Test Bank for Wood 5e
Chapter 2: Biology and Behavior

Multiple Choice

1. EEG stands for _____
a) Electrical Encoded Graph.
b) encoded encephalogram.
c) electroencephalogram.
d) electro energy gram.
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 39
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

2. Which of the following imaging techniques would be best for studying the activity of one single neuron?
a) CT scan
b) PET scan
c) microelectrodes
d) magnetoencephalography
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 39
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

3. The _____ can monitor the activity of a single neuron, or _____ activity within it.
a) microelectrode; stimulate
b) EEG; inhibit
c) microwire; stimulate
d) PET scan; stop
Answer: a *A microelectrode is a small wire that can monitor electrical activity in or stimulate activity within a single neuron.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 39–40
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

4. A record of brain-wave activity is called a (an) _____
a) PET scan.
b) CAT scan.
c) EMG.
d) EEG.
Answer: d *The EEG, electroencephalogram, is a record of brain-wave activity.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 39–40
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

5. When wanting a record of electrical activity in the brain in the form of brain waves, a (an) _____ machine would be used.
a) electroencephalogram
b) microelectrode
c) computerized X-ray
d) electrowave spectral imager
Answer: a *The electroencephalogram machine makes a record of electrical activity in the brain.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 39
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

6. Dr. Solomon wants a record of the electrical activity in her patient's brain during an epileptic seizure. She would schedule the patient for a _____ appointment.
a) magnetic resonance imaging
b) electroencephalograph
c) positron-emission tomography
d) microelectrode testing
Answer: b *The electroencephalograph provides a record of electrical activity in the brain.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 39
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

7. Eight-year-old Daria was having some disturbances in her sleep, so her parents took her to a Children's Hospital to undergo various tests. She recalls sleeping in the hospital room with a bunch of wires stuck to her scalp. What technique was used in Daria's sleep study?
a) EEG
b) MEG
c) PET
d) SPECT
Answer: a *The EEG, electroencephalograph, involves the placement of wires on the scalp and is used to measure brain wave activity during sleep.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 40
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

8. Dr. Solomon wants to identify the precise neuronal origin of her patient's epileptic seizures. She will be using a (an) _____ to determine this.
a) iEEG
b) fMRI
c) iPET
d) EEG
Answer: a *The iEEG, intracranial electroencephalogram, enables neurologists to pinpoint the precise neuronal origin of seizures.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 40
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: The EEG and the Microelectrode

9. _____ is a brain-scanning technique that uses a rotating, computerized X-ray tube to produce cross-sectional images of the structures of the brain.
a) Positron-emission tomography
b) Computerized axial tomography
c) Functional magnetic resonance imaging
d) Magnetic resonance imaging
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

10. Which of the following uses X-rays to detect various abnormalities of the brain including injury sites, tumors, and evidence of recent strokes?
a) intracranial EEG
b) magnetic resonance imaging
c) computerized axial tomography
d) electroencephalogram
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

11. The _____ is a diagnostic scanning technique that produces high-resolution images of the structures of the brain.
a) MRI
b) EEG
c) PET
d) X-ray
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

12. The _____ maps patterns of blood flow, oxygen use, and glucose consumption in the brain.
a) CT scan, computer axial tomography
b) MRI, magnetic resonance imaging
c) EEG, electroencephalogram
d) PET scan, positron-emission tomography
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

13. The iEEG, intracranial electroencephalogram would be most appropriate for studying _____
a) brain waves during sleep.
b) abnormalities in brain structure.
c) glucose and oxygen uptake in the brain.
d) the activity of a single neuron.
Answer: d *The iEEG allows neurologists to pinpoint the precise neuronal origin of activity.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 39–40

Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

14. The CT scan would be a good choice to look for which of the following?
a) a tumor in the brain
b) abnormal brain activity
c) a sleep disorder
d) individual neuron bundles
Answer: b *Computerized axial tomography (CT) scans reveal structures in the brain, including tumors.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

15. Diffusion tensor imaging would be the best choice to examine _____
a) individual neuron bundles.
b) a tumor in the brain.
c) a sleep disorder.
d) glucose uptake in the brain.
Answer: a *Diffusion tensor imaging, DTI, enables researchers to examine individual neuron bundles.*
Skill Level: Conceptual
Difficulty: Difficult
Page Ref: 41
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

16. Conan brought his mother to the hospital when he noticed she couldn't move one side of her body and had great difficulty speaking. The physician informed Conan that his mother may have had a stroke. He wanted to confirm this speculation by using an imaging device that utilized X-rays. Which of the following was used on Conan's mother?
a) MRI
b) CT scan
c) EEG
d) fMRI
Answer: b *CT scans use X-rays to reveal cross-sectional images of brain structure that can reveal evidence of recent strokes.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

17. Lucinda needs to find the location of her patient's tumor, but she does not want to expose the patient to X-rays. Which of the following imaging technologies would be best suited for this task?
a) a microelectrode
b) a CT scan
c) a MRI
d) an EEG
Answer: c *MRIs provide clearer and more detailed images of the brain without exposing people to X-rays.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

18. RaeAnn is a researcher who studies the effects of drug use in humans. She wants to understand the action of particular drugs on the brain. Which of the following imaging techniques will allow her to engage in this type of research?
a) CT scan
b) MRI
c) PET
d) DTI
Answer: c *PET scans can show activity in the brain and reveal the effects of drugs on brain activity.*
Skill Level: Applied
Difficulty: Difficult
Page Ref: 40
Textbook LO 2.2: How do researchers use imaging techniques to study the nervous system?, APA LO 3.2e
Topic: Imaging Techniques

19. _____ are specialized cells that conduct impulses through the nervous system.
a) Gametes
b) Neurons
c) Dendrites
d) Axons
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 41
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

20. The body of the cell that carries out the life-sustaining functions of the neuron and contains its nucleus is called the _____
a) soma.
b) dendrite.
c) axon.
d) bud.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 41
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

21. The function of the neuron's axon is to _____
a) carry messages to other cells.
b) regulate the neuron's life processes.
c) receive messages from neighboring neurons.
d) insulate against leakage of electrical impulses.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 41–42
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron
Item Analysis: % correct 67 a = 67 b = 2 c = 35 6 = 53 r = .41

22. _____ receive messages from other neurons and _____ send messages to other neurons.
a) Axons; dendrites
b) Axons; soma
c) Soma; glial cells
d) Dendrites; axons
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 41–42
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron
Item Analysis: % correct 67 a = 67 b = 2 c = 35 6 = 53 r = .41

23. The part of a neuron that extends, tail-like, from the soma, and releases neurotransmitters into the synapse is the _____
a) dendrite.
b) glial cell.
c) axon.
d) terminal bud.
Answer: c *The axon extends from the cell body. It has a slender, tail-like shape, and releases neurotransmitters from its axon terminal.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 42
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

24. Looking like leafless branches of a tree, the _____ are the primary receivers of signals from other neurons, although the _____ also receives signals directly.
a) axon; dendrites
b) dendrites; soma
c) soma; dendrites
d) dendrites; axon
Answer: b *The dendrites, which branch off from the cell body, are the primary receivers of signals from other neurons. The soma, or cell body, also receives signals directly.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 41
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

25. If the dendrites of a neuron were not able to perform their function, _____
a) the myelin would shrink.
b) no signals would be transmitted from the neuron.
c) no signals would be received from the neuron.
d) some neural signals would still be received by the neuron.
Answer: d *Because the soma, or cell body, also receives some signals directly, some neural signals would still be received by this neuron.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 41–42
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

26. If the axon of a neuron were not able to perform its function, _____
a) the neuron would receive no signals.
b) the neuron would send no signals.
c) the neuron would not reproduce.
d) the neuron signals would become erratic.
Answer: b *It is only by the release of neurotransmitters from the axon's terminal that signals are transmitted by neurons.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 41–42
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

27. Examining the end of an axon, we would see that _____
a) it has many branches, each of which ends in an axon terminal.
b) it has only one terminal.
c) it touches a dendrite or soma of another neuron.
d) it terminates in a myelin sheath.
Answer: a
Skill Level: Factual
Difficulty: Difficult
Page Ref: 42
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

28. Nodes of _____ are gaps in the _____ that coat some axons.
a) myelin; glia
b) Ranvier; myelin
c) membrane; sheath
d) axons; synaptic fluid
Answer: b
Skill Level: Factual
Difficulty: Difficult
Page Ref: 44
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

29. Tony suffers from a disease in which myelin is progressively lost. Tony's axons will increasingly lack _____
a) neurotransmitters.
b) signals.
c) insulation.
d) fluid.
Answer: c *Myelin is the white, waxy, coating on axons that acts as an insulator.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 44
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

30. The tiny gap between an axon's terminals and the dendrites or soma of another neuron is called the _____
a) node of Ranvier.
b) myelin gap.
c) synaptic cleft.
d) neural space.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 42–43
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b
Topic: The Structure of the Neuron

31. A presynaptic neuron is the one that is _____ a signal to another neuron.
a) receiving
b) sending
c) coding
d) inhibiting
Answer: b
Skill Level: Factual
Difficulty: Moderate
Page Ref: 43
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

32. When a neuron is at rest, it carries a _____ electrical potential (charge).
a) slightly positive
b) slightly negative
c) neutral
d) massively negative
Answer: b
Skill Level: Factual
Difficulty: Moderate
Page Ref: 43
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

33. The sudden reversal of a neuron's resting potential is called a(n) _____ potential and initiates the _____ of a neuron.
a) firing; action
b) signaling; firing
c) action; firing
d) positive; discharge
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 43
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b

Topic: Communication between Neurons

34. Immediately after firing, a neuron cannot fire for 1 to 2 milliseconds. This is called the _____ period.
a) discharged
b) resting
c) refractory
d) potential
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 43
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

35. A neuron has received a signal, causing ion channels to open in the cell membrane, letting positively charged ions flow in. This has caused the membrane potential to change suddenly from –70 to +50 millivolts. This will cause a (an) _____ to occur.
a) resting state
b) action potential
c) negative charge
d) positive charge
Answer: b *The sudden reversal of the resting potential of –70 millivolts to a positive value of +50 millivolts that occurs when ion channels open—allowing positively charged ions to flow in through the cell membrane—creates an action potential.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 43
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

36. When a neuron carries the electrical potential of _____ millivolts, it is in the state called _____
a) –70; resting potential.
b) +50; refractory period.
c) –50; resting potential.
d) –30; refractory period.
Answer: a
Skill Level: Factual
Difficulty: Difficult
Page Ref: 43
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

37. The strength of the brain's response to a weak or strong stimulus is a result of _____
a) how many and how fast neurons fire.
b) the all or none rule.
c) how many millivolts the neuron has.
d) whether action potential occurs.
Answer: a *The all or none rule states that neurons either fire or don't fire. This determines whether a response takes place or does not take place. On the other hand, the strength of that response is determined by the number of neurons that fire and/or how fast they fire.*
Skill Level: Conceptual
Difficulty: Difficult
Page Ref: 44
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

38. The most important factor in speeding action potential on its way is the fatty, white coating wrapped around most axons. This is called the _____
a) node of Ranvier.
b) myelin sheath.
c) synaptic fluid.
d) sclerotic coating.
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 44
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

39. Multiple sclerosis results in loss of coordination, jerky movement, muscular weakness, and speech disturbance through the deterioration of _____
a) axons.
b) neurons.
c) myelin.
d) neural membranes.
Answer: c *Multiple sclerosis is a disease involving deterioration of the myelin sheaths of neurons, which results in the symptoms described.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 44
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

40. The myelin sheath and nodes of Ranvier are important because they _____
a) protect the neuron.
b) speed neural impulses.
c) create action potential.
d) prevent refractory periods.
Answer: b *The myelin sheath, and the gaps in it, called nodes of Ranvier, are important because they speed the impulse traveling down the axon so it is up to 100 times faster than in axons without myelin sheaths.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 44
Textbook LO 2.4: How do neurous transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons

41. Which of the following are tiny sacs in the axon terminal that hold chemicals that are released into the synapse?
a) synaptic vesicles
b) synaptic nodes
c) terminal buttons
d) synaptic gaps
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 44
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters
Item Analysis: % correct 65 a = 65 b = 22 c = 10 d = 3 r = .36

42. A chemical found in the sacs within an axon terminal which, when released, has an effect on a nearby neuron is called a _____
a) glial cell.
b) neurotransmitter.
c) precursor cell.
d) synapse.
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 44
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters
Item Analysis: % correct 74 a = 4 b = 74 c = 4 d = 18 r = .34

43. When a(n) _____ arrives at the axon terminal, it causes the release of neurotransmitters.
a) precursor
b) receptor
c) action potential
d) node of Ranvier
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 44
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

44. Neurotransmitters have distinct molecular shapes; so do the _____ they bind to.
a) myelin sheaths
b) presynaptic neurons
c) vesicles
d) receptors
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 44
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

45. Excitatory neurotransmitters influence the receiving neuron to _____, while inhibitory neurotransmitters influence the receiving neuron to _____
a) fire; not fire.
b) not fire; fire.
c) move; not move.
d) not move; move.
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 45
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

46. Reuptake refers to the process by which neurotransmitters in the synaptic cleft are _____
a) sent back into receptors again.
b) moved back into their axon terminal.
c) broken apart.
d) absorbed by the receiving neuron.
Answer: b *When a neurotransmitter molecule is returned to the axon terminal, the process is called reuptake.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 45
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

47. Running to class, _____ is causing muscle fibers in your leg to contract so you can move, and it will stimulate the neurons you need for learning new information.
a) serotonin
b) dopamine
c) endorphin
d) acetylcholine
Answer: d *Acetylcholine causes skeletal muscle fiber to contract so you can move. It is also involved in stimulating the neurons involved in learning new information.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 46
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

48. You just accomplished a goal and rewarded yourself with a delicious treat. The pleasant feelings that result from these behaviors are made possible by the release of _____
a) acetylcholine.
b) GABA.
c) dopamine.
d) epinephrine.
Answer: c *Dopamine is associated with reinforcement and pleasure.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 46
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

49. You just took a tumble and your arm really hurts. You are wishing your brain would release a lot of _____ to help relieve the pain.
a) acetylcholine
b) dopamine
c) serotonin
d) endorphins
Answer: d *Endorphins provide relief from pain.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 46
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

50. Researchers have identified about _____ substances that are made in our body and brain that act as neurotransmitters.
a) 10
b) 1,000
c) 100
d) 20
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 45
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

51. Each neuron may have synapses with _____ other neurons.
a) two or three
b) thousands of
c) up to ten
d) no more than 100
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 45
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

52. Whether a neuron fires or not depends on _____
a) whether it is an excitatory neuron.
b) the sum of excitatory and inhibitory neurotransmitters it receives.
c) what type of neurotransmitter the neuron makes.
d) whether the neuron is myelinated or not.
Answer: b *The same neuron may receive signals that are inhibitory and signals that are excitatory. Whether it will fire or not fire depends on whether there are more inhibitory, or more excitatory signals.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 45
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Neurotransmitters

53. All of the nerves outside your spinal cord and brain make up the _____
a) central nervous system.
b) sympathetic nervous system.
c) sensory nervous system.
d) peripheral nervous system.
Answer: d
Skill Level: Factual
Difficulty: Easy
Page Ref: 47
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

54. Sensory and motor nerves are part of the _____ nervous system.
a) somatic
b) autonomic
c) sympathetic
d) parasympathetic
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 47
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

55. You have a great deal of conscious control over the nerves of the _____ nervous system, but not over the nerves of the _____ nervous system.
a) somatic; autonomic.
b) autonomic; somatic.
c) peripheral; autonomic.
d) central nervous system; peripheral nervous system.
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 47
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

56. The two divisions of the autonomic nervous system are the _____ and the _____
a) somatic; peripheral.
b) sympathetic; parasympathetic.
c) central; peripheral.
d) brain; spinal cord.
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

57. Jerry is having difficulty with the motor nerves in his leg. His problem is in the _____ nervous system.
a) autonomic
b) somatic
c) central
d) muscle
Answer: b *The somatic nervous system controls skeletal muscles.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 47

Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

58. Justin is walking down the street and a car backfires. He drops to the ground, sure it is a drive-by shooting. Justin's _____ nervous system just kicked into high gear.
a) somatic
b) parasympathetic
c) sympathetic
d) peripheral
Answer: c *The sympathetic nervous system activates in response to stress, threat, and emergency.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

59. Malcolm is studying alone in his room when he hears a loud noise downstairs. His heart rate and respiration speed up. He wonders if a burglar has entered the house. When he looks downstairs, he sees that his cat just knocked over a plant. He begins to relax and his heart rate and breathing slow down. Which part of his nervous system is working to return him to a normal state?
a) spinal cord
b) somatic nervous system
c) parasympathetic nervous system
d) central nervous system
Answer: c *The parasympathetic nervous system works to return the body to its normal state once an emergency is over or threat is past.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

60. Mekala's sympathetic nervous system has been activated. Which of the following is true?
a) Her digestion sped up.
b) Her pupils dilated.
c) Her heart rate slowed down.
d) The blood flow to her internal organs increased.
Answer: b *The sympathetic nervous system prepares us for fight or flight by slowing digestion, increasing heart rate, increasing blood flow to skeletal muscles, and dilating our pupils.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

61. Michael notices that every time he gets what he calls an “adrenalin rush,” his heart rate and pulse quicken and he feels a surge of energy. He also notices that lately it takes his body longer than normal to return to feeling calm and normal. What might explain Michael’s delay in coming down from his “adrenalin rush”?
a) His sympathetic nervous system might be too slow.
b) Michael’s parasympathetic nervous system may not be activating as quickly as usual.
c) Michael’s somatic nervous system might be interfering.
d) Michael’s parasympathetic nervous system may be overly active.
Answer: b *The parasympathetic nervous system calms us down after sympathetic nervous system activation. Michael’s is taking a bit longer to activate.*
Skill Level: Applied
Difficulty: Difficult
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

62. Tasha’s sympathetic nervous system is not working. Which of the following would be a likely result?
a) Tasha is experiencing an excess of flight or fight response.
b) Tasha’s digestion will be constantly slowed down.
c) Tasha’s heart will not speed up when she is in an emergency situation.
d) Tasha will develop health problems from chronic stress.
Answer: c *The sympathetic nervous system causes the heart rate to increase as part of our emergency response. Without a functioning sympathetic nervous system, Tasha’s heart would not speed up, even when she perceives a threat or emergency.*
Skill Level: Applied
Difficulty: Difficult
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System

63. The central nervous system consists of the _____
a) parasympathetic and sympathetic divisions.
b) brain and spinal cord.
c) muscles and glands.
d) sense organs and sensory neurons.
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 47
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System
Item Analysis:
% correct 77 a = 17 b = 77 c = 0 d = 6 r = .24
% correct 82 a = 16 b = 82 c = 1 d = 2 r = .32

64. The long bundle of neurons that carries messages to and from the body to the brain and is responsible for fast, life-saving reflexes is called the _____
a) spinal cord.
b) brain.
c) reflex arc.
d) interneuron.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 49
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System
Item Analysis: % correct 89 a = 89 b = 0 c = 2 d = 9 r = .31

65. Rolandito touched a hot radiator and instantly pulled his hand away. The neurons responsible for this protective reflex are the _____
a) brain, spinal cord, and interneurons.
b) sensory, interneurons, and motor neurons.
c) somatic, autonomic, and parasympathetic neurons.
d) automatic, reflexive, and sympathetic neurons.
Answer: b *This type of reflex involves only sensory neurons that sense the heat, and interneurons in the spinal cord that send the message to motor neurons that retract the hand.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 49
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

66. 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.
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.
Answer: b *Such reflexive movement is accomplished by communication from a sensory neuron to an interneuron in the spinal cord and back to a motor neuron. It does not travel to the brain.*
Skill Level: Conceptual
Difficulty: Difficult
Page Ref: 49
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System
Item Analysis: % correct 49 a = 17 b = 49 c = 14 d = 21 r = .51

67. Heart rate, respiration, blood pressure and other functions vital to maintain life are controlled by the _____
a) hindbrain.
b) cerebellum.
c) midbrain.
d) limbic system.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 49
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

68. Tanae was drowsy, but when she heard her child call out, she felt immediately wide awake and alert. A part of her brain that plays a crucial role in her arousal level and attention is the _____
a) medulla.
b) pons.
c) cerebellum.
d) reticular formation.
Answer: d *The reticular formation plays a crucial role in arousal and attention.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 49
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

69. Hunter was in a car accident and sustained damage to his cerebellum from a whiplash injury. Which problem would he be most likely to experience after the accident?
a) trouble speaking
b) being in a coma
c) breathing and heart problems
d) problems coordinating his movements
Answer: d *The cerebellum coordinates muscle movement, allowing us to make smooth, skilled movements.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 49–50
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

70. Without the _____ in your midbrain, you could not ride a bike without giving each movement conscious thought.
a) substantia nigra
b) thalamus
c) limbic system
d) pons
Answer: a *The substantia nigra, located in the midbrain, controls our unconscious motor actions—those motor patterns that are habitual and we can do without thinking.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 51
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

71. Which of the following brain structures is involved in regulating hunger, thirst, temperature, and sexual behavior?
a) pons
b) thalamus
c) amygdala
d) hypothalamus
Answer: d
Skill Level: Factual
Difficulty: Easy
Page Ref: 51
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

72. The _____ is heavily involved in the learning of fear responses.
a) hypothalamus
b) amygdala
c) thalamus
d) pons
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 51
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

73. Tram's hippocampus was damaged by encephalitis. Which of the following would be true?
a) Tram would not be able to remember anything.
b) Tram would become angry and aggressive.
c) Tram would have difficulty forming new memories.
d) Tram would have difficulty with her vision.
Answer: c *The hippocampus plays a central role in memory formation. Memories already formed before the hippocampus was damaged would stay intact.*
Skill Level: Applied
Difficulty: Difficult

Page Ref: 51–52
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

74. The _____ is the part of the brain where cognitive and voluntary motor functions are controlled.
a) hindbrain
b) midbrain
c) limbic system
d) forebrain
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 51
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System

75. The right and left halves of the cerebrum are called the _____
a) cerebral hemispheres.
b) corpus callosi.
c) cerebral halves.
d) cerebral lobes.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 52
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

76. The right and left halves of Shawna's cerebrum can no longer communicate with each other because her _____ was destroyed.
a) thalamus
b) cortex
c) corpus callosum
d) corpus cerebrum
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 52
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

77. The area of the brain primarily responsible for higher mental processes such as thinking and language is the cerebral _____
a) callosum.
b) cortex.
c) cerebellum.
d) white matter.
Answer: d

Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

78. Gray matter gets its color from _____ whereas white matter gets its color from _____
a) cell bodies; dendrites.
b) myelinated axons; dendrites.
c) cell bodies; myelinated axons.
d) synaptic clefts; neurotransmitters.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

79. The cerebral cortex contains three types of areas. These are the _____, _____, and _____ areas.
a) sensory, motor, association
b) cerebrum, cerebellum, callosum
c) emotion, thinking, language
d) organ, skin, muscle
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

80. Memories, thought, perception and language are housed in the _____ area of the cerebrum.
a) sensory
b) limbic
c) association
d) dopaminergic
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

81. The cerebral cortex of humans is so large it should not fit in our skull. The only reason it does is because of its _____
a) shrinkage during gestation.
b) convolutions.
c) extension into the spinal cord.
d) absence of fluid.
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

82. Research suggests that the amount of _____ is associated with performance on intelligence tests.
a) white matter
b) brain volume
c) glia
d) gray matter
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

83. The first functional division of the cerebral cortex is _____
a) front, top, side and back.
b) into lobes.
c) left and right sides.
d) cerebrum and limbic areas.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

84. The second functional division of the cerebral cortex involves _____
a) frontal, parietal, temporal, and occipital lobes.
b) sensory, motor and association areas.
c) hindbrain, midbrain, forebrain.
d) hypothalamus, pons, limbic system.
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a
Topic: Components of the Cerebrum

85. Lateralization refers to which of the following?
a) the idea that the right side of the brain controls the left side of the body
b) the notion that each hemisphere of the brain specializes in particular functions
c) the procedure in which the corpus callosum is severed
d) the inability to produce speech
Answer: b
Skill Level: Factual
Difficulty: Moderate
Page Ref: 54
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

86. Which of the following statements is true regarding right and left hemisphere functioning?
a) Scientific research supports the claim that “right-brained” people are more creative.
b) Scientific research supports the claim that “left-brained” people are more logical.
c) Each hemisphere does have some specialized functions but they work together.
d) Scientific research suggests that there is no specialized function in either hemisphere.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 53–54
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

87. Research has shown us that handedness is determined by _____
a) genes.
b) learning.
c) conditioning.
d) genes and learning.
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 54
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

88. The trait of hand preference illustrates that _____
a) genes are our destiny.
b) learning outweighs genes.
c) nature always wins.
d) nature and nurture work together.
Answer: d *The capacity of individuals to adapt to loss of a dominant hand shows the adaptability of the brain. Although nature does play an important role in handedness, it interacts in complex ways with nurture.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 54
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

89. The left hemisphere controls movement on the _____ side of the body and handles most _____ functions.
a) left; motor
b) right; language
c) right; auditory
d) left; visual-spatial
Answer: b
Skill Level: Factual
Difficulty: Difficult
Page Ref: 54

Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

90. The left hemisphere has regions devoted to _____
a) processing emotional cues.
b) visual-spatial processing.
c) math and logic.
d) creative uses of thought and language.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 54
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

91. People with severe, uncontrollable epilepsy, who have frequent grand mal seizures, have been helped by an operation that _____
a) severs the communication between hemispheres.
b) removes excitatory neurons.
c) severs the substantia nigra and basal ganglia.
d) removes most of the right hemisphere.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 56
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

92. If we briefly flashed the image of an orange to the right field of vision of an individual after split-brain surgery, they will most likely say they see _____
a) nothing.
b) an orange.
c) something but be unable to name it.
d) only something round.
Answer: b *The image shown in the right field of vision will be sent to the left (verbal) hemisphere where it will readily be identified as an orange.*
Skill Level: Applied
Difficulty: Difficult
Page Ref: 57
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

93. Lyta sustained damage to her left hemisphere. Which of these areas is she most likely to have difficulty with as a result of left hemisphere damage?
a) language
b) control of the left side of her body
c) interpreting facial expressions
d) perceiving visual-spatial relationships
Answer: a *The left hemisphere handles most language functions.*
Skill Level: Applied
Difficulty: Moderate

Page Ref: 54–55
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

94. Which of the following represents an example of how damage to right hemisphere language areas might affect your language functions?
a) You might not understand the causal link between “I fell down” and “My knee hurts.”
b) You might not be able to speak.
c) You might not understand any language.
d) You might not be able to read out loud.
Answer: a *The right hemisphere processes causal links between statements such as these.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 54–55
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

95. Much of what we know about left and right hemisphere specializations comes from the study of people who had split-brain surgery. This surgery _____
a) splits the lobes of the brain apart.
b) severs the corpus callosum between hemispheres.
c) severs the nerves from the spinal cord to the right hemisphere.
d) severs the substantia nigra between hemispheres.
Answer: b
Skill Level: Factual
Difficulty: Moderate
Page Ref: 52
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

96. Roger Sperry won a Nobel Prize in medicine in 1981 for work which revealed, among other things, that the _____
a) left hemisphere can’t recognize objects.
b) right hemisphere can’t recognize objects.
c) left hemisphere can recognize, but not name, objects.
d) right hemisphere can recognize, but not name, objects.
Answer: d *Sperry’s study of split-brain patients demonstrated that an object shown only to the left eye—thus transmitted only to the right hemisphere—can be recognized. However, because the image did not go to the left hemisphere, the object can’t be named, and the patient will verbally deny seeing anything.*
Skill Level: Applied
Difficulty: Difficult
Page Ref: 55–56
Textbook LO 2.9: What are the specialized functions of the left and right cerebral hemispheres?, APA LO 5.2a
Topic: The Cerebral Hemispheres

97. The largest of the brain's lobes, the _____ lobe, is where multiple cognitive functions are performed.
a) temporal
b) prefrontal
c) frontal
d) parietal
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

98. Known for "executive processing", the _____ is part of the frontal lobe that coordinates many cognitive functions into a unified experience.
a) hippocampus
b) occipital cortex
c) prefrontal cortex
d) processing cortex
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

99. Phineas Gage is a famous example of someone who sustained damage to their prefrontal cortex and lost the ability to _____
a) think.
b) speak.
c) control impulses.
d) coordinate movement.
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

100. As the case of Phineas Gage illustrated, the prefrontal cortex contributes to _____ functioning in addition to cognitive functioning.
a) personality
b) motor
c) visual
d) auditory
Answer: a
Skill Level: Factual
Difficulty: Easy

Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

101. Moving toward the back of the head, the last area of the frontal lobe contains the _____
a) visual cortex
b) sensory cortex
c) motor cortex
d) parietal lobe
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

102. Wilder Penfield, a neurosurgeon, developed a map of the _____ cortex by stimulating different areas in conscious patients undergoing neurosurgery.
a) visual
b) sensory
c) motor
d) parietal
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

103. Broca's area is involved in _____
a) understanding words.
b) choosing the correct words to use.
c) the muscle movements required for speech.
d) decision making.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

104. Aphasia is a general term for loss or impairment of the ability to _____
a) coordinate movement.
b) use or understand language.
c) recognize objects.
d) control impulses.
Answer: b

Skill Level: Factual
Difficulty: Moderate
Page Ref: 59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

105. Directly behind the frontal lobe is the _____ lobe, where sensory information registers in the _____ cortex.
a) postfrontal; sensory
b) preoccipital; visual
c) temporal; auditory
d) parietal; somatosensory
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

106. At the very back of the cerebrum, the _____ lobe contains the primary _____ cortex.
a) occipital; visual
b) parietal; sensory
c) auditory; temporal
d) limbic; emotional
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

107. Slightly above the ears, the _____ lobes contain the primary _____ cortex, which receives sound input from our ears.
a) auditory; temporal
b) temporal; auditory
c) hearing; sound
d) parietal; sensory
Answer: b
Skill Level: Factual
Difficulty: Moderate
Page Ref: 60
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

108. Speech sounds register first in the primary _____ cortex; they are then sent to _____ area where they are unscrambled into meaningful patterns of words.
a) temporal; Broca's
b) parietal; sensory
c) auditory; Wernicke's
d) sensory; prefrontal
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 60

Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

109. Visual processing is to the _____ lobes as auditory processing is to the _____ lobes.
a) occipital; temporal
b) parietal; occipital
c) temporal; frontal
d) temporal; parietal
Answer: a *Visual processing is done by the primary visual cortex located in the occipital lobe, whereas auditory processing is done by the primary auditory cortex located in the temporal lobe.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 59–60
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

110. 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
c) association areas
d) somatosensory cortex
Answer: c *The motor cortex is responsible for sending motor commands to the muscles of the somatic nervous system.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 57–58
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes
Item Analysis: % correct 82 a = 0 b = 82 c = 5 d = 11 r = .36

111. Bill was admitted to the hospital last week after he fell. When Bill's son visited, he found his father was unable to form words without great difficulty. If Bill's difficulty speaking is due to brain damage, what is the likely location of the damage?
a) Broca's area
b) Gall's area
c) Wernicke's area
d) Korsakoff's area
Answer: a *Broca's area is devoted to the muscle movements required to form speech.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 57–59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes
Item Analysis: % correct 75 a = 75 b = 2 c = 22 d = 2 r = .35

112. Ever since he suffered a brain injury by falling from a ladder, Zack's wife has continued to tell the doctor that Zack's personality has changed. He used to be fun loving and carefree, but he is now more critical and yells at the children for little reason. Zack is likely to have suffered damage to the _____ of his cortex.
a) occipital lobe
b) parietal lobe
c) prefrontal area
d) postfrontal area
Answer: c *The prefrontal cortex, located in the frontal lobe, contributes to personality functioning and can affect the ability to control impulses, modulate emotions, and anticipate consequences of behavior.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes

113. 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
c) occipital lobe
d) parietal lobe
Answer: d *The parietal lobes are involved in the reception and processing of touch stimuli.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes
Item Analysis:
% correct 65 a = 20 b = 11 c = 4 d = 65 r = .30
% correct 62 a = 18 b = 16 c = 5 d = 62 r = .32

114. Into our twenties, the brain develops in _____ of growth and _____
a) a steady pattern; learning.
b) an AB model; synaptogenesis.
c) pruning; lateralization.
d) spurts; pruning.
Answer: d
Skill Level: Factual
Difficulty: Easy
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

115. Synapses develop as a result of the growth of both _____ and _____
a) myelination; mitochondria.
b) cell membranes; ion channels.
c) dendrites; axons.
d) vesicles; plasticity.
Answer: c
Skill Level: Factual
Difficulty: Easy
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

116. Our brain has an amazing ability to adapt to changed inputs and to brain damage. We call this ability _____
a) plasticity.
b) lateralization.
c) pruning.
d) myelination.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

117. Pruning is _____
a) a process that eliminates unnecessary and redundant synapses.
b) a medical procedure used to remove brain tumors.
c) the death of brain cells due to disease or damage.
d) the shortening of dendrites to make them more efficient.
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

118. In adults over 70, the brain has _____
a) increased in weight.
b) decreased in weight.
c) lost all plasticity.
d) fewer neurotransmitter types.
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

119. Deterioration of the health of the heart and blood vessels poses an increased risk to the brain of damage from _____
a) death.
b) synaptogenesis.
c) too much pruning.
d) stroke.
Answer: d
Skill Level: Factual
Difficulty: Easy
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

120. Nora has had hearing defects since she was a child. She is now 43 and a new procedure to regenerate hair cells in the auditory canal has helped her to have those hearing defects corrected. What most likely occurred in Nora's brain as a result?
a) Not much; she was too old to have much brain plasticity.
b) Areas of her brain involved in sound perception changed noticeably.
c) Auditory signals were rerouted to the better functioning visual cortex.
d) Broca's area had trouble interpreting all the new sounds.
Answer: b *Researchers have found that plasticity is still present in late-middle-aged adults. In this scenario, changes do occur in all the areas of the brain involved in sound perception.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

121. Maddy, age six, gets frustrated because she can't judge distance and direction as well as her ten-year-old sister, so she always loses at beanbag toss. Maddy's less accurate spatial perception is most likely due to which of the following?
a) synaptogenesis
b) slower processing speed
c) lack of lateralization
d) damage to her parietal lobe
Answer: c *Children younger than age eight exhibit much poorer spatial skills than do older children because some functions, such as spatial perception, have not been lateralized.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

122. Which of the following helps adults think faster than young children?
a) myelination
b) an increase in dopamine
c) a decrease in GABA
d) plasticity
Answer: a *Myelination continues into our twenties. Of the answer choices, only myelination may account for differences between adult and child processing speed.*
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

123. Though very rare, 3-year-old Zora suffered a stroke. After participating in two years of rehabilitation, Zora recovered nearly all of her lost functioning. What might account for this high degree of recovery?
a) a split-brain surgery
b) plasticity and age
c) pruning
d) brain medication
Answer: b *Plasticity, the ability of the brain to adapt to changes such as brain damage, is greatest in young children.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain

124. Typically the brains of men have a _____ proportion of _____ than do the brains of women.
a) lower; white matter
b) higher; gray matter
c) higher; white matter
d) higher; glial cells
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 63
Textbook LO 2.12: How do the brains of men and womsn differ?, APA LO 4.1d
Topic: Gender Differences in the Brain

125. Compared to a typical female brain, a typical male brain will have a _____ proportion of white matter in _____
a) higher; their left hemisphere.
b) similar; both hemispheres.
c) lower; their left hemisphere.
d) lower; their right hemisphere.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 63
Textbook LO 2.12: How do the brains of men and womsn differ?, APA LO 4.1d
Topic: Gender Differences in the Brain

126. In women's brains, the proportions of white and gray matter are _____ in both hemispheres.
a) different
b) greater than men's
c) less than men's
d) the same
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 63
Textbook LO 2.12: How do the brains of men and womsn differ?, APA LO 4.1d
Topic: Gender Differences in the Brain

127. Compared to a typical male brain, a typical female brain has more gray matter in the area that processes _____
a) visual-spatial relationships.
b) emotional perception.
c) speed of thought.
d) self-image.
Answer: b
Skill Level: Factual
Difficulty: Moderate
Page Ref: 63
Textbook LO 2.12: How do the brains of men and womsn differ?, APA LO 4.1d
Topic: Gender Differences in the Brain

128. Before we know what differences between typical male and typical female brains mean, we need research that looks for links between these brain differences and _____
a) gender.
b) intelligence.
c) behavior.
d) speed of processing.
Answer: c
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 63
Textbook LO 2.12: How do the brains of men and womsn differ?, APA LO 4.1d
Topic: Gender Differences in the Brain

129. The endocrine system consists of various _____ that create and release _____
a) glands; hormones.
b) neurons; neurotransmitters.
c) glial cells; hormones.
d) glands; acetylcholine.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 63
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

130. The pituitary gland produces _____
a) melatonin.
b) PTH.
c) growth hormone.
d) sex hormones.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 64
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

131. The _____, often referred to as the master gland because it activates other glands, is located _____
a) pituitary gland; just above the kidneys.
b) pineal gland; in the lower neck.
c) pituitary gland; near the hypothalamus.
d) pineal gland; just above the kidneys.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 64
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

132. Melatonin, a hormone that regulates sleep and wakefulness, is produced by the _____ gland.
a) pineal
b) pituitary
c) parathyroid
d) thymus
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 64
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

133. Our metabolism, the rate at which food is converted to energy, is controlled by a hormone released by the _____
a) parathyroid.
b) adrenal glands.
c) pancreas.
d) thyroid.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

134. In order to have the right balance of calcium and magnesium in our bloodstream, we need a functional _____ gland.
a) thyroid
b) parathyroid
c) adrenal
d) thymus
Answer: b *The parathyroid glands produce PTH, parathyroid hormone, which regulates the levels of calcium and magnesium in our bloodstream.*
Skill Level: Conceptual
Difficulty: Easy
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

135. Despite having a massive infection, Lindsey's white blood cell count remained low. This could be due to a malfunction of her _____
a) thymus.
b) parathyroid.
c) thyroid.
d) thalamus.
Answer: a *The thymus signals the body to produce more white blood cells when threatened by microorganisms that can cause disease.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

136. Andrew has Type I diabetes. He wishes his _____ would produce the right amount of _____ so he would not have to have daily injections.
a) adrenal glands; epinephrine
b) pancreas; corticoids
c) pancreas; insulin
d) pituitary; glycogen
Answer: c *The pancreas regulates the body's blood sugar levels by releasing insulin and glucagon into the blood stream. In diabetes, too little insulin is produced.*
Skill Level: Applied
Difficulty: Easy
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

137. _____, produced by the _____ gland(s), plays a role in activating the _____ nervous system.
a) Testosterone; gonads; central
b) Epinephrine; adrenal; sympathetic
c) Epinephrine; adrenal; parasympathetic
d) Progesterone; pituitary; sympathetic
Answer: b
Skill Level: Factual
Difficulty: Difficult
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

138. Activated by the _____, gonads release _____
a) thymus; estrogen.
b) pineal gland; testosterone.
c) pituitary; corticoids.
d) pituitary; sex hormones.
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

139. Choden was just nearly hit by a car. His adrenal gland just dumped _____ into his bloodstream.
a) glucogon
b) thymosin
c) corticoids
d) emergogen
Answer: c *A group of adrenal hormones called corticoids are involved in the fight-or-flight syndrome that is activated in such situations.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

140. Samuel still felt enraged hours after he was cut off on the highway, and he wanted to hit somebody. This may be because his _____ glands are still signaling his brain, maintaining this response to the earlier threat.
a) thymus
b) sex
c) pineal
d) adrenal
Answer: d *Animal research suggests that corticoids, produced by the adrenal glands, may signal the brain to maintain fight-or-flight status long after the original threat has passed.*
Skill Level: Applied
Difficulty: Difficult
Page Ref: 65
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a
Topic: The Endocrine System

141. _____ are segments of DNA located on _____
a) Genes; chromosomes.
b) Chromosomes; genes.
c) Autosomes; genes.
d) Genotypes; chromosomes.
Answer: a
Skill Level: Factual
Difficulty: Easy
Page Ref: 65
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

142. Except for sperm and egg cells, the nuclei of normal body cells contain _____ chromosomes.
a) 23
b) 46
c) 21
d) 69
Answer: b
Skill Level: Factual
Difficulty: Easy
Page Ref: 65
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

143. The Human Genome Project's goal is to identify the _____ of all genes and their locations on the _____
a) mutations; nuclei.
b) make-up; genotype.
c) source; chromosomes.
d) function; chromosomes.
Answer: d
Skill Level: Factual
Difficulty: Easy
Page Ref: 65
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

144. Matched pairs of chromosomes, both carrying genetic information for particular traits, are called _____
a) dominant-recessive.
b) sex chromosomes.
c) autosomes.
d) polygenic.
Answer: c
Skill Level: Factual
Difficulty: Moderate
Page Ref: 65
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

145. Arlo carries a gene for tallness, but he is fully-grown and only 5 feet tall. Tallness is his _____, shortness is his _____
a) phenotype; genotype.
b) polygenic inheritance; genotype.
c) genotype; phenotype.
d) sex-linked gene; expressed gene.
Answer: c *The genotype is the genetic make-up; the phenotype is the actual trait.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 66
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

146. Kalsang has a gene for a bone disease, but he does not have the disease. Which of the following could be a reason this may have happened?
a) The gene is sex-linked.
b) The gene is dominant.
c) The gene is recessive.
d) The gene is fragile.
Answer: c *When a gene is recessive, its expression is prevented by the dominant gene in the pair.*
Skill Level: Applied
Difficulty: Moderate
Page Ref: 66
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

147. Some traits are influenced by many genes. This is called _____
a) multifactorial inheritance.
b) dominant-recessive pairing.
c) phenotypal clustering.
d) polygenic inheritance.
Answer: d
Skill Level: Factual
Difficulty: Moderate
Page Ref: 66
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

148. Sex-linked inheritance means which of the following?
a) The gene is on an X or a Y chromosome.
b) The gene is dormant until after puberty.
c) The gene is only inherited by females.
d) The gene is only active in males.
Answer: a
Skill Level: Factual
Difficulty: Moderate
Page Ref: 66
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

149. Patti is passing on a mutated gene on her X chromosome. Why is her son more likely to express the mutation in his phenotype than her daughter is?
a) Males are more likely to inherit the bad copy of a gene whenever there is one.
b) Males do not have a second X chromosome that might have a good copy of the gene.
c) Estrogen will silence a mutated gene once her daughter experiences puberty.
d) Her daughter's Y chromosome will probably have a good copy of that gene to offset the bad one.
Answer: b
Skill Level: Applied
Difficulty: Difficult
Page Ref: 66
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

150. Twin studies and studies of adopted children allow behavioral geneticists to research the _____
a) polygenic nature of inheritance.
b) relative contributions of genes and environment.
c) ways genes always win over environment.
d) ways environment always wins over genes.
Answer: b
Skill Level: Conceptual
Difficulty: Moderate
Page Ref: 67–68
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics

Completion (Fill-in-the-Blank)

1. The branch-like structures that take in information are the _____, whereas the long, tail-like structures that transmit information down the length of the neuron are _____.
Answer: dendrites; axons
Difficulty: Easy
Page Ref: 41–42
Skill Level: Conceptual
Topic: The Structure of the Neuron
Textbook LO 2.3: What does each part of the neuron do?, APA LO 5.1b

2. It is not the strength of the neural message that determines how strongly we experience something, but rather the _____ and the _____.
Answer: speed/rate; number/how many impulses or action potentials
Difficulty: Difficult
Page Ref: 43
Skill Level: Conceptual
Topic: Communication between Neurons
Textbook LO 2.4: How do neurons transmit messages through the nervous system?, APA LO 5.1b

3. Neurotransmitters have the ability to bind with receptors located on _____ and _____.
Answer: dendrites; cell bodies or somas
Difficulty: Difficult
Page Ref: 44
Skill Level: Conceptual
Topic: Neurotransmitters
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b

4. _____ is the neurotransmitter known for affecting movement and causing muscle contractions in humans.
Answer: Acetylcholine
Difficulty: Easy
Page Ref: 46
Skill Level: Factual
Topic: Neurotransmitters
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b

5. The neurotransmitter _____ is suspected to play a role in attention-deficit disorder.
Answer: dopamine
Difficulty: Moderate
Page Ref: 46
Skill Level: Factual
Topic: Neurotransmitters
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b

6. Imagine you are playing in a championship basketball game. You have just taken a fall while trying to get a rebound and your ankle begins to hurt. Moments later, you notice the pain in your ankle seems to have subsided. You attribute this pain relief to a release of _____, which is a type of neurotransmitter that relieves pain.
Answer: endorphins
Difficulty: Easy
Page Ref: 46
Skill Level: Applied
Topic: Neurotransmitters
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b

7. The peripheral nervous system includes all of the nerves not in _____.
Answer: bone or the skull or backbone/spine
Difficulty: Easy
Page Ref: 47
Skill Level: Factual
Topic: The Peripheral Nervous System
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a

8. The _____ nervous system mobilizes the body's resources in an emergency.
Answer: sympathetic
Difficulty: Moderate
Page Ref: 48
Skill Level: Factual
Topic: The Peripheral Nervous System
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a

9. All sensory information from the peripheral nervous system reaches the brain through the _____.
Answer: spinal cord
Difficulty: Moderate
Page Ref: 49
Skill Level: Factual
Topic: The Central Nervous System
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a

10. The _____ handles unconscious functions so critical to life that damage to it is life threatening.
Answer: hindbrain; brain stem; medulla
Difficulty: Moderate
Page Ref: 49
Skill Level: Factual
Topic: The Central Nervous System
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a

11. After a brain injury, Joelle had difficulty maintaining her posture and coordinating smooth movements. She most likely sustained injury to her _____.
Answer: cerebellum
Difficulty: Moderate
Page Ref: 49
Skill Level: Applied
Topic: The Central Nervous System
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a

12. The _____ regulates hunger, thirst, sexual behavior, emotional behaviors and sleep/wake cycles
Answer: hypothalamus
Difficulty: Moderate
Page Ref: 51
Skill Level: Factual
Topic: The Central Nervous System
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a

13. Two deficits typically observed in individuals with damage to the hippocampus are _____ and _____.
Answer: difficulty forming new memories; navigation or spatial skills or learning our way around
Difficulty: Difficult
Page Ref: 51–52
Skill Level: Applied
Topic: The Central Nervous System
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a

14. The cerebrum is devised primarily of the following brain components: _____, _____, and _____.
Answer: cerebral cortex; corpus callosum; cerebral hemispheres (OR right hemisphere; left hemisphere; corpus callosum)
Difficulty: Moderate
Page Ref: 52
Skill Level: Factual
Topic: Components of the Cerebrum
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a

15. The outermost layer of the brain, called the _____, is mostly responsible for higher mental functions such as language, memory, and thinking.
Answer: cerebral cortex
Difficulty: Easy
Page Ref: 52
Skill Level: Factual
Topic: Components of the Cerebrum
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a

16. The human cerebral cortex appears to have many folds or wrinkles called _____; the purpose of these wrinkles is _____.
Answer: convolutions; to allow the large cerebral cortex to fit within the skull
Difficulty: Moderate
Page Ref: 53
Skill Level: Conceptual
Topic: Components of the Cerebrum
Textbook LO 2.8: What are the components of the cerebrum?, APA LO 5.2a

17. The _____ allows for voluntary body movement and is located within the _____ lobe.
Answer: motor cortex; frontal
Difficulty: Moderate
Page Ref: 57
Skill Level: Factual
Topic: The Four Cerebral Lobes
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a

18. Danielle knows exactly what she wants to say, but is having great difficulty saying it. The few times she has spoken since her car accident, friends and family have reported that her speech is very slow, labored, and poorly articulated due to her brain injury. Danielle likely suffers from _____.
Answer: Broca's aphasia or damage to Broca's area
Difficulty: Difficult
Page Ref: 59
Skill Level: Applied
Topic: The Four Cerebral Lobes
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a

19. Jordan can reach into his backpack and find his set of keys without looking. His ability to identify this stimulus solely by touch is afforded to him by his _____ lobe.
Answer: parietal
Difficulty: Difficult
Page Ref: 59
Skill Level: Applied
Topic: The Four Cerebral Lobes
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a

20. The brain's ability to adapt and/or reorganize as a result of an injury is called _____.
Answer: plasticity
Difficulty: Easy
Page Ref: 61
Skill Level: Conceptual
Topic: The Ever-Changing Brain
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d

21. A _____ results when an artery is blocked and the blood supply to a particular area of the brain is cut off.
Answer: stroke
Difficulty: Moderate
Page Ref: 62
Skill Level: Factual
Topic: The Ever-Changing Brain
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d

22. While driving, you notice that the car in front of you has come to a screeching halt. You, in turn, slam on the breaks. During this time, your sympathetic nervous system is activated due to your _____ glands' production of the neurotransmitters _____ and _____.
Answer: adrenal; epinephrine; norepinephrine
Difficulty: Difficult
Page Ref: 65
Skill Level: Applied
Topic: The Endocrine System
Textbook LO 2.13: What are the functions of the glands of the endocrine system?, APA LO 1.1a

23. Except for the _____ and _____, the nuclei of normal human body cells contain _____ pair(s) of chromosomes.
Answer: egg cell; sperm cell; 23
Difficulty: Moderate
Page Ref: 66
Skill Level: Factual
Topic: Genes and Behavioral Genetics
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a

24. When a trait is influenced by both genes AND the environment, it is said to have a _____ pattern of inheritance.
Answer: multifactorial
Difficulty: Moderate
Page Ref: 66
Skill Level: Conceptual
Topic: Genes and Behavioral Genetics
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a

25. Behavioral geneticists study twins and adopted people in order to help us understand the interaction of _____.
Answer: genes and environment or nature and nurture
Difficulty: Difficult
Page Ref: 67–68
Skill Level: Conceptual
Topic: Genes and Behavioral Genetics
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a

Essay Questions

1. Explain at least three of the following techniques used to study the brain: EEG, CT scan, MRI, PET scan, fMRI. What is the significance of these brain-imaging techniques?

Answer:

- **EEG.** Electrodes placed on the scalp allow for the measurement of brain waves. Beta waves suggest mental and/or physical activity. Alpha waves suggest relaxation. Delta waves suggest sleep. Computerizing these waves allows for the study of various disorders such as Alzheimer's disease, epilepsy, etc.
- **CT scan:** Rotating X-rays produce cross-sectional images of the various brain structures. This allows for the detecting of tumors, brain injuries, etc.
- **MRI:** This scanning technique offers detailed images of the brain. It allows for the discovery of various brain abnormalities without exposing people to harmful X-rays.
- **PET scan:** This imaging technique shows brain activity in various locations. It can offer information such as how much oxygen is being used, how much glucose is being consumed, and how various substances affect the brain. This tool affords scientists the ability/potential to unlock some of the brain's mysteries.
- **fMRI:** This imaging technique allows for the study of both the structure AND activity of the brain. It offers more precise information as compared to the PET scan.

Brain-scanning techniques have helped us learn much about brain anatomy, structures, and activity. They have allowed scientists to not only study the abnormal, but also what is normal or expected. Once scientists know what should be happening in the brain, they will be better able to detect when things are going awry. Overall, these techniques have played a large role, and will continue to do so, in the development of treatments.

Page Ref: 39–41
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: Imaging Techniques
Skill Level: Conceptual
Difficulty: Moderate

2. Explain in detail how information is sent from one neuron to the next.

Answer: The information, once received from the dendrite or cell body, travels down the length of the neuron via the axon. The axon then splits into the axon terminals, which house the synaptic vesicles. The vesicles merge with the membrane and then release neurotransmitters into the synapse, or the junction between the two neurons. Some of the neurotransmitters will fit

into the receptor sites on the dendrites or cell bodies of a nearby neuron. If they do, that particular neurotransmitter binds with that receptor site. Once binding occurs, the information carried by the neurotransmitter is sent to the next neuron. When neurotransmitters do not find receptor sites, they are often broken down, reabsorbed, and recycled for the next time around. They may also have not had a chance to bind if reuptake occurred.

Page Ref: 42–44
Textbook LO 2.4: Hoe do neurons transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons
Skill Level: Factual
Difficulty: Moderate

3. Aiden was hit by a drunk driver and sustained a severe injury to his left frontal lobe. What should Aiden and his family expect now? What difference, if any, might Aiden's age make on the situation?

Answer: If Aiden is an adult, his impairments may be numerous. Because research suggests that the frontal lobe houses the motor cortex, we can speculate that voluntary muscle movement on his right side will be affected. He may lose the ability to move, or he may have much impairment in moving the right side of his body. Second, research tells us that Broca's area is in the left frontal lobe, so Aiden will either have difficulty producing speech or not be able to produce speech at all. (This is called Broca's aphasia.) Finally, the frontal lobe houses the frontal association areas. Many abilities come from this region of the brain, such as impulse control, thinking, planning, motivation, and emotional responses. Thus, it is likely that Aiden will have impairments in those areas. For example, Aiden could become more impulsive and not think of the consequences of his behaviors. He may not think ahead due to his problems with planning. His thinking abilities may be greatly impaired. He may demonstrate a lack of motivation. Maybe most important is that Aiden will likely not be the same person he was before the accident. His family may see drastic changes in emotional behavior or personality.

If Aiden happens to be a very young child, the picture may not be as grim. Very young children have a higher degree of brain plasticity in which parts of their brain can take over for injured sites. In that case, Aiden will likely have some impairment, but not to the degree an adult would.

Page Ref: 57–59
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes
Skill Level: Applied
Difficulty: Difficult

4. Discuss the difference between phenotype and genotype and why the phenotype may be different from the genotype in an individual.

Answer: The genotype is the actual genetic make-up, the genes on an individual's chromosomes. The phenotype comprises the actual traits the person has. Genotype remains stable, but environmental factors can influence whether a gene is active or expressed.

There may be a dominant-recessive pattern. In a dominant-recessive pairing, the dominant gene will stop the recessive gene from being expressed in the phenotype. Multifactorial

inheritance (or the influence of the environment) may mean genetic potential is not reached. Someone with genes for tallness, for example, may experience malnutrition so they don't achieve their potential height.

Page Ref: 66
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics
Skill Level: Conceptual
Difficulty: Difficult

5. Describe the two different types of twins and explain their significance to the field of psychology.

Answer: Identical twins occur when one egg is fertilized by one sperm. After fertilization, the egg splits into two, thereby creating two eggs with the same genetic material. Fraternal twins happen when two eggs are released at the same time and the eggs are fertilized by different sperm.

Fraternal twins are no more genetically similar than any sibling pairs from the same biological mom and dad.

Behavioral geneticists are those in the field of psychology who dedicate their careers to studying the effects of heredity and environment on behavior. Twin studies help behavioral geneticists unravel environmental versus genetic influences on traits and characteristics. This is especially true in the case of monozygotic twins reared together and apart. Because they share 100% of the same DNA, researchers can begin to figure out which traits are inherited or learned from the environment.

Page Ref: 67–68
Textbook LO 2.14: How does heredity affect physical and psychological traits?, APA LO 1.1a
Topic: Genes and Behavioral Genetics
Skill Level: Conceptual
Difficulty: Moderate

Critical Thinking Questions

1. Discuss on what basis you would decide between doing an MRI or an fMRI imaging study on a patient.
Answer: An MRI would be useful only for determining changes in structure. The fMRI would be necessary to show both structures and activity.
Page Ref: 40
Textbook LO 2.1: What does the electroencephalogram (EEG) reveal about the brain?, APA LO 3.2e
Topic: Imaging Techniques
Skill Level: Applied
Difficulty: Moderate

2. Can neurons fire at a constant rate all of the time? Why or why not?
Answer: No. Immediately after a neuron fires, it enters the refractory period. This is a short break or a resting time that lasts about 1 to 2 milliseconds.
Page Ref: 43–44
Textbook LO 2.4: How do neurons transmit messages through the nervous system?, APA LO 5.1b:
Topic: Communication between Neurons
Skill Level: Conceptual
Difficulty: Easy

3. In terms of neural firing, how can we tell the difference between a strong stimulus (such as a stray dog running toward you) and a weak stimulus (such as seeing a butterfly)?
Answer: The strong stimulus will cause more neurons to fire at the same time, whereas the weak stimulus will cause only a few neurons to fire at the same time. In addition, a strong stimulus will cause those neurons to fire at a very fast rate (several hundred times per second), whereas the weak stimulus will cause the neurons to fire at a much slower rate.
Page Ref: 43–44
Textbook LO 2.4: How do neurons transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons
Skill Level: Conceptual
Difficulty: Moderate

4. How do neurons receive information once the neurotransmitters are in the synapse?
Answer: Though dendrites are the primary receivers of signals carried by neurotransmitters, the membranes of cell bodies also have this ability. Both dendrites and cell bodies have receptor sites that allow the neurotransmitter to fit in (or bind) to the appropriate receptor sites. This binding allows the neuron to receive, or take in, the message/information that is being transmitted.
Page Ref: 43–44
Textbook LO 2.4: How do neurons transmit messages through the nervous system?, APA LO 5.1b
Topic: Communication between Neurons
Skill Level: Conceptual
Difficulty: Easy

5. Explain how neurotransmitter levels are maintained.
Answer: The cell body continues to manufacture them; they may be broken down into component parts and recycled to be used again; the process of reuptake places them back in the axon terminal, ready for immediate use again.
Page Ref: 45
Textbook LO 2.5: How do neurotransmitters work?, APA LO 5.1b
Topic: Communication between Neurons
Skill Level: Factual
Difficulty: Difficult

6. What might result if an individual’s sympathetic nervous system is overactive?
Answer: An overactive sympathetic nervous system would likely result in an extended stay in the “fight-or-flight” mode. It may also result in repeated fight-or-flight responses. The body would experience increased heart rate, increased pulse rate, increased respiratory rate, decreased digestion, and so on. This could lead to chronic anxiety or perhaps even cardiac problems.
Page Ref: 48
Textbook LO 2.6: What are the structures and functions of the peripheral nervous system?, APA LO 5.1a
Topic: The Peripheral Nervous System
Skill Level: Applied
Difficulty: Moderate

7. What will likely result from an injury to the limbic system?

Answer: The limbic system includes both the amygdala and the hippocampus. As a whole, the limbic system is involved in expression of emotions, memory, and motivation. Thus, injury to this site will likely involve impairments in emotional expression, memory, and motivation.
Page Ref: 51
Textbook LO 2.7: What are the structures and functions of the central nervous system?, APA LO 5.1a
Topic: The Central Nervous System
Skill Level: Applied
Difficulty: Moderate

8. Discuss the changes that might take place with damage to the prefrontal lobes.
Answer: Multiple functions may be impaired or lost, including cognition and executive processing.
Judgment may be impaired. It may become difficult to inhibit one's impulses, manage emotions, or anticipate the consequences of what you do. Instead of cognitive tasks seeming like a unified whole, they may seem fragmentary and disconnected. There may be personality changes and behavior changes. This question may also be answered with examples of such changes.
Page Ref: 57
Textbook LO 2.10: Which functions are associated with each of the four lobes of the cerebral cortex?, APA LO 5.2a
Topic: The Four Cerebral Lobes
Skill Level: Applied
Difficulty: Moderate

9. In terms of brain development, what might account for the differences in processing speed and level of thinking between children and adults?
Answer: The brain continues to develop through young adulthood. The frontal lobes do not become fully myelinated until about age 12. The frontal lobes also undergo growth spurts (due to synaptogenesis) well into adulthood. With more brain matter, more synapses, and full myelination, level of thinking and processing speed (in addition to many other skills) substantially increase from childhood to adulthood.
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain
Skill Level: Conceptual
Difficulty: Moderate

10. What is the significance of brain plasticity?
Answer: Plasticity is the brain's ability to reorganize in light of any change in the brain. This plasticity allows for a range of events to occur, from learning a new skill all the way to relearning how to speak after a stroke. Plasticity allows the brain to adapt to changes in input or damage.
Page Ref: 61
Textbook LO 2.11: How does the brain change across the lifespan?, APA LO 4.1d
Topic: The Ever-Changing Brain
Skill Level: Conceptual
Difficulty: Moderate