CHAPTER 2 The Role of Biology in Psychology

LEARNING OBJECTIVES

2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
- 2.1a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.1b. Apply the nervous system to your life by describing the three functions of your nervous system during an experience you had recently.

2.2 Neurons Communicate with Each Other in Your Nervous System
- 2.2a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.2b. Analyze how neurons communicate by organizing the three phases of neural communication into an illustrated short story for young children.

2.3 Neurotransmitters Influence Your Mental Activity and Behavior
- 2.3a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.3b. Apply neurotransmitters to your life by describing three experiences you have had that likely each reflect the function of a specific neurotransmitter.

2.4 Understanding of the Brain Has Developed over Time
- 2.4a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.4b. Understand the three modern approaches to brain research by describing the major advantage of each method.

2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
- 2.5a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.5b. Apply the three hindbrain and one midbrain regions by using the first letter of each region's name to represent a word. Together the four words should make up a new sentence. This new sentence can help you remember the names of these brain regions.

2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
- 2.6a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.6b. Apply the four forebrain subcortical structures by using the first letter of each part's name to represent a word. Together the four words should make up a new sentence. This new sentence will help you remember the names of these brain parts.

2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
- 2.7a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.7b. Apply the functions of the four lobes of the cerebral cortex and the six regions identified in this study unit by giving an example of how each processes information in your daily life.

2.8 Your Somatic Nervous System Detects Sensory Input and Responds
- 2.8a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.8b. Analyze how the somatic nervous system processes information by describing how your somatic nervous system functions when you touch a hot pan.

2.9 Your Autonomic Nervous System Regulates the Body Automatically
- 2.9a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.9b. Apply the autonomic nervous system to your life by providing examples of two experiences you have had, one processed by the sympathetic system and one by the parasympathetic system.

2.10 The Endocrine System Affects Your Behavior Through Hormones
- 2.10a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.10b. Understand the endocrine system by summarizing in your own words how the testes and ovaries secrete specific hormones that influence sexual development.

2.11 Your Genes Affect Your Mental Activity and Behavior
- 2.11a. Understand all bold and italic terms by writing explanations of them in your own words.
- 2.11b. Apply the effects of genes in your life by describing one of your physical or psychological characteristics that was likely mostly influenced by genes.

2.12 Your Genes Interact with Your Environment to Influence You

2.12a. Understand all bold and italic terms by writing explanations of them in your own words.

2.12b. Understand how behavioral genetics studies the interaction of genes and environment by summarizing the results of twin studies and adoption studies in your own words.

2.13 Your Environment Changes Your Brain

2.13a. Understand all bold and italic terms by writing explanations of them in your own words.

2.13b. Apply the effects of environment to your life by describing one of the three ways in which your brain has been influenced by plasticity due to environment.

MULTIPLE CHOICE

1. The basic building blocks of the nervous system are the
   a. neurons.
   b. neurotransmitters.
   c. dendrites.
   d. axons.

   ANS: A DIF: Easy
   REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
   OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
   MSC: Remembering

2. The human body's nervous system is built from billions of nerve cells, which are called
   a. neurotransmitters.
   b. neurons.
   c. axons.
   d. cell bodies.

   ANS: B DIF: Easy
   REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
   OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
   MSC: Remembering

3. In the nervous system, each neuron communicates with
   a. one or two other neurons.
   b. a random subset of the other neurons in the nervous system.
   c. many other neurons in an organized network.
   d. all of the other neurons in the nervous system.

   ANS: C DIF: Moderate
   REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
   OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
   MSC: Understanding

4. Which of the following best summarizes the main function(s) of your nervous system?
   a. It allows the right side of your brain to communicate with the left side of your brain.
   b. It regulates the oxygen in your blood, protects you from pain, and helps your body eliminate waste.
   c. It allows you to receive sensory information, process that information, and then respond to it.
   d. It produces vital bodily fluids such as bile and regulates the body's secretion of these fluids.

   ANS: C DIF: Easy
   REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
   OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
   MSC: Understanding

5. Your nervous system allows you to do all of the following EXCEPT
   a. receive sensory input.
   b. perceive and remember information.
   c. make behavioral responses.
   d. alter genetic codes.

   ANS: D DIF: Easy
   REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
   OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
   MSC: Understanding

6. The spinal cord is part of the _____ nervous system.
   a. parasympathetic
   c. somatic

b. peripheral
d. central

ANS: D DIF: Easy
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

7. The brain and the spinal cord make up the _____ nervous system.
a. central
b. peripheral
c. somatic
d. autonomic

ANS: A DIF: Easy
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

8. In the nervous system, the cells that receive, integrate, and transmit information are the
a. axons.
b. neurons.
c. dendrites.
d. neurotransmitters.

ANS: B DIF: Easy
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

9. The part of the neuron that collects information from other neurons and integrates it is the
a. axon.
b. synapse.
c. cell body.
d. terminal button.

ANS: C DIF: Easy
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

10. The site where communication occurs between neurons through the release of chemicals is called the
a. axon.
b. synapse.
c. cell body.
d. dendrite.

ANS: B DIF: Easy
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

11. The central nervous system is made up of the
a. somatic and peripheral nervous systems.
b. brain and spinal cord.
c. somatic nervous system and the brain.
d. peripheral nervous system and the spinal cord.

ANS: B DIF: Easy
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

12. The dendrites are the part of the _____, where signals from neighboring neurons are received.
a. terminal buttons
b. axon
c. cell body
d. synapse

ANS: C DIF: Difficult
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

13. Chemical substances that carry messages from one neuron to the next are called
    a. agonists.
    b. neurotransmitters.
    c. hormones.
    d. antagonists.

    ANS: B DIF: Easy
    REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior | 2.3 Neurotransmitters Influence Your Mental Activity and Behavior OBJ: 2.1a | 2.3a
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

14. Graham went out for a walk on a cool, fall evening. He forgot to bring a sweater and started feeling cold. The _____ nervous system received the sensory information that the temperature outside was too cold.
    a. central
    b. peripheral
    c. sympathetic
    d. autonomic

    ANS: B DIF: Moderate
    REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
    OBJ: 2.1b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

15. When a neuron is stimulated enough, it
    a. fires an action potential.
    b. becomes an agonist.
    c. achieves a resting state.
    d. becomes an antagonist.

    ANS: A DIF: Easy
    REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
    OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

16. After an action potential is fired, the neuron returns to its resting state with the help of
    a. neurotransmitters.
    b. the synapse.
    c. reuptake.
    d. the sodium potassium pump.

    ANS: D DIF: Easy
    REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
    OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

17. When inactive, the electrical charge inside a neuron is slightly more negative than the electrical charge outside the neuron. This difference in the electrical charge inside and outside the neuron is the
    a. action potential.
    b. resting state.
    c. inhibitory signal.
    d. excitatory signal.

    ANS: B DIF: Moderate
    REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
    OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

18. In reuptake, neurotransmitters are reabsorbed into the presynaptic neuron, which
    a. allows sodium ions to enter the neuron and potassium ions to leave the neuron.
    b. signals the cell body to produce an inhibitory signal.
    c. creates an electrical charge that triggers an action potential.
    d. removes the neurotransmitter from the synapse and stops further stimulation of receptors.

    ANS: D DIF: Difficult
    REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
    OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

19. During the reception phase of neural communication, the _____ will accept signals from presynaptic neurons.
    a. cell body
    c. myelin sheath

b. axons
d. dendrites

ANS: D DIF: Moderate
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

20. During the integration phase of neural communication, the presence of inhibitory signals will _____ firing an action potential.
a. increase the likelihood
b. decrease the likelihood
c. not affect the
d. block the neuron from

ANS: B DIF: Moderate
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

21. During the integration phase of neural communication, the type of signal that increases the likelihood that a neuron will fire an action potential is called a(n) _____ signal.
a. excitatory
b. sensory
c. inhibitory
d. enzyme degradation

ANS: A DIF: Easy
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

22. One part of the neuron covers and protects it much like insulation protects water pipes so that they do not freeze in winter. In a neuron this protective covering is called
a. the terminal button.
b. the axon.
c. a dendrite.
d. the myelin sheath.

ANS: D DIF: Easy
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2a | 2.2b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

23. The parts of the neuron that act like mailboxes because they receive information from other neurons are called the
a. terminal buttons.
b. axons.
c. dendrites.
d. myelin sheaths.

ANS: C DIF: Easy
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2a | 2.2b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

24. Neurons are able to communicate when
a. terminal buttons plug into receptor sites on adjacent dendrites.
b. neurotransmitters cross the synapse and bind with receptors on the postsynaptic dendrite.
c. electric signals connect across the synapse to the adjacent neuron.
d. chemical elements released into the synapse are converted to neurotransmitters that bind with receptors.

ANS: B DIF: Moderate
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Analyzing

25. In the nervous system, the job of the axons is to _____ other neurons.
a. transmit action potentials to
b. integrate information from
c. detect information from
d. release neurotransmitters to

ANS: A DIF: Moderate
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Analyzing

26. A myelin sheath is a fatty layer that protects the axon, so it is most like the
a. remote control for a TV.
b. insulation around a wire.
c. layers of a cake.
d. thermostat of a heater.

ANS: B DIF: Moderate
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Analyzing

27. Juan is trying to find the exact code he needs to advance to the next level of his video game. He says to his friend, "Hey! Finding this code to open the next level to the game is a lot like
a. the firing of an action potential."
b. how the unique structure of a neurotransmitter must fit a certain receptor site."
c. how a neuron reaches a resting state."
d. the activity log that the nervous system maintains."

ANS: B DIF: Easy
REF: 2.2 Neurons Communicate with Each Other in Your Nervous System
OBJ: 2.2b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

28. If a new drug blocks the neurotransmitter acetylcholine from connecting to the receptor sites, then the drug
a. is an agonist.
b. is an antagonist.
c. creates an inhibitory signal.
d. creates an excitatory signal.

ANS: B DIF: Easy
REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
OBJ: 2.3a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

29. Because nicotine increases how the neurotransmitter acetylcholine functions, it is an
a. inhibitory neurotransmitter.
b. excitatory neurotransmitter.
c. antagonist.
d. agonist.

ANS: D DIF: Easy
REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
OBJ: 2.3a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

30. The action of neurotransmitters is _____ by agonists and is _____ by antagonists.
a. increased; decreased
b. decreased; increased
c. increased; not affected
d. not affected; decreased

ANS: A DIF: Easy
REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
OBJ: 2.3a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

31. While he was heading home from work one day, Ibrahim was pulled over by a police officer. During the interaction, he was extremely stressed, causing his pulse to accelerate and his pulse and blood pressure to increase. Which neurotransmitter caused these physiological changes?
a. serotonin
b. acetylcholine
c. norepinephrine
d. endorphins

ANS: C DIF: Moderate
REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior

OBJ: 2.3a | 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

32. Drugs that increase the effects of the neurotransmitter GABA
    a. reduce the symptoms of depression.
    b. improve motor control.
    c. are used to treat anxiety.
    d. may cause seizures.

    ANS: C DIF: Moderate
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

33. A neurotransmitter that is important in muscle contraction is
    a. epinephrine.
    b. norepinephrine.
    c. acetylcholine.
    d. serotonin.

    ANS: C DIF: Moderate
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

34. Mandy is extremely depressed and is prescribed a drug to alleviate her depression. The drug would likely affect the neurotransmitter
    a. dopamine.
    b. epinephrine.
    c. serotonin.
    d. acetylcholine.

    ANS: C DIF: Moderate
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

35. Roberto's grandmother has Alzheimer's disease. Therefore, you would expect to see too _____ of the neurotransmitter _____ in her brain.
    a. much; acetylcholine
    b. little; acetylcholine
    c. much; dopamine
    d. little; dopamine

    ANS: B DIF: Difficult
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

36. Lionel has Parkinson's disease and has difficulty starting motor movements because the neurons involved with dopamine activity are
    a. dying off and decreasing activity.
    b. producing too much dopamine.
    c. no longer producing dopamine.
    d. rapidly multiplying.

    ANS: A DIF: Difficult
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

37. You are running a 5K race and suddenly you experience an adrenaline rush. Your body releasing the neurotransmitter _____ causes this burst of energy.
    a. acetylcholine
    b. epinephrine
    c. glutamate
    d. dopamine

    ANS: B DIF: Easy
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

38. Marco has great difficulty walking due to uncontrollable tremors and shakiness. His doctor told him that this was due to a decreasing amount of a neurotransmitter in his brain. Which of the following neurotransmitters would be likely to cause this difficulty?
    a. epinephrine
    b. norepinephrine
    c. glutamate
    d. dopamine

    ANS: D DIF: Moderate
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

39. Benita is playing a very exciting video game and she finds that she wants to keep playing it more and more. Benita's desire is most likely activating the neurons in her brain that produce more of the neurotransmitter
    a. acetylcholine.
    b. epinephrine.
    c. serotonin.
    d. dopamine.

    ANS: D DIF: Difficult
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

40. When Lillian gave birth to her first son, she went through a long and painful labor process. Her body helped her cope with the pain of the contractions by releasing
    a. norepinephrine.
    b. serotonin.
    c. dopamine.
    d. endorphins.

    ANS: D DIF: Moderate
    REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
    OBJ: 2.3b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

41. Which specialized area of the brain is crucial to the production of speech?
    a. Broca's area
    b. the amygdala
    c. the cerebellum
    d. the thalamus

    ANS: A DIF: Easy
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

42. Functional magnetic resonance imaging (fMRI) is the main brain imaging method used in psychological research today. The main goal of fMRI is to
    a. determine whether specific regions of the brain are working effectively.
    b. record the electrical activity created by the neurons firing in the brain.
    c. determine if neurotransmitters are binding to the receptors in the postsynaptic neurons.
    d. measure the blood's oxygen level in the brain.

    ANS: D DIF: Moderate
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

43. Which of the following is NOT a modern method for accurately measuring brain activity?
    a. phrenology
    b. transcranial magnetic stimulation
    c. functional magnetic resonance imaging
    d. an electroencephalograph

    ANS: A DIF: Easy
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a | 2.4b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

44. Which of the following is the measure of brain activity that temporarily "turns off" parts of the brain to explore which brain regions are necessary for specific psychological functions?
    a. phrenology
    b. transcranial magnetic stimulation
    c. functional magnetic resonance imaging
    d. electroencephalograph

    ANS: B DIF: Difficult
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a | 2.4b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

45. Lisa has problems sleeping, so she goes to a sleep clinic. At the clinic the researchers measure her brain's electrical activity as she sleeps by using the technique of
    a. electroencephalographs (EEGs).
    b. transcranial magnetic stimulation (TMS).
    c. functional magnetic resonance imaging (fMRI).
    d. phrenology.

    ANS: A DIF: Easy
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a | 2.4b
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
    MSC: Applying

46. Chung started having trouble with his vision several months after experiencing a concussion. Chung's doctor found nothing wrong with his eyes, so he wanted to explore blood flow to the parts of the brain that process visual information. What modern brain imaging method must the doctor use to achieve this goal?
    a. an electroencephalograph (EEG)
    b. a functional magnetic resonance imaging (fMRI)
    c. a psychograph
    d. a transcranial magnetic stimulation (TMS)

    ANS: B DIF: Difficult
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a | 2.4b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

47. Teresa was out shopping when she suddenly started convulsing. While in the emergency room, her fried Eva explained to the doctor what she had witnessed, so the doctor ordered an electroencephalograph (EEG) to assess if Teresa may have experienced an epileptic seizure, given this test is used to study the _____ in the brain.
    a. electrical activity
    b. overall functioning
    c. blood flow
    d. oxygenation

    ANS: A DIF: Moderate
    REF: 2.4 Understanding of the Brain Has Developed over Time
    OBJ: 2.4a | 2.4b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

48. The area of the brain that allows one to initiate voluntary motor activity is the
    a. hindbrain.
    b. midbrain.
    c. occipital lobe.
    d. temporal lobe.

    ANS: B DIF: Easy
    REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
    OBJ: 2.5a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

49. The spinal cord is composed of two distinct types of tissue. One type of tissue is composed of the cell bodies of neurons, which do not have myelin on their axons. This tissue in the spinal cord is called
    a. substantia nigra.
    c. nucleus accumbens.

b. gray matter.
d. white matter.

ANS: B DIF: Easy
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

50. Basic survival functions such as heart rate are controlled by the hindbrain structure called the
a. thalamus.
c. hippocampus.
b. cerebellum.
d. medulla.

ANS: D DIF: Easy
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

51. Damage to the _____ might cause problems with coordination and balance.
a. hippocampus
c. amygdala
b. cerebellum
d. temporal lobe

ANS: B DIF: Moderate
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

52. Lucy is pregnant and every time she smells cheese she gags and has to fight the urge to throw up. Lucy's response is most strongly related to activity in the
a. pons.
c. medulla.
b. cerebellum.
d. hypothalamus.

ANS: C DIF: Moderate
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a | 2.5b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

53. Doctors finally understood why a child had difficulty sleeping. They discovered that she had a large tumor located in the part of her hindbrain called the
a. thalamus.
c. hippocampus.
b. hypothalamus.
d. pons.

ANS: D DIF: Easy
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a | 2.5b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

54. Yves has been drinking. He has difficulty walking a straight line when asked to do so by a police officer. Apparently, Yves's _____ has been affected by the alcohol.
a. cerebellum
c. amygdala
b. thalamus
d. hippocampus

ANS: A DIF: Moderate
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a | 2.5b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

55. Which of the following is NOT a subcortical structure in the forebrain?
a. substantia nigra
c. hypothalamus
b. amygdala
d. hippocampus

ANS: A DIF: Moderate
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival | 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions OBJ: 2.5a | 2.6a

NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

56. One's motivations and emotions are controlled by the
    a. hindbrain.
    b. cerebellum.
    c. forebrain.
    d. parietal lobe.

    ANS: C DIF: Easy
    REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
    OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

57. According to Maguire and colleagues' study on the brain structures of London taxi drivers, which part of a taxi driver's brain is more likely to be larger than normal?
    a. frontal lobe
    b. hippocampus
    c. cerebellum
    d. thalamus

    ANS: B DIF: Easy
    REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
    OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

58. The brain structure that is associated with the formation of memories is the
    a. thalamus.
    b. cerebellum.
    c. hippocampus.
    d. hypothalamus.

    ANS: C DIF: Easy
    REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
    OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

59. Which of the following brain structures plays an important role in how we respond to fearful things?
    a. hypothalamus
    b. hippocampus
    c. amygdala
    d. thalamus

    ANS: C DIF: Easy
    REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
    OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

60. The hypothalamus is a brain structure that is important in
    a. regulating bodily functions.
    b. regulating emotions.
    c. synthesizing incoming information.
    d. thinking.

    ANS: A DIF: Easy
    REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
    OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Remembering

61. The thalamus receives nearly all sensory information before relaying it to the cortex. What is the one sensation that is the exception to this rule?
    a. smell
    b. vision
    c. hearing
    d. taste

    ANS: A DIF: Difficult
    REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
    OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

62. Information travels from our sensory receptors to the _____ in the brain, which relays it to the cortex.
    a. hippocampus
    b. hypothalamus
    c. thalamus
    d. cerebellum

ANS: C DIF: Moderate
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

63. Miranda is working in a laboratory and comes across a rat that is grossly overweight and seems unable to stop eating. The researcher tells Miranda that the rat has a brain lesion. Which part of the forebrain most likely has the lesion?
a. amygdala
b. hypothalamus
c. substantia nigra
d. pons

ANS: B DIF: Moderate
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6a | 2.6b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Applying

64. Mario is highly afraid of spiders. Which part of the brain would be activated if he were to enter a room that had a lot of spiders?
a. hypothalamus
b. hippocampus
c. amygdala
d. thalamus

ANS: C DIF: Moderate
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6a | 2.6b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

65. Mrs. Fine is highly interested in learning about the emotions of her fourth graders. Which of the following journal articles would be a good fit for her interests?
a. "The Tricky Thalamus"
b. "Your Hyped Hypothalamus"
c. "Your Cryptic Cerebellum"
d. "The Amazing Amygdala"

ANS: D DIF: Moderate
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6a | 2.6b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Applying

66. A post office receives lots of incoming mail, organizes it, and then sends it out to various locations. Which part of the brain is a lot like a post office?
a. substantia nigra
b. amygdala
c. thalamus
d. cerebellum

ANS: C DIF: Difficult
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6a | 2.6b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

67. Auditory information is processed in the _____ lobes of the cerebral cortex.
a. occipital
b. parietal
c. temporal
d. frontal

ANS: C DIF: Easy
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

68. Visual information is primarily processed in the _____ lobes of the cerebral cortex.
a. occipital
b. parietal
c. temporal
d. frontal

ANS: A DIF: Easy

REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

69. The brain structure that connects the two hemispheres of the cerebral cortex is called the
a. split-brain.
b. somatosensory cortex.
c. temporal lobe.
d. corpus callosum.

ANS: D DIF: Easy
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

70. The part of the brain that is responsible for the sense of touch and for picturing the layout of spaces in the environment is the _____ lobes.
a. frontal
b. parietal
c. temporal
d. occipital

ANS: B DIF: Moderate
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

71. Drs. Gazzaniga and Sperry conducted a series of studies testing the abilities of epilepsy patients who had undergone a split-brain procedure, where the left hemisphere was disconnected from the right. How were the brains of epilepsy patients modified during the split-brain procedure?
a. Their corpus callosums had been severed.
b. Their left hemispheres had been partially removed.
c. Their parietal lobes had been partially removed.
d. Their somatosensory cortexes had been intentionally damaged.

ANS: A DIF: Difficult
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

72. Dolores has severe epilepsy and must undergo a procedure to disconnect the left hemisphere of her brain from the right to prevent the epilepsy from spreading. During this procedure, doctors will surgically cut the fibers that connect the two hemispheres of the brain, which are called the
a. parietal lobe.
b. frontal lobe.
c. corpus callosum.
d. somatosensory cortex.

ANS: C DIF: Difficult
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

73. Jonas has experienced a relatively severe right hemisphere stroke. As a result, he has been diagnosed with hemineglect, meaning he is unable to notice any touch on the left side of his body. The location of the stroke is most likely within the _____ lobes.
a. frontal
b. parietal
c. temporal
d. occipital

ANS: B DIF: Difficult
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a | 2.7b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking
MSC: Applying

74. A child gets a severe blow to the head from an accident. Although her eyes are still fully functional, she can no longer see. Based on this information, her doctor determines that the brain area most likely damaged in the accident is the _____ lobes.

a. frontal
b. parietal
c. temporal
d. occipital

ANS: D DIF: Moderate
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a | 2.7b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

75. Samantha recently became blind and is learning to use her fingers to read in braille. The part of her brain that will be activated by touching the bumps on the page as she reads the braille is the _____ lobes.
a. frontal
b. parietal
c. temporal
d. occipital

ANS: B DIF: Difficult
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a | 2.7b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking
MSC: Applying

76. Brad has experienced a relatively severe left hemisphere stroke. As a result, he is unable to move his right arm and has a great deal of difficulty with planning and attention. The stroke most likely caused damage to the _____ lobes.
a. frontal
b. parietal
c. temporal
d. occipital

ANS: A DIF: Difficult
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

77. The somatic nervous system processes information between the central nervous system and one's
a. glands.
b. internal organs.
c. skin, muscles, and joints.
d. eyes, ears, nose, and mouth.

ANS: C DIF: Easy
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

78. The somatic nervous system allows
a. hormones to secrete.
b. movement of the muscles and joints.
c. signals to be transmitted to the body's glands.
d. the body to return to a calm, resting state.

ANS: B DIF: Moderate
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

79. The somatic nervous system is NOT responsible for processing information about
a. feeling sad after learning you did poorly on a test.
b. the tingling sensations from your arm when it falls asleep.
c. sensing where your foot is on the stairs as you climb them.
d. feeling a mosquito when it lands on your neck.

ANS: A DIF: Moderate
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8a | 2.8b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

80. Sumeeta recently fell down the stairs, injuring her right arm. As a result, her thumb, index, and middle fingers began to numb. The part of the nervous system that may be responsible for this numbness is the _____ nervous system.
a. central
b. somatic
c. autonomic
d. parasympathetic

ANS: B DIF: Moderate
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8a | 2.8b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

81. When you paint with a paintbrush, your brain sends messages to your finger muscles so that your fingers move in specific ways. This example illustrates the functions of the _____ system.
a. somatic nervous
b. autonomic nervous
c. parasympathetic
d. sympathetic

ANS: A DIF: Moderate
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

82. If your hand were to automatically jerk back after accidentally touching a hot kettle, which of the following nervous systems would be responsible for this moment?
a. somatic
b. sympathetic
c. parasympathetic
d. autonomic

ANS: A DIF: Difficult
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

83. Naveed is an avid hiker who enjoys spending time outdoors exploring nature trails in the forests and mountains near his home. On which part of the nervous system does Naveed rely to hike through all the different types of terrains?
a. autonomic
b. parasympathetic
c. somatic
d. central

ANS: C DIF: Moderate
REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

84. Your body is prepared for defensive action by the _____ system.
a. somatic nervous
b. sympathetic nervous
c. parasympathetic nervous
d. endocrine

ANS: B DIF: Easy
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

85. After cautiously walking home and arriving safely from her late-night class, Selma notices that both her heart rate and breathing slow down. This automatic return to a normal state is due to the activity of her _____ nervous system.
a. somatic
b. sympathetic
c. parasympathetic
d. endocrine

ANS: C DIF: Easy
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a | 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

86. When walking to his car late at night, Otto is extra vigilant and his body is on alert for danger. These responses are due to the actions of the _____ system.
a. somatic nervous
b. sympathetic nervous
c. central nervous
d. endocrine

ANS: B DIF: Easy
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a | 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

87. As you work outside in the yard, you work up a pretty good sweat. Your sweating is largely due to the functioning of your _____ system.
a. somatic nervous
b. autonomic nervous
c. central nervous
d. endocrine

ANS: B DIF: Moderate
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a | 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

88. People who were at the scene of the Boston Marathon bombing probably experienced
a. an activation of their sympathetic nervous systems.
b. increased activity in the parietal lobes.
c. temporary changes to their somatic nervous systems.
d. permanent changes to their endocrine systems.

ANS: A DIF: Easy
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a | 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

89. Meghan was driving home when she heard a tire explode on the car right next to her. As a result, her heart started pounding and she began to shake, and she sped up to move as far from the sound as possible. Based on this information, which nervous system was activated when Meghan first heard the explosion?
a. sympathetic
b. parasympathetic
c. somatic
d. central

ANS: A DIF: Moderate
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a | 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

90. Jamaal was driving late at night when he thought a car was following him. He was afraid, so his heart rate sped up and he began breathing faster. When he turned on a side street and the car did not follow him, he was relieved, and his heart rate and breathing slowed to return to normal rates. Which nervous system allowed Jamaal to return to a resting state?
a. somatic
b. sympathetic
c. central
d. parasympathetic

ANS: D DIF: Moderate
REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a | 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

91. Nasim is driving on a snow-covered road, and her car begins to slide. The quick behavioral response and the increased heart rate and respiration she experiences are most likely due to the _____ nervous system. The feeling of relief and decrease in heart rate and respiration once she has the car under control again are most likely due to the _____ nervous system.
a. parasympathetic; sympathetic
b. sympathetic; parasympathetic
c. autonomic; somatic
d. somatic; autonomic

ANS: B DIF: Moderate

REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

92. The communication system in your body by which hormones influence thoughts, behaviors, and actions is the _____ system.
a. somatic nervous
b. sympathetic
c. parasympathetic
d. endocrine

ANS: D DIF: Easy
REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

93. Endocrine glands release
a. neurotransmitters.
b. receptors.
c. hormones.
d. glutamate.

ANS: C DIF: Easy
REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

94. During puberty, everyone experiences secondary sex characteristics. However, these changes will vary depending on each person's specific _____.
a. adrenal glands
b. gonads
c. adrenal glands
d. gonads

ANS: D DIF: Moderate
REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10a | 2.10b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

95. The ovaries, testes, and adrenal gland are all part of the _____ system.
a. pituitary
b. endocrine
c. autonomic nervous
d. somatic nervous

ANS: B DIF: Easy
REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

96. Growth hormones have all of the following effects EXCEPT for increasing
a. intelligence.
b. bone strength.
c. strength.
d. muscle mass.

ANS: A DIF: Moderate
REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

97. What might happen to a person born with a dysfunction of the endocrine system?
a. The person would have difficulty controlling motor movements.
b. The person would experience problems with sexual development.
c. The person would have difficulty interpreting emotional expressions.
d. The person would experience problems with emotional arousal.

ANS: B DIF: Easy
REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

98. If an athlete were using illegal growth hormones to increase his or her muscle growth, he or she would be trying to make changes to his or her
    a. somatic nervous system.
    b. behavioral genetics.
    c. autonomic nervous system.
    d. endocrine system.

    ANS: D DIF: Moderate
    REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
    OBJ: 2.10b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

99. When Chloe was 10 years old, she began developing breasts and hair under her arms. Chloe's mom explained that these changes were part of puberty and were the result of her gonads, called _____, releasing the hormone called _____.
    a. ovaries; estrogens
    b. ovaries; androgens
    c. testes; estrogens
    d. testes; androgens

    ANS: A DIF: Moderate
    REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
    OBJ: 2.10b NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Applying

100. At conception, your _____ is/are fixed.
    a. genotype
    b. phenotype
    c. genotype and phenotype
    d. None of the choices are fixed at conception.

    ANS: A DIF: Easy
    REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
    OBJ: 2.11a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

101. During your lifetime, it is possible for your _____ to change.
    a. taxonomic rank
    b. archetypes
    c. genotypes
    d. phenotypes

    ANS: D DIF: Easy
    REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
    OBJ: 2.11a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

102. A genotype is _____, whereas a phenotype is _____.
    a. underlying; observed
    b. expressed; inherited
    c. genetic; environmental
    d. dominant; recessive

    ANS: A DIF: Moderate
    REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
    OBJ: 2.11a NAT: APA Goal 1, Knowledge Base in Psychology
    MSC: Understanding

103. An instructor looking at the faces of the students in his or her class is also looking at their
    a. natures.
    b. nurtures.
    c. genotypes.
    d. phenotypes.

    ANS: D DIF: Easy
    REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
    OBJ: 2.11a | 2.11b
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
    MSC: Applying

104. Regarding the factors potentially influencing behavior, which of the following statements is true?
    a. Behavior overwhelmingly reflects genetics.

b. Behavior mainly stems from environmental causes.
c. Behavior is generated mainly by the endocrine system.
d. Behavior reflects an interaction between genetics and the environment.

ANS: D DIF: Easy
REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
OBJ: 2.11b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

105. Which of the following would NOT be caused by your genotype?
a. eye color
b. sex
c. Huntington's disease
d. music preference

ANS: D DIF: Easy
REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
OBJ: 2.11b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

106. Your little brother has blue eyes. His eye color is the result of
a. his genotype.
b. his phenotype.
c. both his genotype and his environment.
d. both his phenotype and his environment.

ANS: C DIF: Difficult
REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
OBJ: 2.11b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking
MSC: Understanding

107. Which of the following is always true regarding dizygotic twins?
a. They have different genotypes.
b. They have different phenotypes.
c. They have the same genotype.
d. They have the same phenotype.

ANS: A DIF: Moderate
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

108. Behavioral geneticists are primarily interested in
a. natural selection and the evolution of genes.
b. discovering how genes control behaviors.
c. proving that genes have the strongest influence on behavior.
d. studying the interaction between genes and environment.

ANS: D DIF: Moderate
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

109. Which of the following phenomena would NOT be part of a study in behavioral genetics?
a. the effect of one environment on another environment
b. the effect of genes on one's environment
c. the effect of environmental and genetic interactions on biological phenomena
d. the effect of environmental and genetic interactions on psychological phenomena

ANS: A DIF: Moderate
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

110. In considering the relative contributions of genes and environment, most scientists would agree that

a. environment plays the most important role in shaping behavior.
b. only genes shape behavior.
c. environment has little effect on behavior.
d. genes and environment interact to determine behavior.

ANS: D DIF: Moderate
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Understanding

111. Julio's parents and older brothers are very tall individuals, so everyone assumed that Julio would also be very tall once he hit puberty. However, this was not the case, as Julio is about six inches shorter than both of his siblings. Julio was diagnosed with leukemia during infancy and had to endure several cancer treatments. Even though he went into remission, doctors were concerned that his development may have been affected as a result. According to epigenetics, the most likely reason why Julio is shorter than his siblings is because
a. Julio has a different genotype than his brothers.
b. Julio's grandparents on his father's side were short in stature.
c. as the younger brother, Julio grew up in a different environment than his brothers.
d. Julio's exposure to cancer treatment may have altered his gene expression.

ANS: D DIF: Easy
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Applying

112. Bill and his sister Ann are twins; however, they CANNOT be
a. monozygotic twins.
b. dizygotic twins.
c. fraternal twins.
d. told apart.

ANS: A DIF: Easy
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

113. The advantage of studying monozygotic twins is that
a. all of their behaviors are identical.
b. they are treated the same in their environment.
c. they are easy to locate and track for research.
d. they are genetically identical.

ANS: D DIF: Moderate
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

114. The textbook discusses the famous Minnesota Twin Project. Which of the following would best describe a conclusion that could be drawn from this study?
a. Twins are more likely to experience a shared environment than a nonshared environment.
b. Monozygotic twins are more likely to experience a shared environment than are dizygotic twins.
c. There are more similarities among biological relatives than among adoptive relatives.
d. There are more similarities between monozygotic twins than between dizygotic twins.

ANS: C DIF: Difficult
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking
MSC: Applying

115. Why do monozygotic twins have different phenotypes?
a. They have different genotypes.

b. They have nonshared environments.
c. They have the same environments but different genes.
d. They are fraternal twins.

ANS: B DIF: Moderate
REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

116. The idea that the brain is extremely malleable and is continuously changing as a result of injury, experiences, or substances is known as
a. myelination.
b. genetics.
c. plasticity.
d. phenotype.

ANS: C DIF: Easy REF: 2.13 Your Environment Changes Your Brain
OBJ: 2.13a NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Remembering

117. As a blind child, Ben Underwood taught himself to make a clicking sound that would bounce off objects in the surrounding environment in order to navigate the world around him without sight. Which of the following terms best describes why Ben was able to change how his brain was wired to "see" through his hearing?
a. epigenetics
b. plasticity
c. neurogenesis
d. neural pruning

ANS: B DIF: Moderate REF: 2.13 Your Environment Changes Your Brain
OBJ: 2.13a | 2.13b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

118. Compared to those who only speak one language, people who speak two languages are typically better able to perform complex processes and are less likely to experience symptoms of dementia. These cognitive benefits of speaking multiple languages occurs as a result of
a. neurogenesis.
b. neural pruning.
c. plasticity.
d. epigenetics.

ANS: C DIF: Difficult REF: 2.13 Your Environment Changes Your Brain
OBJ: 2.13a | 2.13b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

119. In general, siblings of different ages raised together have
a. the same genes but different environments.
b. the same environment but different genes.
c. different genes and different environments.
d. the same genes and the same environment.

ANS: C DIF: Moderate REF: 2.13 Your Environment Changes Your Brain
OBJ: 2.13b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Understanding

120. Which of the following is NOT a pathway through which the environment could affect your brain functioning?
a. through plasticity
b. by strengthening neural connections
c. by brain reorganization
d. by changing your genotype

ANS: D DIF: Easy REF: 2.13 Your Environment Changes Your Brain
OBJ: 2.13b NAT: APA Goal 1, Knowledge Base in Psychology
MSC: Applying

SHORT ANSWER

1. At this very moment, you are using your nervous system to help you read and understand this question. Describe the three functions of the nervous system by explaining how you are using each function right now as you answer this question.

ANS:
Suggested answer:
One of the functions of the nervous system is to receive sensory input. As I looked at the words on this page, I received visual information that was received by my nervous system. Another function of the nervous system is to process incoming information. After I looked at this test question, I used my nervous system to think about the words and what they meant. The nervous system also allows one to respond to incoming input by acting on it. I did this by choosing my words and writing down my answer.

DIF: Difficult
REF: 2.1 Your Nervous System Is the Basis of Your Mental Activity and Behavior
OBJ: 2.1b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking | APA Goal 4, Communication MSC: Applying

2. Using your own words, describe the difference between agonist and antagonistic drugs.

ANS:
Suggested answer:
Agonists are drugs that enhance the actions of a neurotransmitter. Antagonists are drugs that inhibit the actions of a neurotransmitter.

DIF: Moderate REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
OBJ: 2.3a
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

3. Explain the key functions of serotonin. In your answer, be sure to discuss what is associated with a lack of serotonin in the brain.

ANS:
Suggested answer:
Serotonin is involved in a wide range of psychological processes such as emotional states, impulse control, and dreaming. A lack of serotonin is believed to contribute to sad and anxious moods, food cravings, and aggressive behavior.

DIF: Moderate REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
OBJ: 2.3b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

4. Explain the key functions of dopamine. In your answer, be sure to discuss what occurs when there is a lack of dopamine in the brain.

ANS:
Suggested answer:
Dopamine is involved in motivation and reward. For example, it motivates people to eat when hungry, drink when thirsty, or have sex when aroused. A lack of dopamine is associated with problems in movement, as occurs with Parkinson's disease.

DIF: Moderate REF: 2.3 Neurotransmitters Influence Your Mental Activity and Behavior
OBJ: 2.3b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

5. List the three key structures of the hindbrain and explain the functions of each.

ANS:
Suggested answer:

The medulla, pons, and cerebellum are the three key structures of the hindbrain. The medulla controls basic life functions such as breathing, heart rate, swallowing, vomiting, and urination. The pons plays a role in sleep and arousal and in coordinating movements between the left and right sides of the body. The cerebellum is responsible for motor learning, coordination, and balance.

DIF: Moderate
REF: 2.5 The Hindbrain and Midbrain House Basic Programs for Your Survival
OBJ: 2.5a
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

6. List the four subcortical structures of the forebrain. Then, briefly explain the function of each structure.

ANS:
Suggested answer:
The four subcortical structures of the forebrain are: the thalamus, hypothalamus, hippocampus, and amygdala. The thalamus is involved in sensory information. The hypothalamus is involved in the regulation of functions such as body temperature, hunger, and thirst. The hippocampus is involved in the formation of new memories. The amygdala is involved in the association of emotions with experiences. These structures are part of the limbic system, which controls motivated behaviors such as eating and drinking, and which is associated with the regulation of emotions.

DIF: Moderate
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6a
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

7. A man is rushed to the hospital after an injury that severely damaged his hippocampus. What kinds of problems might he expect due to this damage?

ANS:
Suggested answer:
Because the hippocampus plays an important role in the formation of new memories, the man is likely to have difficulty remembering new information.

DIF: Easy
REF: 2.6 Forebrain Subcortical Structures Control Your Motivations and Emotions
OBJ: 2.6b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

8. List the four lobes of the cerebral cortex and explain the functions of each.

ANS:
Suggested answer:
The cerebral cortex contains the occipital, parietal, temporal, and frontal lobes. The occipital is involved in vision. The parietal lobe is involved in touch and spatial information. The temporal lobe is involved in hearing and memory. The frontal lobe is involved in planning, movement, and complex thought.

DIF: Moderate
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7a
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

9. Describe the famous historical case of Phineas Gage. What happened to Gage, and what did it teach psychologists about the brain?

ANS:

Suggested answer:
Phineas Gage was a construction worker who experienced severe damage to his prefrontal cortex after a railroad accident. As a result of the injury, Gage's personality seemed to change and he no longer was the man he used to be. He became impatient and had difficulty controlling himself and getting along with others. This taught psychologists about the specific functions of the prefrontal cortex. Specifically, it suggested that the prefrontal cortex of the frontal lobe was responsible for the sense of self and was important for many aspects of human social life including empathy, rational thought, and sustaining attention.

DIF: Difficult
REF: 2.7 The Cerebral Cortex of the Forebrain Processes Your Complex Mental Activity
OBJ: 2.7b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication | APA Goal 5, Professional Development MSC: Understanding

10. What kind of information is transmitted by the somatic nervous system? How is this information transmitted?

ANS:
Suggested answer:
The somatic nervous system transmits sensory information. It transmits sensory information to the central nervous system through receptors in the skin, muscles, and joints.

DIF: Difficult REF: 2.8 Your Somatic Nervous System Detects Sensory Input and Responds
OBJ: 2.8b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

11. Distinguish between the functions of the sympathetic nervous system and the parasympathetic nervous system.

ANS:
Suggested answer:
The sympathetic nervous system prepares the body for action. When activated it causes the pupils to dilate and causes increases in heart rate and respiration. In contrast, the parasympathetic nervous system returns the body to a normal state of functioning. When activated it causes the pupils to contract and decreases heart rate and respiration.

DIF: Moderate REF: 2.9 Your Autonomic Nervous System Regulates the Body Automatically
OBJ: 2.9a
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

12. What is the endocrine system and how does it influence behavior?

ANS:
Suggested answer:
The endocrine system is a communication system that involves glands and hormones. The glands produce and release hormones. These hormones travel through the bloodstream and influence development, thoughts, and actions.

DIF: Moderate REF: 2.10 The Endocrine System Affects Your Behavior Through Hormones
OBJ: 2.10a | 2.10b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

13. Distinguish between genotype and phenotype. Give an example of each.

ANS:
Suggested answer:
Genotype is one's genetic makeup. An example of genotype is eye color. Phenotype is one's observable physical and psychological characteristics. An example of phenotype is one's level of friendliness.

DIF: Easy REF: 2.11 Your Genes Affect Your Mental Activity and Behavior
OBJ: 2.11a | 2.11b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Applying

14. Please describe the two types of studies that behavioral geneticists use to examine how genes and the environment interact to influence thought and behavior.

ANS:
Suggested answer:
Twin studies compare similarities between monozygotic (i.e., twins that result from the division of one zygote) and dizygotic (i.e., twins that result when two separate eggs are fertilized by two separate sperm) twins to determine the genetic basis of specific traits. Adoption studies compare the similarities between biological relatives (i.e., those with whom the individual shares a genetic background but not a home environment) and adoptive relatives (i.e., those with whom the individual shares similar home environments but not a genetic background).

DIF: Easy REF: 2.12 Your Genes Interact with Your Environment to Influence You
OBJ: 2.12b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication | APA Goal 5, Professional Development MSC: Understanding

15. While speaking to a large audience, Dr. Neuro states that the brain has plasticity. Your classmate turns to you and says, "I have no idea what plasticity means." Explain to your classmate what brain plasticity is and provide an example of brain plasticity.

ANS:
Suggested answer:
Plasticity describes a property of the brain. Plasticity means that the brain can physically change as a result of experience, drugs, or injury. For example, if one side of the brain's hemisphere is damaged during an injury, the brain can reorganize itself so that the uninjured hemisphere can take on some of the functions of the lost hemisphere.

DIF: Moderate REF: 2.13 Your Environment Changes Your Brain
OBJ: 2.13a | 2.13b
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication | APA Goal 5, Professional Development MSC: Applying