphasia.

a) Broca's

*Incorrect. Someone with Broca's aphasia has halting speech and mispronounces words but does not use the wrong words.*

b) Gall's

c) Wernicke's

*Correct. Someone with Wernicke's aphasia often uses the wrong words.*

d) Korsakoff's

**ANS: c, p. 77, A, LO=2.10, (2)**

APA: LO 1.2

197. Robert's mother is usually meticulous in her presentation. When picking her up for a family dinner, he noticed that her make-up was only applied to the right side of her face. Her hair was also brushed on the right side, but on the left it was matted and uncombed. He immediately took her to the hospital after she was unaware of any problems. She was diagnosed with \_\_\_\_\_ which is evidenced by damage to the association areas of the right hemisphere.

a) Wernicke's aphasia

b) Broca's aphasia

*Incorrect. If her speech was affected this could be the possible cause.*

c) spatial neglect

*Correct. This would be the cause of her attention to the right side of her body and neglecting the left.*

d) split-brain

**ANS: c, p. 77, A, LO=2.10, (3)**

APA: LO 1.2

**Learning Objective 2.11 - How does the left side of the brain differ from the right side?**

198. Which of the following is the upper part of the brain consisting of two cerebral hemispheres and the structures that connect them?

a) occipital lobe

b) cerebrum

*Correct. The cerebrum consists of the two cerebral hemispheres and the structures that connect them.*

c) corpus callosum

d) cerebellum

*Incorrect. The cerebellum is at the base of the skull, not the upper part of the brain.*

**ANS: b, p. 78, F, LO=2.11, (1)**

**% correct 41 a= 2 b= 41 c= 40 d= 18 r = .35**

APA: LO 1.2

199. Since Norma is a split-brain patient, we can infer that she likely has a history of \_\_\_\_\_.

a) mental illness

b) severe epilepsy

*Correct. One of the very few medical conditions that is split brain procedure is used to treat is severe epilepsy.*

c) anosognosia

d) frontal lobe damage

*Incorrect. Split brain procedure's are not used to treat the frontal lobe damage; in fact, he would make no sense at all to use this procedure for this type of medical problem.*

**ANS: B, p. 78, A, LO=2.11, (1)**

APA: LO 1.2

200. Pat has decided to undergo surgery to treat her severe epilepsy. Consequently, her doctors will use a surgical procedure during which they will sever her \_\_\_\_\_.

a) parietal lobe

b) corpus callosum

*Correct. The corpus callosum is the thick band of axons that connects the left and right cerebral hemispheres. It is what is severed during a split brain procedure to treat severe epilepsy.*

c) cerebral cortex

d) subcortical structure

*Incorrect. In order to treat severe epilepsy, the corpus callosum is caught in a split brain procedure. This is a last treatment effort and is only done in the most serious cases.*

**ANS: B, p. 78, A, LO=2.11, (3)**

APA: LO 1.2

201. Researcher Roger Sperry won a Nobel prize for his research on epilepsy. Sperry cut through the \_\_\_\_\_ which joins the two hemispheres of the brain.

a) medulla

b) pons

c) pituitary gland

*Incorrect. This part of the brain is not severed in split-brain individuals.*

d) corpus callosum

*Correct. This part of the brain is severed creating "two brains in one body."*

**ANS: d, p. 78, F, LO=2.11, (1)**

**% correct 82 a= 11 b= 5 c= 2 d= 82 r = .38**

APA: LO 1.2

202. Traditionally, many have made the analogy that the left brain is to the right brain as \_\_\_\_\_.

a) logical is to artistic

*Correct. Though recent research suggests that this analogy may not be completely accurate, it is what most people have believed about the brain for many years.*

b) verbal is to analytical

c) intuitive is to perceptual

*Incorrect. Traditionally, the left brain has been thought of as analytical, and the right has been thought of as perceptual.*

d) intuitive is to analytical

**ANS: A, p. 79, C, LO=2.11, (2)**

APA: LO 1.2

203. If Darren's brain is like that of most people, then language will be handled by his \_\_\_\_\_.

a) corpus callosum

b) occipital lobe

c) right hemisphere

*Incorrect. The right hemisphere does not control language for most people.*

d) left hemisphere

*Correct. For most people the left hemisphere controls language.*

**ANS: d, p. 79, A, LO=2.11, (2) SG**

APA: LO 1.2

204. Which of the following is a function of the right hemisphere?

a) perception, expression of emotion, and recognition of patterns

*Correct. These are functions of the right hemisphere.*

- b) sense of time and rhythm
- c) speech, handwriting, and calculation
- d) language processing in most individuals

*Incorrect. This is a function of the left hemisphere.*

**ANS: a, p. 79, C, LO=2.11, (2)**

APA: LO 1.2

205. Which is not a specific function of the left hemisphere of the brain?

- a) spoken language
- b) written language
- c) mathematical calculations

*Incorrect. This is controlled by the left hemisphere.*

- d) pattern recognition

*Correct. This is controlled by the right hemisphere of the brain.*

**ANS: d, p. 79, F, LO=2.11, (1)**

APA: LO 1.2

206. Which is not a specific function of the right hemisphere of the brain?

- a) nonverbal
- b) analysis of detail

*Correct. This is controlled by the left hemisphere.*

- c) music and artistic expression
- d) emotional thought and recognition

*Incorrect. This is controlled by the right hemisphere.*

**ANS: b, p. 79, F, LO=2.11, (1)**

APA: LO 1.2

207. Adironke has recently been diagnosed with Attention-deficit/hyperactivity disorder. Her psychiatrist tells her that there are several different brain areas that might contribute to her various symptoms. Which of the following would the psychiatrist be unlikely to name as an involved brain structure?

- a) the cerebellum
- b) the basal ganglia
- c) the striate nucleus

*Correct. There is no research implicating this brain structure in bipolar disorder.*

- d) the corpus callosum

*Incorrect. The brain structure that joins the right and left hemispheres has been found to play a role in bipolar disorder.*

**ANS: C, p. 81, A, LO=2.11, (2)**

APA: LO 1.2

208. Which of the following cognitive abilities has been found to be normal in people diagnosed with Attention-deficit/hyperactivity disorder?

- a) some aspects of attention
- b) vigilance (watching out for something important)
- c) staying on-task
- d) engaging in self-control

**ANS: A, p. 81, F, LO=2.11, (3)**

APA: LO 1.2

## TRUE OR FALSE

1. One function of the nervous system is to send information to and receive information from all parts of the body.

**ANS: T, p. 46, LO=2.1**

APA: LO 1.2

2. The axon receives messages from other neurons.

**ANS: F, p. 47, LO=2.1**

APA: LO 1.2

3. Glial cells provide structure for neurons.

**ANS: T, p. 48, LO=2.1**

APA: LO 1.2

4. Myelin not only insulates the neuron, it also slows down the neural message helping with transmission of messages traveling down the axon.

**ANS: F, p. 48, LO=2.1**

APA: LO 1.2

5. Cell membranes are semipermeable.

**ANS: T, p. 49, LO=2.1**

APA: LO 1.2

6. Neurons that are at rest are still electrically charged.

**ANS: T, p. 49, LO=2.1**

APA: LO 1.2

7. During a resting potential, the neuron is positively charged inside and negatively charged outside.

**ANS: F, pp. 49-50, LO=2.1**

APA: LO 1.2

8. A synapse is like a locked door that only certain neurotransmitter keys can unlock.

**ANS: F, p. 51, LO=2.2**

APA: LO 1.2

9. Acetylcholine is an agonist or an excitatory neurotransmitter also found in a part of the brain responsible for forming new memories and stimulating muscle contraction.

**ANS: T, p. 52, LO=2.2**

APA: LO 1.2

10. The central nervous system consists of the brain and spinal cord.

**ANS: T, p. 56, LO=2.3**

APA: LO 1.2

11. Motor neurons carry messages from special receptors in the skin, from muscles, and from sense organs to the spinal cord.

**ANS: F, p. 57, LO=2.3**

APA: LO 1.2

12. Interneurons connect sensory neurons to the motor neurons.

**ANS: T, p. 57, LO=2.3**

APA: LO 1.2

13. Neuroplasticity is the concept that when the brain is injured it is unable to change the structure and function of the cells to adjust to the damage.

**ANS: F, p. 58, LO=2.3**

APA: LO 1.2

14. Stem cells can become other cells, such as blood cells, nerve cells, and brain cells.

**ANS: T, p. 59, LO=2.3**

APA: LO 1.2

15. The somatic nervous system is made up of nerves carrying messages from the central nervous system to the muscles of the body.

**ANS: T, p. 59, LO=2.4**

APA: LO 1.2

16. Activation of the sympathetic nervous system leads to pupil dilation, inhibition of digestion, and an accelerated heartbeat.

**ANS: T, pp. 60-61, LO=2.4**

APA: LO 1.2

17. Endocrine glands secrete chemicals directly into the body's tissues through ducts.

**ANS: F, p. 62, LO=2.5**

APA: LO 1.2

18. The pineal gland secretes a hormone called insulin.

**ANS: F, p. 63, LO=2.5**

APA: LO 1.2

19. The thyroid gland secretes a hormone called thyroxin.

**ANS: T, p. 63, LO=2.5**

APA: LO 1.2

20. If the pancreas secretes too little insulin, the result is diabetes.

**ANS: T, p. 63, LO=2.5**

APA: LO 1.2

21. If the body secretes too much insulin, the result is hyperglycemia.

**ANS: T, p. 63, LO=2.5**

APA: LO 1.2

22. Positron-emission tomography (PET scan) is a brain-imaging method using radio waves and magnetic fields of the body to produce detailed images of the brain.

**ANS: F, pp. 68, LO=2.6**

APA: LO 1.2

23. The medulla is responsible for people's ability to selectively attend to certain kinds of information in their surroundings.

**ANS: F, p. 69, LO=2.7**

APA: LO 1.2

24. The cortex "wrinkles" as a result of fluid filling the brain over the lifespan.

**ANS: F, p. 73, LO=2.8**

APA: LO 1.2

25. The cerebrum is divided into two hemispheres that control opposite sides of the body.

**ANS: T, p. 74, LO=2.9**

APA: LO 1.2

26. The occipital lobes contain the visual cortex, where visual signals are processed.

**ANS: T, p. 75, LO=2.9**

APA: LO 1.2

27. A person who suffered brain damage is likely to have problems controlling his emotions as a result of damage with the connection from the temporal lobe to the limbic system.

**ANS: F, p. 76, LO=2.9**

APA: LO 1.2

28. Researchers in the field of autism are considering that lack of empathy is related to a faulty mirror system in the brain.

**ANS: T, p. 76, LO=2.9**

APA: LO 1.2

29. The cerebral cortex is severed in individuals who are considered to have a “split brain” after a surgery to stop epileptic seizures.

**ANS: F, p. 78, LO=2.11**

APA: LO 1.2

## **SHORT ANSWER**

1. List three main parts of the human neuron and explain the role each plays in the transmission of neural communication.

**pp. 47-54, LO=2.1-2.2**

APA: LO 1.2

2. List two different functions of glial cells.

**p. 48, LO=2.1**

APA: LO 1.2

3. What is a synapse?

**p. 52, LO=2.2**

APA: LO 1.2

4. What are neurotransmitters?

**pp. 52-54, LO=2.2**

APA: LO 1.2

5. Name three neurotransmitters and their functions.

**pp. 53-54, LO=2.2**

APA: LO 1.2

6. Explain the difference between the Central Nervous System (CNS) and the Peripheral Nervous System (PNS).

**pp. 56-62, LO=2.3-2.4**

APA: LO 1.2

7. What is the difference between the sympathetic and parasympathetic nervous systems?

**pp. 60-62, LO=2.4**

APA: LO 1.2

8. Name two hormones that are of particular interest to psychologists and state which gland they are related to and some of the tasks that these hormones perform.

**pp. 63-64, LO=2.5**

APA: LO 1.2

9. How does an MRI (magnetic resonance imaging) scan allow the exploration of the brain without the injection of chemicals?

**p. 67, LO=2.6**

APA: LO 1.2

10. Why is the cortex in the brain so wrinkled?

**p. 73, LO=2.8**

APA: LO 1.2

11. What are the symptoms of Broca’s aphasia?

**p. 77, LO=2.10**

APA: LO 1.2

12. What are the symptoms of Wernicke's aphasia?

**p. 77, LO=2.10**

APA: LO 1.2

13. Briefly explain Roger Sperry's split-brain research.

**p. 78, LO=2.11**

APA: LO 1.2

14. What are the differences in how the right and left cerebral hemispheres function?

**p. 79, LO=2.11**

APA: LO 1.2

## **ESSAY**

1. What is a neuron? Describe major parts of a neuron and their functions. Explain the process of how a neural message is transmitted from the end of one neuron to the beginning of another and the process by which a neuron moves from a resting state (resting potential) to firing (action potential) and then back to a resting state.

**pp. 47-57, LO=2.1-2.2**

APA: LO 1.2

2. Describe the functions of the brain and the spinal cord. How are these functions similar? How are these functions dissimilar?

**pp. 56-57, LO=2.3**

APA: LO 1.2

3. What are the primary functions of the sympathetic and parasympathetic components of the peripheral nervous system? Describe a situation or experience in which activation of the sympathetic and parasympathetic divisions has occurred.

**pp. 60-62, LO=2.4**

APA: LO 1.2

4. How does the endocrine system influence behavior? Describe the functions of three glands and the hormones each secretes.

**pp. 63-64, LO=2.5**

APA: LO 1.2

5. Choose any three methods that psychologists use to learn about the functions of the brain. Describe the method, how it works, and the type of information we can learn from it.

**pp. 65-68, LO=2.6**

APA: LO 1.2