Chapter 02: The Role of Biology in Psychology

MULTIPLE CHOICE

1. The basic building blocks of the nervous system are the
   a. neurons.
   b. endocrine glands.
   c. dendrites.
   d. glial cells.

   ANS: A DIF: Easy
   OBJ: 2.1a | Remember the key terms about the divisions of the nervous system and neurons.
   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. hormones.

   ANS: B DIF: Easy
   OBJ: 2.1a | Remember the key terms about the divisions of the nervous system and neurons.
   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
   OBJ: 2.1a | Remember the key terms about the divisions of the nervous system and neurons.
   NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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
   OBJ: 2.1b | Apply the three functions of the nervous system to your own life.
   NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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
   OBJ: 2.1b | Apply the three functions of the nervous system to your own life.
   NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

6. The spinal cord is part of the _____ nervous system.

a. sensory
b. peripheral
c. somatic
d. central

ANS: D DIF: Easy
OBJ: 2.1b | Apply the three functions of the nervous system to your own life.
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. primary
d. autonomic

ANS: A DIF: Easy
OBJ: 2.1b | Apply the three functions of the nervous system to your own life.
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. glial cells.

ANS: B DIF: Easy
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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. dendrite.

ANS: C DIF: Easy
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

ANS: B DIF: Easy
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

11. 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
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

12. 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
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

13. 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 jump across the synapse to the adjacent neuron.
d. chemicals released into the synapse are converted to neurotransmitters that bind with receptors.

ANS: B DIF: Moderate
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

ANS: B DIF: Moderate
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

15. 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
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

16. 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 pipe.
c. layers of a cake.
d. thermostat of a heater.

ANS: B DIF: Moderate
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

17. 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 stimulation of receptors.

ANS: D DIF: Difficult
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

18. One part of the neuron covers and protects it much like bark that covers the trunk of a tree. 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
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

19. The parts of the neuron that act like mailboxes because they receive information from other places are called the

a. terminal buttons.
b. axons.
c. dendrites.
d. myelin sheaths.

ANS: C DIF: Easy
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

20. Juan is trying to find the exact puzzle piece that will fit into a certain place in his puzzle. He says to his friend, "Hey! Finding a puzzle piece to fit into the puzzle 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
OBJ: 2.1c | Analyze the three steps in neural communication.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

21. 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

22. 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

ANS: C DIF: Moderate OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

24. If a new drug interferes with how the neurotransmitter acetylcholine functions, 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

25. 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

26. 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: Moderate OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

27. Suppose you begin feeling extremely depressed and want a prescription drug to alleviate your depression. The drug you should take should affect the neurotransmitter
a. dopamine.
b. epinephrine.
c. serotonin.
d. acetylcholine.

ANS: C DIF: Moderate OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

28. 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

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

ANS: A DIF: Difficult OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

30. You are running a 5K race and suddenly you experience an adrenaline rush. This burst of energy is caused by your body releasing the neurotransmitter
a. acetylcholine.
b. epinephrine.
c. glutamate.
d. dopamine.

ANS: B DIF: Easy OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

31. Marco has great difficulty walking. 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

32. 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 OBJ: 2.1d | Apply neurotransmitters to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

33. Which specialized area of the brain is crucial to the production of speech?
a. Broca's area
c. the cerebellum

b. the amygdala
d. the thalamus

ANS: A DIF: Easy
OBJ: 2.2a | Remember the key terms about brain regions and processes.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

34. 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
OBJ: 2.2a | Remember the key terms about brain regions and processes.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

35. The measure of brain activity that temporarily "turns off" parts of the brain to see how specific brain regions are affected is called
a. phrenology.
b. transcranial magnetic stimulation.
c. functional magnetic resonance imaging.
d. an electroencephalograph.

ANS: B DIF: Difficult
OBJ: 2.2a | Remember the key terms about brain regions and processes.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

36. 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
OBJ: 2.2a | Remember the key terms about brain regions and processes.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Applying

37. 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
OBJ: 2.2b | Apply the three main brain divisions to your own life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

ANS: C DIF: Easy
OBJ: 2.2b | Apply the three main brain divisions to your own life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

39. 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
    b. gray matter
    c. nucleus accumbens
    d. white matter

    ANS: B DIF: Easy
    OBJ: 2.2b | Apply the three main brain divisions to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

    ANS: D DIF: Easy
    OBJ: 2.2b | Apply the three main brain divisions to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

    ANS: B DIF: Moderate
    OBJ: 2.2b | Apply the three main brain divisions to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

42. 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 likely caused by the
    a. pons.
    b. cerebellum.
    c. medulla.
    d. hypothalamus.

    ANS: C DIF: Moderate
    OBJ: 2.2b | Apply the three main brain divisions to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

43. 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.
    b. hypothalamus.
    c. hippocampus.
    d. pons.

    ANS: D DIF: Easy
    OBJ: 2.2b | Apply the three main brain divisions to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

44. Yves has been drinking. He has difficulty walking a straight line when asked to do so by a police officer. Apparently, Yves's _____ is functioning poorly.
    a. cerebellum
    b. thalamus
    c. amygdala
    d. hippocampus

    ANS: A DIF: Moderate
    OBJ: 2.2b | Apply the three main brain divisions to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

45. 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
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

46. 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
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

47. 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
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

48. The basal ganglia is a brain structure that is important in
a. planning and producing movement.
b. regulating emotions.
c. synthesizing incoming information.
d. thinking.

ANS: A DIF: Easy
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

49. 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
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

ANS: A DIF: Moderate
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

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

ANS: C DIF: Moderate
OBJ: 2.2c | Remember the five forebrain subcortical regions.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

52. 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
    OBJ: 2.2c | Remember the five forebrain subcortical regions.
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
    MSC: Applying

53. 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
    OBJ: 2.2c | Remember the five forebrain subcortical regions.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

54. 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. "What You Need to Know about Your Thalamus"
    b. "The Basics of Basal Ganglia"
    c. "How the Cerebellum Works"
    d. "The Amazing Amygdala"

    ANS: D DIF: Moderate
    OBJ: 2.2c | Remember the five forebrain subcortical regions.
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
    MSC: Applying

55. 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. basal ganglia
    b. hypothalamus
    c. thalamus
    d. cerebellum

    ANS: C DIF: Difficult
    OBJ: 2.2c | Remember the five forebrain subcortical regions.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

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

    ANS: C DIF: Easy
    OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
    NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

    ANS: A DIF: Easy
    OBJ: 2.2d | Understand the four lobes of the cerebral cortex.

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

58. The brain structure that connects the two hemispheres of the cerebral cortex is called the
a. thalamus.
b. basal ganglia.
c. temporal lobe.
d. corpus callosum.

ANS: D DIF: Easy
OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

59. 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
OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

60. 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
OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

61. Jonas has experienced a relatively severe right hemisphere stroke. As a result, he has been diagnosed with hemineglect. That is, he is unable to notice anything 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
OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking MSC: Understanding

62. 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
OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

63. 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
OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking MSC: Applying

64. 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
OBJ: 2.3a | Remember the key terms about the peripheral nervous system and the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

65. 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
OBJ: 2.3b | Analyze how the somatic nervous system processes information.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

66. 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
OBJ: 2.3b | Analyze how the somatic nervous system processes information.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

67. 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
OBJ: 2.3b | Analyze how the somatic nervous system processes information.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

68. 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. endocrine

ANS: A DIF: Moderate
OBJ: 2.3b | Analyze how the somatic nervous system processes information.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

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

b. sympathetic nervous
d. endocrine

ANS: A DIF: Difficult
OBJ: 2.3b | Analyze how the somatic nervous system processes information.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

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

ANS: B DIF: Easy
OBJ: 2.3c | Apply the autonomic nervous system to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

71. 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
c. parasympathetic
b. sympathetic
d. endocrine

ANS: C DIF: Easy
OBJ: 2.3c | Apply the autonomic nervous system to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

72. 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
c. central nervous
b. sympathetic
d. endocrine

ANS: B DIF: Easy
OBJ: 2.3c | Apply the autonomic nervous system to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

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

ANS: B DIF: Moderate
OBJ: 2.3c | Apply the autonomic nervous system to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

74. 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
OBJ: 2.3c | Apply the autonomic nervous system to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

75. 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
OBJ: 2.3c | Apply the autonomic nervous system to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

76. 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 OBJ: 2.3d | Understand the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

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

ANS: C DIF: Easy OBJ: 2.3d | Understand the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

78. 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 OBJ: 2.3d | Understand the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

79. 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 OBJ: 2.3d | Understand the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

80. 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 OBJ: 2.3d | Understand the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

81. 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 OBJ: 2.3d | Understand the endocrine system.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

82. 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
OBJ: 2.4a | Remember the key terms about how nature and nurture affect the brain.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

83. 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 OBJ: 2.4b | Apply the effects of genetics to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

84. An instructor looking at the faces of the students in his or her class is also looking at
a. stereotypes.
b. archetypes.
c. genotypes.
d. phenotypes.

ANS: D DIF: Easy OBJ: 2.4b | Apply the effects of genetics to your life.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Understanding

85. It is possible for your _____ to change during your lifetime.
a. taxonomic rank
b. archetypes
c. genotypes
d. phenotypes

ANS: D DIF: Easy OBJ: 2.4b | Apply the effects of genetics to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

86. 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 OBJ: 2.4b | Apply the effects of genetics to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

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

ANS: A DIF: Moderate OBJ: 2.4b | Apply the effects of genetics to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

88. 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 OBJ: 2.4b | Apply the effects of genetics to your life.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking MSC: Understanding

89. 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
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

90. 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: Easy
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

91. 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
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Understanding

92. You know that your professor is a fan of behavioral genetics based on which of the following comments?
a. "Your family determines your behavior."
b. "Much of your personality is determined by your genes."
c. "There is no evidence to suggest that your environment influences your school achievement."
d. "Both your genes and your environment make you who you are today."

ANS: D DIF: Easy
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 5, Professional Development
MSC: Applying

93. 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
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

94. 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
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

95. 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
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

96. 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
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking MSC: Applying

97. 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
OBJ: 2.4d | Apply the effects of environment to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Remembering

98. 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
OBJ: 2.4d | Apply the effects of environment to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Understanding

99. 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
OBJ: 2.4d | Apply the effects of environment to your life.
NAT: APA Goal 1, Knowledge Base in Psychology MSC: Applying

100. 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. Because they are fraternal twins.

    ANS: B DIF: Moderate
    OBJ: 2.4d | Apply the effects of environment to your life.
    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 OBJ: 2.1b | Apply the three functions of the nervous system to your own life.
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 2, Scientific Inquiry and Critical Thinking | APA Goal 4, Communication MSC: Applying

2. 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 OBJ: 2.1c | Analyze the three steps in neural communication.
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
    MSC: Remembering

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 OBJ: 2.1d | Apply neurotransmitters to your life.
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
    MSC: Remembering

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 OBJ: 2.1d | Apply neurotransmitters to your life.
   NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
   MSC: Remembering

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

   ANS:
   Suggested answer:
   The medulla, pons, and cerebellum are the 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 OBJ: 2.2a | Remember the key terms about brain regions and processes.
   NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
   MSC: Remembering

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

   ANS:
   Suggested answer:
   The subcortical structures of the forebrain include the thalamus, hypothalamus, hippocampus, amygdala, and basal ganglia. 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. The basal ganglia is involved in motor planning, movement, and reward. These five 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 OBJ: 2.2c | Remember the five forebrain subcortical regions.
   NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
   MSC: Remembering

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 OBJ: 2.2c | Remember the five forebrain subcortical regions.
   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 OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
   NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
   MSC: Remembering

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 difficultly 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 OBJ: 2.2d | Understand the four lobes of the cerebral cortex.
   NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication | APA Goal 5, Professional Development MSC: Understanding

10. 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
    OBJ: 2.3a | Remember the key terms about the peripheral nervous system and the endocrine system.
    NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
    MSC: Understanding

11. 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 OBJ: 2.3b | Analyze how the somatic nervous system processes information.
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 thoughts and actions.

DIF: Moderate OBJ: 2.3d | Understand the endocrine system.
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
OBJ: 2.4a | Remember the key terms about how nature and nurture affect the brain.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication
MSC: Understanding

14. While speaking to a large audience, Dr. Neuro states that the brain has plasticity. Your roommate turns to you and says, "I have no idea what plasticity means." Provide your roommate with an explanation of brain plasticity. In doing so, provide an example.

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
OBJ: 2.4a | Remember the key terms about how nature and nurture affect the brain.
NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication | APA Goal 5, Professional Development MSC: Understanding

15. What do behavioral geneticists study?

ANS:
Suggested answer:
Behavioral geneticists use twin studies to examine how genes and environment interact to influence thought and behavior.

DIF: Easy
OBJ: 2.4c | Understand how behavioral genetics studies the interaction of genes and environment.

NAT: APA Goal 1, Knowledge Base in Psychology | APA Goal 4, Communication | APA Goal 5, Professional Development MSC: Understanding