Introducing Psychology Brain Person Group 5 1 5th edition Kosslyn Test Bank

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Chapter 2
The Biology of Mind and Behavior: The Brain in Action

SECTION 1
MULTIPLE-CHOICE QUESTIONS:

1. Of these choices, which is *not* a part of the definition of a person's mental contents?
   a. perception
   b. knowledge
   c. beliefs
   d. feelings
   Answer: A
   Difficulty: Easy
   Section: 1. Brain Circuits: Making Connections
   Bloom's Taxonomy: Factual

2. Jeremiah is paying attention to the legal brief that he is writing one evening while working at home. From the other room he hears his wife call his name, and he looks up to ask what she needs. This shifting of attention from one stimulus to another is an example of a mental _____.
   a. content
   b. dynamic
   c. process
   d. stasis
   Answer: C
   Difficulty: Medium
   Section: 1. Brain Circuits: Making Connections
   Bloom's Taxonomy: Applied

3. Of the following options, the most basic unit of the human nervous system is the _____.
   a. nerve
   b. neuron
   c. synapse
   d. neurotransmitter
   Answer: B
   Difficulty: Hard
   Section: 1. Brain Circuits: Making Connections
   Bloom's Taxonomy: Factual

4. Lilah is examining several websites to understand how the human nervous system is constructed. At dinner that night she tells her sister, "You wouldn't believe it! Each person has as many as _____ neurons in their brain alone!"
   a. 10 million
   b. 100 million
   c. 10 billion

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d. 100 billion
Answer: D
Difficulty: Medium
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Bloom's Taxonomy: Applied

5. There are three specific kinds of neurons in the human nervous system. They include all *except:*
a. interstitial neurons.
b. interneurons.
c. motor neurons.
d. sensory neurons.
Answer: A
Difficulty: Easy
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

6. In what way is a neuron like a telephone?
a. It is capable of both sending and receiving information and is an important part of communication.
b. It cannot work unless there are at least two people, or signals, happening simultaneously.
c. The faster it is stimulated (or dialed) the faster it works.
d. It can "lose signal" for extended periods of time.
Answer: A
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Conceptual

7. Neurons that work together to receive input, create a specific operation, or produce output are organized into _____.
a. neuromodulators
b. cognitive schemata
c. brain circuits
d. agonists and antagonists
Answer: C
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

8. Which part of a neuron is primarily responsible for receiving signals from axons of other neurons?
a. somas
b. dendrites
c. terminal buttons
d. synaptic vesicles
Answer: B

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Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

9. The central processing unit, or CPU, is the part of a computer that regulates the computer's overall functions. In a neuron, the analogous structure would be the _____.
a. dendrite
b. cellular membrane
c. cell body
d. axon
Answer: C
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Conceptual

10. During a neuron's resting state, its internal environment experiences a(n) _____ charge.
a. hydrophilic
b. positive
c. negative
d. neutral
Answer: C
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

11. The positive ions that help a neuron shift to a positive charge and generate an action potential are made up primarily of _____ ions in the neurons environment.
a. potassium
b. chlorine
c. sodium
d. nitrogen
Answer: C
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

12. The firing state of a neuron, in which channels in the membrane open and ions flow in or out, is called the _____ potential.
a. action
b. transfer
c. transmission
d. agonistic
Answer: A
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

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13. What is meant by the term “all-or-none law?”
    a. An action potential either occurs in a neuron or it does not.
    b. Either all of a neuron’s dendrites are stimulated at once, or none of them are.
    c. A neuron’s axon is either entirely coated with myelin or it is entirely free from myelin.
    d. Neurons must release all of their neurotransmitters every time they fire.
    Answer: A
    Difficulty: Medium
    Section: 1. Brain Circuits: Making Connections
    Bloom’s Taxonomy: Conceptual

14. Barbara suffers from a neurological disorder that involves the deterioration of the myelin cells that coat the axons in her neurons. For which condition is she most likely receiving treatment?
    a. lupus
    b. Alzheimer’s disease
    c. multiple sclerosis
    d. diabetes mellitus
    Answer: C
    Difficulty: Hard
    Section: 1. Brain Circuits: Making Connections
    Bloom’s Taxonomy: Applied

15. What is the microscopic gap that separates the axon of one neuron from the membrane of another?
    a. synaptic cleft
    b. synaptic vesicle
    c. axonal bridge
    d. dendritic space
    Answer: A
    Difficulty: Medium
    Section: 1. Brain Circuits: Making Connections
    Bloom’s Taxonomy: Factual

16. Neurotransmitters, which are tiny chemical substances that send a message from one neuron to the next, are stored in and released from structures called _____.
    a. golgi apparatuses
    b. vesicles
    c. dendritic vaults
    d. synaptic clefts
    Answer: B
    Difficulty: Hard
    Section: 1. Brain Circuits: Making Connections
    Bloom’s Taxonomy: Factual

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17. Sally has just ingested a drug that alters the neurotransmitter glutamate in her system. Specifically, this chemical blocks the excitatory effects of glutamate. Which substance has she probably taken?

a. a tricyclic antidepressant
b. PCP
c. Ecstasy
d. heroin
Answer: B
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Applied

18. Which kind of neurotransmitter is released by a *receiving* neuron that then affects the activity of the *sending* neuron?

a. neuropeptides
b. endogenous cannabinoids
c. neuromodulators
d. neurohormones
Answer: B
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

19. The relationship between a given neurotransmitter and its respective receptor site is most easily understood using the analogy of a

a. lock and key.
b. crossword puzzle.
c. cable television channel.
d. painter's canvas.
Answer: A
Difficulty: Easy
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Conceptual

20. Which situation most resembles the process of reuptake that occurs at the terminal button of a neuron?

a. a grill warming up after it is ignited
b. a sponge absorbing water that was just squeezed out of it
c. a car accelerating down a highway
d. the television in your house changing channels when sent a signal from the remote control
Answer: B
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Conceptual

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21. Famous actor Michael J. Fox has been very public about his ongoing battle with Parkinson's disease. He, like others who suffer from this condition, may take medication that bolsters the levels of a neurotransmitter called _____ in the brain.
a. dopamine
b. acetylcholine
c. gamma-aminobutyric acid
d. serotonin
Answer: A
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Applied

22. Which cells are responsible for the "care and feeding" of neurons?
a. glial cells
b. oligodendrocytes
c. Schwann cells
d. bipolar cells
Answer: A
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

23. Researchers examining the functions of glial cells have found that these remarkable cells may be involved but all but *which* of the following?
a. drug addiction
b. controlling one's 24-hour internal clock
c. shutting down protein synthesis within cell bodies
d. prodding neurons to form additional synapses
Answer: C
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Conceptual

24. The peripheral nervous system divides into which two systems?
a. the sympathetic and parasympathetic divisions
b. the brain and the spinal cord
c. the motor and sensory pathways
d. the autonomic and somatic nervous systems
Answer: D
Difficulty: Easy
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

25. Arieh brings his new car home to show his wife. Mindy. He is very excited because the car has feature that he has never seen before. He takes Mindy for a drive around the neighborhood, and then lets her see how the car can engage in self-park mode when it is time to parallel park.

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Arieh holds his hands up and grins as the car flawlessly backs into the space between two other parked cars. The automobile's ability to control its own functions without any input from Arieh is similar to the operations of the _____ nervous system.

a. external
b. internal
c. somatic
d. autonomic
Answer: D
Difficulty: Medium
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Applied

26. As Trudy walks in front of Jayella's car, the horn sounds and Trudy jumps into the air. Her heartbeat increases, she has to catch her breath, and she feels her stomach drop. This "fight or flight" responses is governed by her _____ nervous system.

a. central
b. sympathetic
c. somatic
d. parasympathetic
Answer: B
Difficulty: Hard
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Applied

27. Which of the following is a physiological change that you'd expect to see if a person experienced stimulation of their sympathetic nervous system?

a. pupil construction
b. increased salivation
c. a tightened, constricted bladder
d. a dry mouth
Answer: D
Difficulty: Easy
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

28. When Bimpe had a nasty verbal fight with her husband, she felt fired up. She was hot and sweating, she was breathing heavily, and hear heartbeat was elevated. An hour later all of these physiological changes have subsided and she feels that her body has returned to normal. This return to her typical state of being is due to activation of her _____ nervous system.

a. central
b. sympathetic
c. enteric
d. parasympathetic
Answer: D
Difficulty: Hard
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Bloom's Taxonomy: Applied

29. If you were to compare the branches of the autonomic nervous system to the controls of a car, the sympathetic system would be comparable to a _____, while the parasympathetic system would be comparable to a _____.
a. brake pedal; gas pedal
b. steering wheel; gearshift
c. gas pedal; brake pedal
d. gearshift; steering wheel
Answer: C
Difficulty: Hard
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Conceptual

30. The main point to remember when considering the functions of the somatic motor system is that it regulates the functions of muscles that are
a. over-matured.
b. voluntary.
c. smooth.
d. involuntary.
Answer: B
Difficulty: Easy
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Conceptual

31. The brain and spinal cord, together, comprise the _____ nervous system.
a. central
b. peripheral
c. dorsal
d. lateral
Answer: A
Difficulty: Easy
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

32. Meningitis is an illness that involves inflammation of the membranes that cover and protect the brain. How many layers of these membranes, called meninges, exist?
a. 3
b. 6
c. 9
d. 12
Answer: A
Difficulty: Medium
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

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33. Akinsola is having a fight with her sister, and the fight turns physical. Akinsola slaps her sister on the side of her head, just above her ears. Thankfully it wasn't a very hard slap, and no damage was done. If this has been a more substantial blow, however, it may have caused an injury to which lobe of her sister's cerebral cortex?

a. temporal
b. occipital
c. frontal
d. parietal
Answer: A
Difficulty: Medium
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Applied

34. The corpus callosum is the structure in the brain that:

a. connects the right and left cerebral hemispheres.
b. reverses the incoming visual information from the right eye to the left hemisphere and the left eye to the right hemisphere.
c. is responsible for our gustatory (taste) and olfactory (smell) senses.
d. creates motor reflexes in response to physical stimuli from the environment.
Answer: A
Difficulty: Hard
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

35. Creases in the brain are called _____, while the bulges that exist between those creases are called _____.

a. gyri; sulci
b. gray neurons; white neurons
c. sulci; gyri
d. white neurons; gray neurons
Answer: C
Difficulty: Medium
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

36. Andres is practicing at a gymnastics workout center, when he over-rotates during a back flip. He stumbles backwards and slams the back of his head on the matt. Thankfully he is not injured, but he sees random flashing stars in his eyes for several seconds. This is because the head injury traumatized the _____ lobe of his cerebral cortex.

a. temporal
b. occipital
c. lateral
d. parietal
Answer: B
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers

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Bloom's Taxonomy: Applied

37. If you were to suffer an injury to the temporal lobes of your cerebral cortex, which of the following limitations might you notice?
a. creating meaningful speech
b. being able to walk a straight line without falling over
c. hearing what was being said to you
d. recognizing the familiar odor of your favorite freshly-baked cookies
Answer: C
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Applied

38. A person who is born with a developmental deficit in the somatosensory strip may one day have difficulty registering touch sensations on their body – rubs, scrapes, tickles, and so forth. This area of the brain is found in the _____ lobe of the cerebral cortex.
a. parietal
b. frontal
c. occipital
d. temporal
Answer: A
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Conceptual

39. The famous case of Phineas Gage provided psychologists and other experts with a wealth of information about the functions of the _____ lobe of the cerebral cortex after a horrendous penetrating injury caused by an explosion.
a. temporal
b. parietal
c. frontal
d. occipital
Answer: C
Difficulty: Easy
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Conceptual

40. Which of the following individuals may be the best candidate for a split-brain procedure?
a. Elammen, who has been arrested for crimes related to his antisocial personality disorder.
b. Miranda, who suffers from a serious case of epilepsy.
c. Joya, who has developed the delusions and hallucinations associated with schizophrenia.
d. Chikka, whose depressive symptoms are so severe that he has attempted suicide 3 times.
Answer: B
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Applied

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41. Consider each of these statements about the relationship between the eyes and the brain and choose the one that is the most accurate.

a. The left eye sends signals to the left hemisphere of the brain, and the right eye sends signals to the right hemisphere of the brain.

b. Both the left and right eyes send signals to the left and right hemispheres of the brain.

c. The left eye sends signals to the right hemisphere of the brain, and the right eye sends signals to the left hemisphere of the brain.

d. In right-handed people both eyes send signals to the left hemisphere of the brain. In left-handed people, both eyes send signals to the right hemisphere of the brain.

Answer: B
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Conceptual

42. Your 19-year old friend Dario tells you, "I am very good at drawing pictures and art, but I can't do math or analyze things to save my life. I guess I'm just a very right-brained kind of person." What would be your best answer?

a. "Actually those who are more artistic and less analytical are more left-brained!"

b. "The difference in abilities in the right and left cerebral hemispheres are very narrow and largely overstated."

c. "Brain specialization does not show up in specific tasks like this, but rather in more global abilities that can't be specifically assessed."

d. "Brain differences in hemispheric specialization rarely show up until much later in life so you can't know if you are right- or left-brained quite yet."

Answer: B
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Applied

43. The forebrain consists of the cortex, the thalamus, the limbic system, and the _____.

a. hypothalamus
b. basal ganglia
c. pons
d. medulla oblongata

Answer: B
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

44. Due to the way in which it regulates a variety of body functions, the _____ is a part of the brain that is often compared to a thermostat.

a. amygdala
b. thalamus
c. hippocampus
d. hypothalamus

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Answer: D
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Conceptual

45. This structure in the brain, which takes its name for the Greek word for *seahorse*, is highly involved in one's ability to process new memories.
a. hippocampus
b. cerebellum
c. diencephalon
d. striatum
Answer: A
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

46. The famous case of H.M. involved a man, later identified as Henry Molaison, who suffered from epilepsy and had his hippocampus removed as part of an effort to reduce his seizures. This left him with which symptom?
a. He lost the ability to regulate his emotional states.
b. He was unable to encode new memories.
c. His personality was destroyed and became catatonic for the rest of his life.
d. he lost the senses of smell, taste, and touch.
Answer: B
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

47. When he gets home from work, Daniel greets his wife Allison by asking her how her day went. "Fine," she says, but Daniel looks at her face and can instantly tell that she is angry about something. His ability to read her emotions from her facial expressions is controlled by a part of the brain called the _____.
a. reticular activating system
b. amygdala
c. basal ganglia
d. brainstem
Answer: B
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Applied

48. If you had suffered a head injury that caused damage to the part of the brain that regulated basic activities like breathing, swallowing, and blood circulation, you probably sustained an injury to your _____.
a. pons
b. cerebellum

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c. medulla
d. amygdala
Answer: C
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

49. Griffen has been at a fraternity on campus for the past few hours, and has had several beers. He is not normally a drinker, and his now rather drunk. As he tries to walk home, he is stumbling a bit and at one point falls over onto the sidewalk. What part of the brain is responsible for these coordinated movements and may be affected by the alcohol that he drank?
a. cerebrum
b. hypothalamus
c. putamen
d. cerebellum
Answer: D
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Applied

50. In a somewhat outdated way of classifying the human brain, different structures were grouped together to form three different levels of brain tissue. They include all but *which* of these options?
a. hindbrain
b. higher brain
c. midbrain
d. forebrain
Answer: B
Difficulty: Easy
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

51. Many parents have become worried about allowing their children to play contact sports out of the fear that such activities can lead to a condition called _____. This disease appears to result from repeated blows to the head, and research is finding associations between the condition and such sports as football, baseball, boxing, and others.
a. PRN
b. MS
c. ALS
d. CTE
Answer: D
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Conceptual

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52. The major endocrine glands of the body are responsible for secreting chemicals called _____ that can affect many different physical functions.
a. synaptic antagonists
b. neuromodulators
c. neurotransmitters
d. hormones
Answer: D
Difficulty: Easy
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

53. Why is it accurate to say that the CNS and the neuroendocrine system act in a "feedback loop" sort of manner?
a. The CNS can monitor the neuroendocrine system but not regulate any of its actions.
b. The CNS and neuroendocrine system operate independently of each other, but are both guided simultaneously by the peripheral nervous system.
c. The CNS and neuroendocrine system are actually the same thing, and the terminology used depends on the discipline (medicine versus neuroscience) that is examining it.
d. The CNS regulates the neuroendocrine system, but also receives information from it that can alter future CNS functions.
Answer: D
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Conceptual

54. The hormones that affect the pubertal changes associated with adolescence are _____ in boys and _____ in girls.
a. estrogen; testosterone
b. oxytocin; progestin
c. testosterone; estrogen
d. progestin; oxytocin
Answer: C
Difficulty: Easy
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

55. The "master" gland of the neuroendocrine system, the _____ gland, is controlled by the brain, primarily through its connections to the hypothalamus.
a. thyroid
b. pituitary
c. parathyroid
d. pineal
Answer: B
Difficulty: Medium
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Bloom's Taxonomy: Factual

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56. The HPA axis, which is a system that works to fight off infection, includes the hypothalamus, pituitary gland, and _____.
a. amygdala
b. adrenal gland
c. anterior medulla
d. ascending striatum
Answer: B
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

57. This hormone, which is produced in response to stress, can actually damage the brain if it is produced chronically. In particular, this affect can damage the hippocampus and interfere with memory processing skills.
a. cortisol
b. testosterone
c. noradrenaline
d. adrenaline
Answer: A
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

58. The most common cause of damage to the brain is:
a. chronic traumatic encephalopathy.
b. blunt head trauma.
c. a stroke.
d. a "triple A" (ascending aortic aneurysm).
Answer: C
Difficulty: Medium
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

59. Dr. Esposito researches the effects of different types of brain damage on physiological and psychological functions. He works with non-human animals, and causes small localized areas of brain damage, called _____, to study which resulting impairments occur.
a. aneurysms
b. "hot spots"
c. lesions
d. transient ischemic hematomas
Answer: C
Difficulty: Easy
Section: 4. Probing the Brain
Bloom's Taxonomy: Applied

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60. Which type of brain recording technique works by recording magnetic waves produced by neural activity?
a. electroencephalography (EEG)
b. positron emission tomography (PET)
c. magnetoencephalography (MEG)
d. magnetic resonance imaging (MRI)
Answer: C
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

61. In what way does an EEG detect the electrical activity produced by groups of neurons that fire together?
a. by viewing the magnetic fields of the brain on a computer monitor
b. by running a current through a wire that sits around the head
c. through electrodes placed on the scalp
d. by detecting the rate at which oxygen is metabolized in the brain
Answer: C
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Conceptual

62. Which of the following is a major limitation of both EEG and EMG techniques?
a. they are not useful in detecting activity in subcortical brain structures
b. they are highly invasive and, in some cases, painful
c. they require administration of general anesthesia before they are used
d. neither technique can detect changes in activity unless those changes are very large
Answer: A
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Conceptual

63. Single-cell recording uses microelectrodes to record neural firing rates. What is the approximate size of these tiny devices?
a. they are approximately the size of a single neuron
b. they are no more than 1/10th as wide as a human hair
c. researches can fit several microelectrodes into a single neuron
d. they are smaller than a single neurotransmitter
Answer: B
Difficulty: Medium
Section: 4. Probing the Brain
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64. Which neuroimaging technique involves taking several x-rays of the brain in order to create a three-dimensional picture of its structures?
a. positron emission tomography (PET)

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b. magnetic resonance imaging (MRI)
c. computer-assisted tomography (CT)
d. single-cell recording (SCR)
Answer: C
Difficulty: Medium
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

65. Dr. Josephsen wants to gather information about his patient to determine several areas of brain functioning. He orders a test that measures energy consumption in the brain by examining the rate at which an injected radioactive substance is taken into different areas of the brain. What test has he ordered?
a. CT scan
b. MRI
c. PET scan
d. MEG
Answer: C
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Applied

66. What is the primary advantage of using PET and fMRI over an MRI or CT scan?
a. PET and fMRI are noninvasive in nature, while MRI and CT scans require invasive procedures that can be painful.
b. PET and fMRI are very easy and quick to conduct, while and MRI and CT scans can take several hours to conduct.
c. PET and fMRI can be done anywhere because the machines needed to conduct them are small and portable, while MRI and CT scans require the patient to come to a facility where large instruments are used.
d. PET and fMRI are useful for assessing brain function, while MRI and CT scans only assess brain structures.
Answer: D
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Conceptual

67. Positron emission tomography has a variety of applications. Recent work has found that it can be used to help detect early signs of _____.
a. lupus
b. Alzheimer's disease
c. multiple sclerosis
d. schizophrenia
Answer: B
Difficulty: Medium
Section: 4. Probing the Brain
Bloom's Taxonomy: Applied

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68. Functional magnetic resonance imaging (fMRI) works by detecting the rate at which _____ is/are being brought to different places in the brain.
a. neurohormones
b. glucose
c. water
d. oxygen
Answer: D
Difficulty: Easy
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

69. Which type of test would be the most useful for determining that activity in certain brain areas cause specific behaviors to occur?
a. positron emission tomography
b. functional magnetic resonance imaging
c. microstimulation studies
d. magnetoencephalography
Answer: C
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

70. Michael suffers from Parkinson's disease, and the tremors that this condition causes have become severe. His neurologist recommends a procedure in which a coil is placed against Michael's scalp that will deliver a strong magnetic pulse. This pulse will create a magnetic field that may cause specific neurons to fire in Michael's brain. This technique is called
a. transcranial magnetic stimulation.
b. magnetic resonance imaging.
c. magnetoencephalography.
d. functional magnetic resonance imaging.
Answer: A
Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Applied

71. The Augustinian monk whose research provided a wealth of information about how genetic inheritance works was
a. Mendel
b. Di Pietro
c. Constanopolous
d. Galton
Answer: A
Difficulty: Medium
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Factual

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72. When he was born, Marquis has the genetic code to grow to be 6’3’’ someday. He was also genetically coded to have a slender body type, to lose most of his hair early, and to have freckles. These traits did not actually emerge until many years later. Marquis’s genetic foundation that was later expressed is called his _____.

a. phenotype
b. complex genetics
c. genotype
d. heritability
Answer: C
Difficulty: Hard
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom’s Taxonomy: Applied

73. When a trait is a result of “complex inheritance,” it indicates that that trait is

a. likely to emerge and then recede over time.
b. present at birth rather than needing to develop over time.
c. only able to be expressed when certain environmental factors are present.
d. caused by more than one gene at a time.
Answer: D
Difficulty: Medium
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom’s Taxonomy: Conceptual

74. Every spring, Erin goes to her closet and removes any clothes that she has not worn in the last year and puts them in a bag to donate to those in need. This process of removing unneeded items is similar to how the brain works, as it engages in the _____ of unneeded neural connections.

a. pruning
b. differentiation
c. desynthesis
d. myelination
Answer: A
Difficulty: Medium
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom’s Taxonomy: Applied

75. _____ interactions occur when the genetically shaped behaviors of parents or siblings produce an environment that is received by the child without that child actively contributing to or affecting it.

a. Passive
b. Evocative
c. Interactive
d. Determinate
Answer: A
Difficulty: Hard

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Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Factual

76. A measure of the variability in a characteristic or ability in a population that is due to genetics refers to its _____.
a. Mendelian properties
b. covariation
c. heritability
d. inheritance
Answer: C
Difficulty: Hard
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Factual

77. David and his sister Renee were born 8 minutes apart. They are sometimes referred to as fraternal, or _____ twins, and they share 50 percent of their genetic code.
a. "double double"
b. conjoined
c. monozygotic
d. dizygotic
Answer: D
Difficulty: Easy
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Applied

78. If a researcher wanted to use twin studies to examine the extent to which genetics influence traits between identical twins, she would want to recruit pairs of _____ twins for her study.
a. opposite-sex
b. dizygotic
c. monozygotic
d. fraternal
Answer: C
Difficulty: Hard
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Applied

79. As a result of an adoption study, Dr. Walsh has determined that the personality trait of introversion can be attribute more to biological factors than to environmental influences. In order to arrive at this conclusion, he would have found that the participants in his study bore the closest resemblance on the trait of introversion to
a. their own previously-assessed scores of introversion.
b. their adoptive siblings.
c. their biological parents.
d. their adoptive parents.
Answer: C
Difficulty: Easy

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Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Applied

80. When individuals with gene-based characteristics that contribute to survival have more offspring, which over time allows those characteristics to flourish, _____ has occurred.
a. natural selection
b. Mendelian inheritance
c. evolution
d. complex inheritance
Answer: A
Difficulty: Medium
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Factual

SECTION 2
TRUE-FALSE QUESTIONS:

81. Mental contents and mental processes refer to the same cognitive skills.
Answer: False
Difficulty: Easy
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

82. Interneurons are responsible for connecting the brain to the spinal cord and allowing for communication to the various parts of the body to occur.
Answer: False
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

83. Dendrites, which are named for the Greek word for *tree*, receive messages from other neurons.
Answer: True
Difficulty: Easy
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

84. When a neuron is in its "off," or resting state, it has a negative (zero) charge inside of its cellular membrane.
Answer: False
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

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85. Multiple sclerosis is a disease that involves deterioration of the myelin sheaths that cover the axons of neurons.
Answer: True
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

86. Serotonin is a primary inhibitory neurotransmitter that helps to regulate mood and sleep.
Answer: True
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

87. The peripheral nervous system is comprised of the brain and spinal cord.
Answer: False
Difficulty: Easy
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

88. The sympathetic nervous system "speeds things up" and the parasympathetic nervous system "slows things down."
Answer: True
Difficulty: Medium
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Conceptual

89. The brain lobes associated with visual processing are the occipital lobes.
Answer: True
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

90. The primary motor cortex is located in the temporal lobes of the cerebral cortex.
Answer: False
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

91. When a patient undergoes a split-brain procedure, their hindbrain is surgically separated from the higher structures of the midbrain and forebrain.
Answer: False
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

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92. Most people are either “right-brained” or “left-brained,” as it is very unusual for someone to have advanced skills from both cerebral hemispheres.
Answer: False
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom’s Taxonomy: Factual

93. The thalamus is like a telephone operator, because it job is to direct incoming information to its appropriate destination in other areas of the brain.
Answer: True
Difficulty: Hard
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom’s Taxonomy: Conceptual

94. The outer layer of the thyroid glands, located on either side of one’s neck, produce the hormone cortisol, which is secreted when a person undergoes significant increases in their stress level.
Answer: False
Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom’s Taxonomy: Factual

95. A deficit of magnetoencephalography is that the electrodes that are used must be inserted under the skin, which requires the injections of local anesthesia.
Answer: False
Difficulty: Hard
Section: 4. Probing the Brain
Bloom’s Taxonomy: Factual

96. Both computer-assisted tomography (CT scans) and magnetic resonance imaging (MRI) are used to the activity and functions of different areas of the brain.
Answer: False
Difficulty: Hard
Section: 4. Probing the Brain
Bloom’s Taxonomy: Factual

97. One problem with brain imaging techniques is that they can provide evidence for correlations between performing tasks and activation of a specific brain region, but they cannot help us know if one *causes* the other.
Answer: True
Difficulty: Hard
Section: 4. Probing the Brain
Bloom’s Taxonomy: Conceptual

98. A major limitation of electrical stimulation techniques is that they are typically *very* expensive, often costing over $1,000 per session for a single person.

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Answer: False
Difficulty: Medium
Section: 4. Probing the Brain
Bloom's Taxonomy: Conceptual

99. An expert in behavioral genetics is interested in knowing the extent to which differences among people's psychological characteristics and behaviors are due to their different genes or differences in their surroundings.
Answer: True
Difficulty: Easy
Section: 5. Genes, Brain, and Environment: The Brain in the World
Bloom's Taxonomy: Factual

100. Both monozygotic and dizygotic twins are important in twin studies of the importance of genes in determining behaviors.
Answer: True
Difficulty: Medium
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

SECTION 3
SHORT ANSWER and FILL-IN-THE-BLANK QUESTIONS:

101. The average human brain contains approximately _____ neurons.
Answer: 100 billion (instructors should decide what range will be considered an acceptable response)
Difficulty: Hard
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

102. What are brain circuits?
Answer: Sets of neurons that work together to receive input, operate on it in some way, and produce specific output.
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

103. How are neural messages sent from one neuron, across a synaptic gap, to other neurons?
Answer: Chemical transmitter substances called neurotransmitters are responsible for this function.
Difficulty: Medium
Section: 1. Brain Circuits: Making Connections
Bloom's Taxonomy: Factual

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104. Identify three physiological changes that occur in response to activation of the sympathetic nervous system.

Answer: Answers may vary, but some may include greater oxygenation of muscles, improved vision due to pupillary dilation, increases to heart rate, respiratory rate, and perspiration, decreased salivation and digestive functions, and a relaxed bladder.

Difficulty: Hard

Section: 2. The Nervous System: An Orchestra with Many Members

Bloom's Taxonomy: Applied

105. Identify the four lobes of the cerebral cortex and describe the location of each.

Answer: The four lobes are the frontal, parietal, occipital, and temporal lobes. The frontal lobe is located just behind the forehead and above the eyes. The parietal lobe is located at the top or "crown" of the skull. The occipital lobe is located in the rear of the skull, and the temporal lobes are located adjacent to one's ears on the side of the head.

Difficulty: Easy

Section: 2. The Nervous System: An Orchestra with Many Members

Bloom's Taxonomy: Factual

106. A subcortical structure in the brain that is responsible for receiving and redirecting sensory information to their appropriate processing centers is the _____.

Answer: thalamus

Difficulty: Hard

Section: 3. Spotlight on the Brain: How It Divides and Conquers

Bloom's Taxonomy: Factual

107. According to the textbook, the most frequent cause of brain damage is _____.

Answer: a stroke

Difficulty: Hard

Section: 4. Probing the Brain

Bloom's Taxonomy: Factual

108. What kind of technique is required in order to determine that specific brain areas are responsible for the associated behaviors that occur when those areas of activated?

Answer: brain stimulation techniques

Difficulty: Medium

Section: 4. Probing the Brain

Bloom's Taxonomy: Applied

109. When genetically influenced characteristics (both behavioral and psychological) induce other people to behave in particular ways, this is called _____ interaction.

Answer: induced (or reactive)

Difficulty: Medium

Section: 5. Genes, Brain, and Environment: The Brain in the World

Bloom's Taxonomy: Factual

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110. When discussing Darwin's model of natural selection, what is meant by the term *adaptation*?

Answer: An adaptation is a gene-based characteristic that increases an organism's ability to survive and reproduce successfully.

Difficulty: Hard

Section: 5. Genes, Brain, and Environment: The Brain in the World

Bloom's Taxonomy: Factual

SECTION 4

SHORT ESSAY QUESTIONS:

111. List and describe the functions of the major parts of the human neuron. Your answer should include a drawing of the neuron with each part labeled. Note: artistic quality is not being graded.

Answer: The answer to this question can be found in Figure 2.1, where the major structures of the neuron – dendrites, cell body, axon, and terminal buttons are all labeled. Further Figure 2.4 includes the synaptic vesicles, synaptic cleft, and dendritic receptor sites.

Difficulty: Hard

Section: 1. Brain Circuits: Making Connections

Bloom's Taxonomy: Factual

112. Identify four different neurotransmitters by discussing their primary distinguishing features as well as the related disorders that can occur when the activity of each has become abnormal (elevated or deficient).

Answer: Table 2.1 lists several of the major neurotransmitters discussed in this chapter, including acetylcholine, dopamine, noradrenaline (norepinephrine), glutamate, endorphins, and serotonin. gamma-aminobutyric acid, and endogenous cannabinoids. Instructors may wish to accept other neurotransmitters based on classroom presentations. Instructors may wish to extend the question to the last column of Table 2.1, or may wish to include this as an extra credit opportunity.

Difficulty: Hard

Section: 1. Brain Circuits: Making Connections

Bloom's Taxonomy: Factual

113. Begin by defining the peripheral nervous system, and then list and describe the two major branches of the PNS. Make sure to provide an appropriate discussion of the divisions of each of those branches, focusing on the functions of each level of the PNS.

Answer: Briefly, the student should identify that the PNS is made up of all nervous tissue (nerves or neurons) that exist outside of the brain and spinal cord. They should identify the branches of the PNS (autonomic and somatic nervous systems) along with a definition of each. The autonomic nervous system should be further divided into the sympathetic and parasympathetic branches, along with a description of what happens when each is activated and

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an acknowledgment that the two work in concert with each other. The somatic nervous system should be further discussed in terms of the motor and sensory pathways that it controls, though the specific language of this aspect of the essay will depend on the classroom presentation of this information.

Difficulty: Medium
Section: 2. The Nervous System: An Orchestra with Many Members
Bloom's Taxonomy: Factual

114. Describe the four lobes of the cerebral cortex, with an emphasis on the skills or functions that are controlled by each.

Answer: The four lobes are described in depth in the text, but the following will serve as a summary of what each does. The extent to which students are expected to go beyond these definitions is at the discretion of the individual instructor:

Temporal lobes: The brain lobes under the temples, in front of the ears; among their many functions are processing sound, entering new information into memory, storing visual memories, and comprehending language.

Occipital lobes: The brain lobes at the back of the head; concerned entirely with different aspects of vision.

Parietal lobes: The brain lobes at the top, rear of the brain; they are involved in attention, arithmetic, touch, and registering spatial location.

Frontal lobes: The brain lobes located behind the forehead; critically involved in planning, memory search, motor control, speech control, reasoning, and emotions.

Difficulty: Medium
Section: 3. Spotlight on the Brain: How It Divides and Conquers
Bloom's Taxonomy: Factual

115. List and describe at least three different techniques for studying the human brain. At least one must be a neuroimaging technique. Discuss what each of your selected methods may be used for, as well as the limitations of each.

Answer: Answers to this question may vary, but the techniques that students may choose to select and define include EEG, MEG, MRI, CT scan, fMRI, PET, TMS, and single-cell recording, as well as brain stimulation techniques. Table 2.2 lists several of these along with several dimensions of each technique.

Difficulty: Hard
Section: 4. Probing the Brain
Bloom's Taxonomy: Factual

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