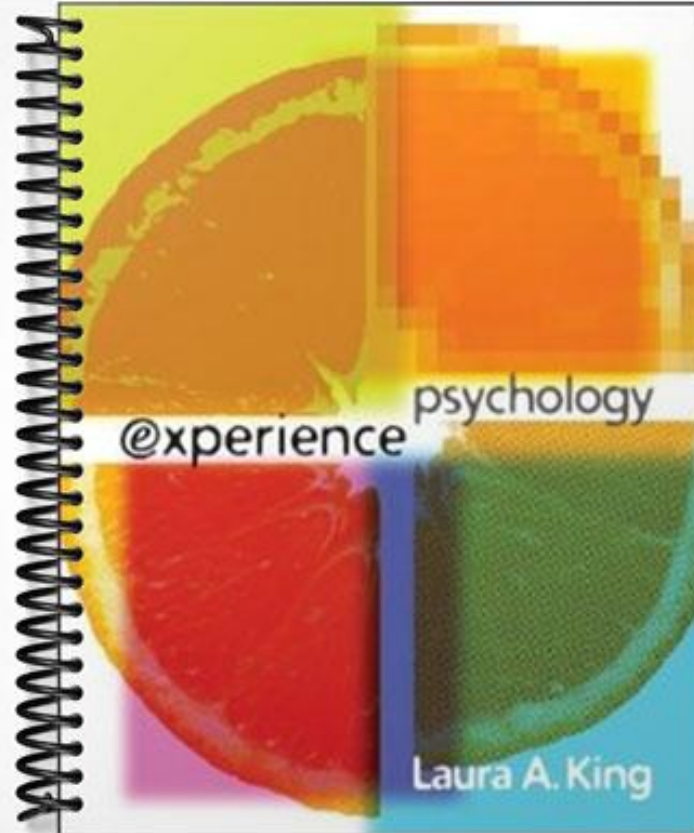


TEST BANK



King Chapter 2 Test Bank

1. A single cubic centimeter of the human brain consists of well over _____ nerve cells.

- A. 10 million
- B. 50 million
- C. 1 billion
- D. 100 billion

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 38

Learning goals: the nervous system

2. The brain's ability to coordinate information from all five senses best reflects which of the following characteristics of the nervous system?

- A. Complexity
- B. Integration
- C. Adaptability
- D. Electrochemical transmission

Answer: B

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 39

Learning goals: the nervous system

3. The term *plasticity* refers to the_____.

- A. flexibility of the endocrine system
- B. brain's special capacity for modification and change
- C. natural tendency to engage in a fight or flight response
- D. ability of people to change habits over time

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 40

Learning goals: the nervous system

4. Plasticity best reflects which of the following characteristics of the nervous system?

- A. Complexity
- B. Integration
- C. Adaptability
- D. Electrochemical transmission

Answer: C

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 40

Learning goals: the nervous system

5. You are listening to a lecture. Then the bell rings in the hallway. In order to hear this stimulus, _____ neurons must carry electrochemical messages from your ears to your brain.

- A. indigent
- B. afferent
- C. efferent
- D. indifferent

Answer: B

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 40

Learning goals: the nervous system

6. The lecture you were listening to is over. The bell that rang in the hall signaled the end of class. You get up out of your seat, pick up your things, and walk out the classroom door. Which kind of nerves sent the signals from your brain to your muscles to initiate your physical movements?

- A. Afferent
- B. Efferent
- C. Hormones
- D. Indifferent

Answer: B

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 40

Learning goals: the nervous system

7. Information from the brain and spinal cord to the muscles is sent through _____, thus enabling the body to move.

- A. afferent nerves
- B. efferent nerves
- C. hormones
- D. interpathway nerves

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 40

Learning goals: the nervous system

8. Your brain has instructed your body muscles to move so that you avoid burning your hand on a hot stove. Which type of nerves carried the information from your brain to your muscles so that you could avoid getting burned?

- A. Afferent nerves
- B. Efferent nerves
- C. Glial nerves
- D. Parasympathetic nerves

Answer: B

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: page 40

Learning goals: the nervous system

9. The brain and spinal cord make up the _____.

- A. peripheral nervous system
- B. central nervous system
- C. autonomic nervous system
- D. somatic nervous system

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 40

Learning goals: the nervous system

10. _____ nerves carry information to the brain and spinal cord. _____ nerves carry information from the brain and spinal cord to the rest of the body.

- A. Afferent / Efferent
- B. Efferent / Afferent
- C. Glial cells / Afferent
- D. Efferent / Glial cells

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 40

Learning goals: the nervous system

11. The _____ nervous system connects the brain and spinal cord to the rest of the body.

- A. central
- B. peripheral
- C. somatic
- D. autonomic

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: pages 40-41

Learning goals: the nervous system

12. The somatic nervous system and autonomic nervous system are components of the _____.

- A. somatosensory area
- B. central nervous system
- C. limbic system
- D. peripheral nervous system

Answer: D

Bloom's Taxonomy: knowledge

Difficulty Level: moderate

Feedback: pages 40-41

Learning goals: the nervous system

13. The sympathetic nervous system and parasympathetic nervous system are components of the _____.

- A. central nervous system
- B. autonomic nervous system
- C. somatic nervous system
- D. endocrine system

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 41

Learning goals: the nervous system

14. The _____ nervous system mobilizes the body's resources and prepares it for action (i.e., the fight or flight response).

- A. central
- B. somatic
- C. sympathetic
- D. parasympathetic

Answer: C

Bloom's Taxonomy: comprehension

Difficulty Level: easy

Feedback: page 41

Learning goals: the nervous system

15. The parasympathetic nervous system is part of the _____ nervous system.

- A. central
- B. somatic
- C. autonomic
- D. sympathetic

Answer: C

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 41

Learning goals: the nervous system

16. You are walking to school when you encounter a strange barking dog. You tense up and contemplate whether you should run away. Which nervous system is responsible for this "fight or flight" reaction?

A. Somatic

B. Sympathetic

C. Parasympathetic

D. Efferent

Answer: B

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 41

Learning goals: the nervous system

17. Which division of the peripheral nervous system is responsible for producing physiological symptoms (such as increased heart rate and butterflies in the stomach) under conditions of stress?

A. Somatic

B. Parasympathetic

C. Sympathetic

D. Efferent

Answer: C

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 41

Learning goals: the nervous system

18. After finishing a psychology test, you try to relax by engaging in some meditation techniques. Doing these exercises should increase the response of the _____ nervous system, which results in a slower heart and respiration rate and less muscular tension.

A. somatic

B. central

C. parasympathetic

D. sympathetic

Answer: C

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: page 41

Learning goals: the nervous system

19. Essential body functions such as heart rate, breathing, and digestion are under the control of the _____.

- A. somatic nervous system
- B. cerebral cortex
- C. interneuron system
- D. autonomic nervous system

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 41

Learning goals: the nervous system

20. Just before you went on a job interview your heart was pounding like crazy. You experienced a shortness of breath and felt sick to your stomach. These symptoms were most likely produced by your _____ nervous system.

- A. central
- B. somatic
- C. parasympathetic
- D. sympathetic

Answer: D

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: page 41

Learning goals: the nervous system

21. Corticosteroids are _____.

- A. stress hormones
- B. sex hormones
- C. neurotransmitters that regulate mood
- D. neurotransmitters that regulate memory

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 42

Learning goals: neurons

22. Dendrites are _____.

- A. the part of the neuron that is responsible for sending information away from the cell body toward other cells
- B. the branch-like part of the neuron that is responsible for receiving information from other neurons
- C. located inside the cell body
- D. the layer of fat cells that encase and insulate the neuron

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 44

Learning goals: neurons

23. Axons are ____.

A. the part of the neuron that is responsible for sending or carrying information away from the cell body toward other cells

B. the branch-like part of the neuron that is responsible for receiving information from other neurons

C. located inside the cell body

D. the layer of fat cells that encase and insulate the neuron

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 44

Learning goals: neurons

24. The nucleus of a neuron is located in the ____.

A. axon hillock

B. terminal stub

C. cell body

D. synapse

Answer: C

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 43-44

Learning goals: neurons

25. The cell body contains the _____, which directs the manufacture of substances that a neuron needs for growth and maintenance.

A. glial cells

B. nucleus

C. axon

D. dendrite

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 43-44

Learning goals: neurons

26. ____ is a layer of fat cells that insulates most axons and speeds up the transmission of nerve impulses.

A. A dendrite

- B. The myelin sheath
- C. Plasticity
- D. Acetylcholine

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 44

Learning goals: neurons

27. _____ allows neurons to speed up the transmission of nerve impulses.

- A. Resting potential
- B. Having more than one cell body
- C. The myelin sheath
- D. Acetylcholine

Answer: C

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 44

Learning goals: neurons

28. When a neuron is at its resting state, what is the status of the charges on each side of the cell membrane?

- A. There is a negative charge on the outside of the cell membrane, and a positive charge on the inside.
- B. There is a negative charge on the inside of the cell membrane and a positive charge on the outside.
- C. There is a negative charge on both the outside and the inside of the cell membrane.
- D. There is a positive charge on both the outside and the inside of the cell membrane.

Answer: B

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 45

Learning goals: neurons

29. Resting potential is the _____.

- A. amount of time a signal travels through the central nervous system
- B. amount of time a neuron must "rest" in between firing episodes
- C. stable, positive charge of an inactive neuron
- D. stable, negative charge of an inactive neuron

Answer: D

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 45

Learning goals: neurons

30. According to the all-or-nothing principle, _____.

- A. if all the neurons in a network are not integrated, the “message” carried by the neurons will be lost
- B. the amount of time a neuron must “rest” in between firing episodes is stable
- C. once the electrical impulse reaches a certain level of intensity (its threshold), it fires and moves all the way down the axon without losing any intensity
- D. as a person ages, his or her neurological system slows down and the intensity of neural impulses decreases significantly

Answer: C

Bloom’s Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 46

Learning goals: neurons

31. Another term that describes the “firing” of neurons is _____.

- A. resting potential
- B. action potential
- C. graded potential
- D. polarized potential

Answer: B

Bloom’s Taxonomy: comprehension

Difficulty Level: easy

Feedback: page 46

Learning goals: neurons

32. _____ are chemical substances that carry information across the synaptic gap to the next neuron.

- A. Neurotransmitters
- B. Axons
- C. Synapses
- D. Dendrites

Answer: A

Bloom’s Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 46

Learning goals: neurons

33. A _____ is a tiny space between the axon of one neuron and the dendrites or cell body of another neuron.

- A. glial cell
- B. reticular formation
- C. synapse
- D. basal ganglia

Answer: C

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 46

Learning goals: neurons

34. Your relative is experiencing memory loss related to Alzheimer disease. Research suggests that there may be insufficient production of the neurotransmitter _____ in this individual's brain.

A. serotonin

B. gamma-amino butyric acid (GABA)

C. acetylcholine

D. dopamine

Answer: C

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 48

Learning goals: neurons

35. Acetylcholine is a neurotransmitter that plays an important role in _____.

A. motor function, learning, and memory

B. sexual function

C. mood regulation

D. All of these

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 48

Learning goals: neurons

36. _____ inhibits the firing of neurons in the central nervous system, but it excites the heart muscle, intestines, and urogenital tract.

A. Serotonin

B. Dopamine

C. Norepinephrine

D. GABA

Answer: C

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: pages 48

Learning goals: neurons

37. Depression is associated with low levels of what neurotransmitter?

A. Acetylcholine

- B. Serotonin
- C. Dopamine
- D. Oxytocin

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 49

Learning goals: neurons

38. _____ are natural opiates that shield the body from pain and elevate feelings of pleasure.

- A. Hormones
- B. Endorphins
- C. Acetylcholine
- D. Chromosomes

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 49

Learning goals: neurons

39. Which of the following neurotransmitters plays an important role in the experience of love and social bonding?

- A. Oxytocin
- B. Acetylcholine
- C. GABA
- D. Norepinephrine

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 49

Learning goals: neurons

40. Which of the following neurotransmitters play an important role in the regulation of sleep, mood, attention, and learning?

- A. GABA and oxytocin
- B. Dopamine and serotonin
- C. Acetylcholine and GABA
- D. Acetylcholine and oxytocin

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: moderate

Feedback: page 49

Learning goals: neurons

41. An ____ is a drug that mimics or increases a neurotransmitter's effects. An ____ is a drug that blocks a neurotransmitter's effect.

- A. agonist / antagonist
- B. antagonist / agonist
- C. axon / endorphin
- D. endorphin / axon

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 49

Learning goals: neurons

42. The antidepressant drug Prozac works by increasing brain levels of serotonin. This means that Prozac is considered _____.

- A. an agonist
- B. an antagonist
- C. a hormone stimulant
- D. All of these

Answer: A

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: page 49

Learning goals: neurons

43. Michael has schizophrenia. His psychiatrist prescribed a new drug that blocks or interferes with the activity of dopamine. Michael's doctor is using _____ to treat his disorder.

- A. an agonist
- B. an antagonist
- C. brain lesioning
- D. a lobotomy

Answer: B

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: page 49

Learning goals: neurons

44. Neuroscientists who surgically remove, destroy, or eliminate the brain tissue of laboratory animals are using which of the following techniques for studying the brain?

- A. Electroencephalogram (EEG)
- B. Positron emission tomography (PET)
- C. Magnetic resonance imaging (MRI)
- D. Brain lesioning

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 51

Learning goals: structures of the brain and their functions

45. Dr. Becker is interested in identifying the pathways of connectivity in the brain and nervous system. Which of the following techniques will Dr. Becker most likely use in his research?

- A. Brain lesioning
- B. Staining
- C. Positron emission tomography (PET)
- D. Electroencephalogram (EEG)

Answer: B

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 51

Learning goals: structures of the brain and their functions

46. Electrical activity in the brain can be captured by placing multiple electrodes on the scalp and then measuring the underlying electrical activity. This method of studying the brain's activity is called a(n)_____.

- A. electroencephalogram (EEG)
- B. positron emission tomography (PET)
- C. magnetic resonance imaging (MRI)
- D. functional MRI (fMRI)

Answer: A

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 51

Learning goals: structures of the brain and their functions

47. Dr. Stern is a neuroscientist who is collecting data for a new research study. He uses techniques for monitoring the amount of glucose in various areas of the brain. Which of the following methods is Dr. Stern using in this study?

- A. Brain lesioning
- B. Staining
- C. Positron emission tomography (PET)
- D. Electroencephalogram (EEG)

Answer: C

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 51

Learning goals: structures of the brain and their functions

48. Magnetic resonance imaging (MRI) is a technique that _____.

- A. measures the rate at which brain cells use glucose

- B. constructs a three-dimensional image from X rays
- C. examines the effects of lesions in brain tissue
- D. involves creating a magnetic field around a person's body and using radio waves to construct images of a person's tissues and biochemical activities

Answer: D

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 52

Learning goals: structures of the brain and their functions

49. Functional magnetic resonance imaging (fMRI) is a technique that _____.

- A. allows scientists to see what is happening in the brain while it is working
- B. relies on monitoring changes in blood oxygen that occur in association with brain activity
- C. generates very clear pictures of the brain's interior
- D. All of these

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 52

Learning goals: structures of the brain and their functions

50. If a person's cerebellum were damaged in an accident, you would expect the person to have a problem with _____.

- A. breathing and heart rate
- B. seeing and hearing
- C. talking and understanding
- D. balance and muscle coordination

Answer: D

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: page 53

Learning goals: structures of the brain and their functions

51. Which part of the nervous system regulates breathing?

- A. The hypothalamus
- B. Wernicke's area
- C. The medulla
- D. The forebrain

Answer: C

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 53

Learning goals: structures of the brain and their functions

52. The medulla, cerebellum, and pons are parts of the _____.

- A. hindbrain
- B. midbrain
- C. forebrain
- D. corpus callosum

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 53

Learning goals: structures of the brain and their functions

53. The reticular formation is primarily responsible for _____.

- A. controlling breathing and regulating reflexes to maintain an upright posture
- B. stereotyped patterns such as walking, sleeping, or turning to attend to a sudden noise
- C. control and coordination of balance, hearing, and parasympathetic function
- D. motor coordination and the integration of complex muscle movements

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 54

Learning goals: structures of the brain and their functions

54. Discrimination of objects that are necessary for survival (such as appropriate food) as well as emotional awareness and expression involves the _____.

- A. hippocampus
- B. occipital lobe
- C. medulla
- D. amygdala

Answer: D

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 55

Learning goals: structures of the brain and their functions

55. Steven was in a serious automobile accident that caused a severe injury to his hippocampus. What type of deficiency will Steven likely experience as a result of this brain damage?

- A. He will probably be unable to speak.
- B. He will probably be unable to comprehend language.
- C. He will probably have difficulties with memory formation.
- D. He will probably be paralyzed.

Answer: C

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 55

Learning goals: structures of the brain and their functions

56. The _____ is a small forebrain structure that monitors pleasurable activities (e.g. eating, drinking, and sex), emotion, stress, and reward.

- A. hypothalamus
- B. neocortex
- C. corpus callosum
- D. medulla

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 56

Learning goals: structures of the brain and their functions

57. One of the pleasure centers of the brain is found in the _____.

- A. hypothalamus
- B. corpus callosum
- C. hippocampus
- D. thalamus

Answer: A

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 56

Learning goals: structures of the brain and their functions

58. Body temperature, emotional states, and coping with stress are functions controlled by the _____.

- A. corpus callosum
- B. hippocampus
- C. hypothalamus
- D. amygdala

Answer: C

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 56

Learning goals: structures of the brain and their functions

59. The most complex mental functions, such as thinking and planning, take place in the _____.

- A. corpus callosum
- B. cerebral cortex
- C. cerebellum
- D. amygdala

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 57

Learning goals: structures of the brain and their functions

60. Sonal had a stroke. Doctors told her she sustained substantial damage to the occipital lobes. What type of deficiencies will Sonal likely experience as a result of this brain damage?

- A. She may be blind or unable to see clearly.
- B. She will probably be unable to comprehend language.
- C. She will probably have difficulties with memory function.
- D. She will probably suffer from impaired cognitive functioning (planning, reasoning, and self-control will be negatively impacted).

Answer: A

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 57

Learning goals: structures of the brain and their functions

61. The ____ are involved in personality, intelligence, and the control of voluntary muscles.

- A. temporal lobes
- B. frontal lobes
- C. occipital lobes
- D. parietal lobes

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 60

Learning goals: structures of the brain and their functions

62. The three-foot-spike that damaged Phineas Gage's frontal lobe resulted in _____.

- A. hearing loss
- B. reduced ability to interpret visual information
- C. reduction in immunity to common diseases
- D. changes in personality

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: easy

Feedback: page 58

Learning goals: structures of the brain and their functions

63. The _____ is the part of the cerebral cortex that controls voluntary muscle movement.

- A. motor cortex
- B. sensory cortex
- C. limbic system

D. temporal lobe

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: moderate

Feedback: page 60

Learning goals: structures of the brain and their functions

64. The somatosensory cortex processes information about _____.

A. planning and decision making

B. bodily sensations

C. facial expressions

D. voluntary body movement

Answer: B

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 60

Learning goals: structures of the brain and their functions

65. Which of the following regions of the brain is involved in spatial skills, attention, and motor control?

A. The hypothalamus

B. The hippocampus

C. The parietal lobes

D. The amygdala

Answer: C

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 60

Learning goals: structures of the brain and their functions

66. The association cortex _____.

A. integrates sensory input and motor output

B. makes up 75 percent of the cerebral cortex

C. is the region of the brain where the highest intellectual functions such as thinking and problem solving occur

D. All of these

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 60

Learning goals: structures of the brain and their functions

67. The corpus callosum _____.

- A. is the large bundle of axons that connects the brain's two hemispheres and relays information between the two sides
- B. is the region of the brain that is primarily responsible for managing our emotions
- C. is the region of the brain that is primarily responsible for managing our thinking, reasoning, and logic skills
- D. plays an important role in the production of speech

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: pages 62-63

Learning goals: structures of the brain and their functions

68. _____ plays an important role in the production of speech, whereas _____ plays an important role in the comprehension of language.

- A. Wernicke's area / Broca's area
- B. Broca's area / Wernicke's area
- C. The occipital lobe / the hippocampus
- D. The hippocampus / the occipital lobe

Answer: B

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 62

Learning goals: structures of the brain and their functions

69. Katy was in a car accident and sustained serious brain damage. Since the accident Katy can speak only one word. This is an example of _____.

- A. amnesia
- B. aphasia
- C. multiple sclerosis
- D. epilepsy

Answer: B

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 62

Learning goals: structures of the brain and their functions

70. Roberto has a severe case of epilepsy. His doctor surgically severed his corpus callosum. Roberto's condition is referred to as _____.

- A. Alzheimer disease
- B. aphasia
- C. a split brain
- D. multiple sclerosis

Answer: C

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 63

Learning goals: structures of the brain and their functions

71. Neurosurgeons can reduce the unbearable seizures some epileptics experience by severing the _____.

- A. hypothalamus
- B. cerebellum
- C. amygdala
- D. corpus callosum

Answer: D

Bloom's Taxonomy: knowledge

Difficulty Level: moderate

Feedback: pages 62-63

Learning goals: structures of the brain and their functions

72. The left hemisphere of the brain plays an important role in managing or regulating _____.

- A. speech and grammar
- B. spatial perception
- C. visual recognition
- D. movement in the left side of the body

Answer: A

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: pages 63-64

Learning goals: structures of the brain and their functions

73. The process of facial recognition is governed primarily by _____.

- A. the left hemisphere of the brain
- B. the right hemisphere of the brain
- C. the peripheral nervous system
- D. the endocrine system

Answer: B

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 64

Learning goals: structures of the brain and their functions

74. The endocrine system _____.

- A. consists of the brain and the spinal cord
- B. connects the brain and the spinal cord to the rest of the body
- C. consists of glands that regulate the activities of certain organs by releasing hormones into the bloodstream
- D. communicates through the release of neurotransmitters

Answer: C

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 66

Learning goals: the endocrine system

75. The chemical messengers produced by the endocrine glands are known as _____.

A. neurotransmitters

B. hormones

C. myelin sheath

D. stem cells

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 67

Learning goals: the endocrine system

76. The _____ is sometimes referred to as the "master gland" because it controls growth and it releases the hormones that regulate other glands in the endocrine system.

A. pineal gland

B. adrenal gland

C. pituitary gland

D. thymus gland

Answer: C

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 67

Learning goals: the endocrine system

77. Ellie has recently experienced irregular mood swings. Her energy level has decreased and she seems to have greater difficulty coping with stress. Based on her symptoms, it seems as though Ellie may have problems with her _____ glands.

A. pituitary

B. pineal

C. adrenal

D. thymus

Answer: C

Bloom's Taxonomy: application

Difficulty Level: easy

Feedback: page 67

Learning goals: the endocrine system

78. _____ glands help regulate mood, energy, and the ability to cope with stress.

A. Pituitary

- B. Adrenal
- C. Pancreas
- D. Gonad

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 67

Learning goals: the endocrine system

79. _____ are secreted by the adrenal glands.

- A. Epinephrine and norepinephrine
- B. Estrogen and testosterone
- C. Estrogen and epinephrine
- D. Acetylcholine and testosterone

Answer: A

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: page 67

Learning goals: the endocrine system

80. Which of the following glands plays an important role in insulin production, metabolism, and body weight?

- A. The testes and ovaries
- B. The adrenal glands
- C. The pituitary gland
- D. The pancreas

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 67

Learning goals: the endocrine system

81. When the axons of healthy neurons adjacent to damaged cells grow new branches, _____ has occurred.

- A. collateral sprouting
- B. substitution of function
- C. neurogenesis
- D. synaptic pruning

Answer: A

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 68

Learning goals: brain damage, plasticity, and repair

82. When Charlie was three years old, he fell off the slide at the playground and damaged the left hemisphere of his brain. Despite this injury, as Charlie grew older he still retained some of his language abilities because the right hemisphere of his brain took control over the language function. Which of the following mechanisms of brain damage repair is apparent in this example?

- A. Collateral sprouting
- B. Substitution of function
- C. Neurogenesis
- D. Lobotomy

Answer: B

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 68

Learning goals: brain damage, plasticity, and repair

83. The term _____ refers to a process by which new neurons are generated.

- A. *collateral sprouting*
- B. *substitution of function*
- C. *neurogenesis*
- D. *lobotomy*

Answer: C

Bloom's Taxonomy: application

Difficulty Level: difficult

Feedback: pages 68-69

Learning goals: brain damage, plasticity, and repair

84. The human brain shows the most plasticity during which developmental lifespan period?

- A. Early childhood
- B. Early adulthood
- C. Middle adulthood
- D. Late adulthood

Answer: A

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 68

Learning goals: brain damage, plasticity, and repair

85. _____ is a term used to describe the influences of multiple genes on behavior.

- A. *The all or none principle*
- B. *Polygenic inheritance*
- C. *Phenotype*
- D. *Genotype*

Answer: B

Bloom's Taxonomy: knowledge

Difficulty Level: moderate

Feedback: page 71

Learning goals: genetics and behavior

86. Which of the following methods do researchers use to study genetics?

- A. Molecular genetics
- B. Selective breeding
- C. Behavior genetics
- D. All of these

Answer: D

Bloom's Taxonomy: knowledge

Difficulty Level: easy

Feedback: pages 71-73

Learning goals: genetics and behavior

87. The Human Genome Project studies genetics and behavior through the use of _____.

- A. molecular genetics
- B. selective breeding
- C. behavior genetics
- D. twin studies

Answer: A

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: pages 71-72

Learning goals: genetics and behavior

88. Dr. Cardinale is interested in the effects of heredity and environment on intelligence. She compares the similarity of IQ scores of identical twins to the similarity of IQ scores of fraternal twins. Dr. Cardinale is conducting a _____ study.

- A. human genome
- B. molecular genetics
- C. behavior genetics
- D. selective breeding

Answer: C

Bloom's Taxonomy: application

Difficulty Level: hard

Feedback: pages 72-73

Learning goals: genetics and behavior

89. Phenotypes are _____.

- A. reflected in a person's observable characteristics (e.g., hair color or eye color)
- B. influenced by genotypes
- C. influenced by environmental factors
- D. All of these

Answer: D

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: page 73

Learning goals: genetics and behavior

90. Molly's natural hair color is brown but she has had it dyed blonde. Molly changed her

_____.

A. phenotype

B. genotype

C. chromosomes

D. genetic heritage

Answer: A

Bloom's Taxonomy: application

Difficulty Level: moderate

Feedback: page 73

Learning goals: genetics and behavior

Essay Questions

91. Briefly describe the peripheral nervous system and its four divisions. What is the function of each? Give examples of situations that would activate each division and how they would do so.

Answer: The peripheral nervous system (PNS) extends from the central nervous system (CNS) to the extremities of the body through a system of neurons. The two major divisions of the PNS are the somatic and autonomic divisions. The somatic division is responsible for voluntary movements and for the transmission of information to and from such areas as the eyes, ears, and fingers. The autonomic division regulates organs that are necessary for survival, like the heart and lungs. It operates even without our awareness, because it would be disastrous if we forgot to remind ourselves to breathe or our heart to beat. The autonomic division is further subdivided into the sympathetic and parasympathetic divisions, and these subdivisions are most noticeable during emergencies. The sympathetic division prepares the body for emergencies and helps us to either fight stressors or to flee from them. If you were inside a burning house, for example, the sympathetic division would produce the necessary arousal that would allow you to either run out of the house to safety, or to find a fire extinguisher to help battle the blaze. The parasympathetic division restores the body to its resting state once an emergency has ended. Once it is clear that your house was not on fire, your breathing and heart rate return to normal, and you eventually feel a sense of calm. The parasympathetic system is also responsible for storing nutrients and oxygen for the body to use should another emergency arise.

Bloom's Taxonomy: analysis

Difficulty Level: hard

Feedback: pages 39-42

Learning goals: the nervous system

92. Describe the structure of a neuron and explain the function of each component.

Answer: Every neuron has three components, a cell body, dendrites, and an axon. Dendrites are branch-like fibers that *receive* information and orient it towards the neuron's cell body. Most nerve cells have multiple dendrites. The axon is the slender, tail-like extension of a neuron that *sends* or carries information away from the cell body toward other cells. The cell body contains the nucleus, which directs the manufacture of substances that the neuron needs for growth and maintenance.

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: pages 43-44

Learning goals: neurons

93. Briefly explain how one neuron sends a message to another neuron. Be sure to include a description of the roles that the various structures of the neuron play in communicating neural messages.

Answer: When neurons are at rest, they have a negative electrical charge. When an excitatory message is received from another neuron, the neuron becomes more positive. As the charge reaches a critical level of positivity, an action potential occurs and the electrical message travels along the neuron's axon. Once the message passes any point of the axon, that section becomes negatively charged once again, and the neuron is unable to fire again immediately. When a nerve impulse reaches the end of the axon, the terminal buttons on the ends of the axon release neurotransmitters into the synapse. Dendrites of nearby neurons receive messages from the neurotransmitters that "fit" onto their particular receptor sites. If the concentration of excitatory neurotransmitters that have been received is higher, then the neuron fires. If the concentration of inhibitory neurotransmitters that have been received is higher, then the neuron will not fire.

Bloom's Taxonomy: comprehension

Difficulty Level: hard

Feedback: pages 44-47

Learning goals: neurons

94. Compare and contrast the techniques researchers use to study the brain. Explain what type of information can be gained by each approach.

Answer: One way researchers have learned more about the brain is by studying the effects of brain lesions or brain damage. By examining the person or animal that has the lesion, researchers get a sense of the function of the part of the brain that was damaged. Staining is a process that involves injecting dyes that are selectively absorbed by neurons. These dyes allow scientists to chart neural networks. Electroencephalograph (EEG) involves recording the brain's electrical activity. Researchers also might use one of several brain imaging techniques. Computerized axial tomography (CAT scan or CT scan) involves the use of x-rays to produce a composite three-dimensional image and can provide information about the location and extent of brain damage. Positron-emission tomography (PET scan) is another brain imaging technique that is based on metabolic (glucose) changes related to brain activity. Magnetic resonance imaging (MRI) involves creating a magnetic field around a person's body and using radio waves

to construct images of the person's tissues and biochemical activities. MRI scans provide valuable information about the structure of the brain and can allow researchers to see if and how experiences affect brain structure. Although MRI scans can reveal considerable information about brain structure, they cannot portray brain function. A new method known as functional magnetic resonance images (fMRI) allows scientists to see what is happening in the brain while it is working. fMRI charts track changes in blood oxygen that occur in association with brain activity.

Bloom's Taxonomy: evaluation

Difficulty Level: hard

Feedback: pages 51-53

Learning goals: neurons

95. Identify the major functions of the hypothalamus, cerebellum, and the reticular formation. Give examples of their functions in terms of real behaviors.

Answer: The hypothalamus is a small structure in the brain that maintains the body's internal balance or homeostasis. For example, the hypothalamus works to keep the body at a constant temperature, triggering perspiration when the body is hot and shivering when the body is cold. The hypothalamus is also involved in behaviors such as eating, self-protection, sexual behavior, emotions, and stress. The cerebellum is primarily responsible for bodily balance. When we can stand without falling, or when we successfully try to balance on a narrow plank, we know the cerebellum is functioning properly. The cerebellum constantly monitors feedback from the muscles to coordinate their placement, movement, and tension; it also helps us to analyze and coordinate sensory information and to solve problems. The reticular formation stands guard to activate other parts of the brain to quickly produce general bodily arousal. Additionally, it filters out many kinds of background stimuli (e.g., traffic noise during sleep to allow us to sleep without interruption).

Bloom's Taxonomy: analysis

Difficulty Level: hard

Feedback: pages 53-61

Learning goals: structures of the brain and their functions

96. Explain how the right and left hemispheres of the brain are specialized for different functions.

Answer: The left hemisphere controls the right side of the body and the right hemisphere controls the left side of the body. The left and right hemispheres are connected by the corpus callosum, which allows the two hemispheres to communicate and coordinate their activities. Although the left and right hemispheres have overlapping functions, each hemisphere appears to excel or specialize in certain tasks. For example, the left hemisphere plays an important role in many language functions. The right hemisphere dominates in spatial perception, visual recognition, and emotion.

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: pages 61-65

Learning goals: structures of the brain and their functions

97. Compare and contrast the nervous system and the endocrine system.

Answer: Researchers have learned that the nervous system and endocrine system are intricately interconnected. Both systems work together to control the body's activities. However, the nervous system and endocrine system do differ in a variety of ways. First, the parts of the endocrine system are not all connected in the way that the parts of the nervous system are. Second, the endocrine system communicates via hormones, whereas the nervous system communicates via electrical impulses and neurotransmitters. Hormones are released in the bloodstream and are transported throughout the body by the circulatory system. Thus, hormones move much more slowly than the neural impulses in the nervous system.

Bloom's Taxonomy: evaluation

Difficulty Level: hard

Feedback: pages 66-68

Learning goals: the endocrine system

98. How does the endocrine system transmit its messages? What functions do the pituitary gland, adrenal glands, pancreas, and gonads (testes or ovaries) perform?

Answer: The endocrine system consists of a set of glands that regulate the activities of certain organs by releasing hormones (chemical substances) into the bloodstream. The pituitary gland regulates growth but it is also known as the "master gland" because it regulates other glands in the body. Adrenal glands are located at the top of each kidney. They secrete epinephrine and norepinephrine and play an important role in regulating mood, energy level, and the ability to cope with stress. The pancreas, which is located under the stomach, performs both digestive and endocrine functions. The pancreas produces insulin, which is a hormone that controls glucose levels in the body and is related to metabolism, body weight, and obesity. The gonads (ovaries or testes) are the sex-related endocrine glands that produce hormones related to sexual development and reproduction.

Bloom's Taxonomy: comprehension

Difficulty Level: moderate

Feedback: pages 66-68

Learning goals: the endocrine system

99. Discuss the extent to which the brain has the capacity for repair. Include concepts such as plasticity, substitution of function, and neurogenesis.

Answer: The brain does have the capacity to repair itself in some situations. Plasticity, or the ability to adapt and change function, is greatest in young children. According to the substitution of function principle, although certain parts of the brain are more associated with specific tasks (e.g., auditory cortex in the temporal lobe is associated with hearing), when one area gets damaged, another area can pick up the duties of the damaged area. Neurons can actually change their purpose. New neurons can also be created through neurogenesis.

Bloom's Taxonomy: comprehension

Difficulty Level: hard

Feedback: pages 68-70

Learning goals: brain damage, plasticity, and repair

100. Explain the difference between genotype and phenotype. Be sure to mention how both relate to the nature-nurture debate and the role of environmental influences.

Answer: A genotype is one's genetic heritage, the actual genetic material that determines characteristics. A phenotype is one's observable characteristics, which may or may not differ from what would be predicted based on the genotypic information alone. Nature provides the genotype; the environment (i.e., nurture) can influence the phenotype but cannot influence the genotype.

Bloom's Taxonomy: comprehension

Difficulty Level: hard

Feedback: pages 73-74

Learning goals: genetics and behavior