

2

The Biological Perspective

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; lobitital
- 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; lobitocal

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 chiasmata
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 on 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