

CHAPTER 2

Biological Foundations of Behavior

MULTIPLE CHOICE

1. Regarding neurons, which of the following is FALSE?
 - a. Each is a single nerve cell.
 - b. They transmit messages in the form of electrical impulses.
 - c. They contain genetic material.
 - d. They are the only cells found in the nervous system.
 - e. They are also called nerves.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
 TOP: MOD: 2.1 KEY: Evaluate/Explain MSC: factual

2. The fundamental building block of the nervous system is the _____.
 - a. axon.
 - b. cell body.
 - c. neuron.
 - d. soma.
 - e. dendrite.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
 TOP: MOD: 2.1 KEY: Identify MSC: factual

3. All of the following are components of a neuron EXCEPT the:
 - a. terminal buttons.
 - b. axon.
 - c. synapse.
 - d. dendrite.
 - e. cell body.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify | Evaluate/Explain
 MSC: factual

4. In a neuron, the cell's metabolic functions are performed by the _____.
 - a. soma.
 - b. axon.
 - c. terminal button.
 - d. synapse.
 - e. dendrite.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Define/Describe
 MSC: factual

5. Regarding a neuron's soma, which of the following is FALSE?
 - a. The soma contains terminal buttons.
 - b. The soma is the neuron's cell body.
 - c. The soma performs life-sustaining functions of the cell.
 - d. The soma contains the cell's genetic material.

e. The soma houses the cell's nucleus.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Evaluate/Explain | Identify
MSC: factual

6. In a neuron, the axon _____, and the dendrite _____.
- synthesizes neurotransmitters; receives signals from other neurons
 - conducts information to other neurons; generates action potentials
 - generates action potentials; receives signals from other neurons
 - receives signals from other neurons; conducts information to other neurons
 - conducts information to other neurons; receives signals from other neurons

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Define/Describe | Evaluate/Explain
MSC: factual NOT: WWW

7. Which of the following best describes a synapse?
- A tiny gap that separates one neuron from another through which messages are carried
 - The tube-like part of a neuron that carries messages to other neurons
 - Root-like structures that receive neural impulses from other neurons
 - Body organs or structures that produce secretions
 - A bundle of axons from various neurons that transmit nerve impulses

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Define/Describe
MSC: factual

8. What is the job of a dendrite?
- To send signals to other neurons
 - To receive signals from other neurons
 - To synthesize neurotransmitters
 - To control metabolic functions
 - To generate action potentials

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Define/Describe
MSC: factual

9. Which part(s) of a neuron may range in size from a few thousandths of an inch to several feet long?
- Axon
 - Synapse
 - Terminal buttons
 - Soma
 - Dendrites

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify MSC: factual

10. Which of the following is the primary function of the soma?

- a. Sending signals to other neurons
- b. Controlling metabolic processes
- c. Producing myelin
- d. Receiving signals from other neurons
- e. Releasing neurotransmitters to other neurons

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Define/Describe
 MSC: factual

11. In a neuron, sending is to _____ as receiving is to _____.
- a. soma; synapse
 - b. terminal button; synapse
 - c. axon; dendrite
 - d. terminal button; soma
 - e. dendrite; axon

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify | Evaluate/Explain
 MSC: conceptual

12. The knoblike swellings at the ends of axons are called:
- a. nodes of Ranvier.
 - b. synapses.
 - c. soma.
 - d. dendrites.
 - e. terminal buttons.

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify MSC: factual

13. Regarding terminal buttons, which of the following is FALSE?
- a. Terminal buttons release neurotransmitters.
 - b. Terminal buttons store and release chemicals that carry messages to other nearby neurons.
 - c. Terminal buttons are the small fluid-filled gaps through which neural impulses are carried.
 - d. Terminal buttons look like knobby swellings.
 - e. Terminal buttons are found at the end of axons.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Evaluate/Explain
 MSC: factual NOT: WWW

14. Regarding the nervous system, which of the following statements is FALSE?
- a. Nerves are not the same as neurons and can be visible to the human eye.
 - b. The nervous system has more than one type of neuron.
 - c. There are more neurons than glial cells in the nervous system.
 - d. A nerve is best defined as a bundle of axons from different neurons.
 - e. Glial cells serve to support neurons, as well as to form the myelin sheath on axons.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
 OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons

communicate. TOP: MOD: 2.1 KEY: Evaluate/Explain
MSC: factual

15. What is the primary function of a synapse?
- To produce neurotransmitters
 - To provide a place where neurons can communicate with one another
 - To house the neuron's genetic material
 - To allow an attachment between the axon and the cell body
 - To release neurotransmitters

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Define/Describe
MSC: factual

16. There are _____ types of neurons in the human nervous system, and these are called _____.
- two; axons and dendrites
 - two; interneurons and glial cells
 - three; afferent, efferent, and associative cells
 - three; glial cells, nerves, and myelin cells
 - three; nodes of Ranvier, glial cells, and myelin cells

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

17. In neurons, efferent is to _____ as afferent is to _____.
- sensory; motor
 - motor; sensory
 - motor; interneuron
 - interneuron; sensory
 - sensory; interneuron

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

18. Which of the following is TRUE of afferent neurons?
- Afferent neurons transmit information about the outside world to the spinal cord and brain.
 - Afferent neurons convey messages from the brain and spinal cord to the muscles of the body, controlling movement.
 - Afferent neurons convey messages to glands for the release of hormones.
 - Afferent neurons connect neurons to other neurons.
 - Afferent neurons are also known as motor neurons.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Evaluate/Explain | Define/Describe
MSC: factual

19. The term white matter refers to:
- clusters of glial cells.
 - myelinated axons.
 - clusters of synapses.
 - nodes of Ranvier.
 - unmyelinated axons.

ANS: B PTS: 1 REF: Neurons: The Body's Wiring

OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify MSC: factual

20. Shalanda's son touches her hand. Sensory receptors in Shalanda's skin transmit information about this sensation to Shalanda's spinal cord and brain. Which type of neuron is responsible for this process?
- Motor
 - Glial
 - Associative
 - Efferent
 - Afferent

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Apply | Evaluate/Explain MSC: applied

21. The fatty layer of cells that is wrapped around many axons is called the:
- myelin sheath.
 - synaptic cover.
 - dendritic wrap.
 - terminal button.
 - soma.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify MSC: factual

22. Glial cells do all of the following EXCEPT:
- form the myelin sheath.
 - assist neurons in communicating with each other.
 - remove waste products from neurons.
 - hold neurons together.
 - produce neurotransmitters.

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Evaluate/Explain MSC: factual

23. Gaps in myelin that create non-insulated areas along an axon are called:
- nodes of Ranvier.
 - terminal buttons.
 - synapses.
 - receptors.
 - interneurons.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Identify MSC: factual

24. Thirty-nine-year-old Marilyn has a disease that has slowed down the transmission of her nerve impulses. This slowing down is a result of the loss of myelin. What disease does Marilyn have?
- Cerebral palsy
 - Polio
 - Alzheimer's
 - Multiple sclerosis
 - Parkinson's

ANS: D PTS: 1 REF: Neurons: The Body's Wiring

OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Apply | Identify
MSC: applied

25. Approximately how much does the human brain weigh?

- a. 1 pound
- b. 2 pounds
- c. 3 pounds
- d. 4 pounds
- e. 5 pounds

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

26. What is the best estimate of the number of neurons in your brain?

- a. About 10 to 20 million
- b. Several hundred million
- c. About 1 billion
- d. Between 10 and 99 billion
- e. At least 100 billion

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

27. Ions are:

- a. always neutral.
- b. always positively charged.
- c. always negatively charged.
- d. either positively or negatively charged.
- e. able to change from a positive to a negative charge, and vice versa.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

28. The resting potential of a neuron is the result of a:

- a. greater concentration of sodium ions outside the cell.
- b. greater concentration of sodium ions inside the cell.
- c. lower concentration of potassium ions outside the cell.
- d. greater concentration of potassium ions inside the cell.
- e. lower concentration of chloride ions inside the cell.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Evaluate/Explain MSC: factual

29. What is the approximate resting potential of a neuron?

- a. -50 mV
- b. -70 mV
- c. +50 mV
- d. +70 mV
- e. 0 mV

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

30. When a neuron is at rest,
- it is not being stimulated.
 - the gates that control the passage of potassium ions are closed.
 - there is a greater concentration of positively charged sodium ions inside the cell body than outside of it.
 - it has a slightly positive charge.
 - it lacks potential energy.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Evaluate/Explain MSC: conceptual

31. The process by which stimulation causes a neuron's sodium gate to open and allows positively charged molecules to enter, thereby lessening the negative charge of the neuron, is called:
- neuromodulation.
 - reuptake.
 - the refractory period.
 - ionic movement.
 - depolarization.

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Identify MSC: factual

32. Depolarization occurs when the neuron becomes:
- less negative due to influx of sodium ions.
 - more negative due to influx of sodium ions.
 - more negative due to influx of potassium.
 - less negative due to outflow of sodium ions.
 - more negative due to outflow of sodium ions.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Evaluate/Explain MSC: conceptual NOT: WWW

33. _____ is another term for an action potential.
- Neuromodulator
 - Polarization
 - Neural impulse
 - Ionic movement
 - Reuptake

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

34. The abrupt shift in the charge of a neuron from a negative to a positive charge is known as:
- depolarization.
 - reuptake.
 - a reticular formation.
 - an action potential.
 - lateralization.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Identify MSC: factual

35. Which of the following is NOT true of action potentials?
- They are generated according to an all-or-none principle.
 - They all travel at the same speed.
 - They are electrical charges that shoot down the axon.
 - They are initiated when the axon is depolarized sufficiently.
 - They are followed by a refractory period.

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Evaluate/Explain MSC: factual NOT: WWW

36. Which of the following does NOT occur during the refractory period?
- Sodium gates open.
 - Positively charged ions are pumped out.
 - Electrochemical balance is restored.
 - Neurotransmitters are pumped in.
 - The neuron cannot fire.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Evaluate/Explain MSC: conceptual

37. Which of the following statements is TRUE about neurotransmitters?
- Neurotransmitters affect the physiological, but not the psychological, functioning of the person.
 - Neurotransmitters are released by tiny sacs in the axon called neuromodulators.
 - Neurotransmitters are interchangeable in that each of them can fit into any receptor site.
 - Neurotransmitters that are not absorbed by a receiving cell cannot be reused and must be eliminated from the body.
 - Neurotransmitters can have inhibitory effects, excitatory effects, or both.

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Define/Describe | Evaluate/Explain
MSC: conceptual NOT: WWW

38. In neural communication, _____ is to a key as _____ is to a lock.
- axon; dendrite
 - neuron; glial cell
 - neurotransmitter; receptor site
 - synapse; soma
 - action potential; resting potential

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 1-Identify parts of neuron, describe functions of these parts and explain how neurons communicate. TOP: MOD: 2.1 KEY: Evaluate/Explain
MSC: conceptual

39. Prolonged neurotransmitter activity is prevented by all of the following functions EXCEPT:
- reuptake.
 - the release of excitatory neurotransmitters.
 - the breakdown of neurotransmitters by enzymes.
 - the regulation of sensitivity to neurotransmitters.
 - the release of neuromodulators.

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 3-Explain how an action potential is generated. TOP: MOD: 2.1
KEY: Evaluate/Explain MSC: conceptual

40. Which of the following terms best describes the nature of reuptake?
- Destroy
 - Create
 - Recycle
 - Alter
 - Reduce

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Evaluate/Explain MSC: conceptual

41. Psychologists believe that irregularities in _____ transmission may help explain symptoms of schizophrenia.
- glutamate
 - dopamine
 - norepinephrine
 - epinephrine
 - gamma-aminobutyric acid

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Identify MSC: factual

42. Which disorder is often characterized by hallucinations and delusions?
- Parkinson's disease
 - Depression
 - Panic disorder
 - Anorexia nervosa
 - Schizophrenia

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
TOP: MOD: 2.1 KEY: Identify MSC: factual

43. Actor Michael J. Fox and boxing great Muhammad Ali have a disease that leads to progressive loss of their motor functioning. This condition results from a shortage of _____.
- epinephrine
 - norepinephrine
 - dopamine
 - gamma-aminobutyric acid (GABA)
 - serotonin

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Apply | Identify MSC: applied
NOT: WWW

44. Agonists, _____, whereas antagonists _____.
- increase the availability of neurotransmitters; increase the effectiveness of neurotransmitters
 - block receptor sites; increase the effectiveness of neurotransmitters
 - increase the availability of neurotransmitters; block receptor sites

- d. speed up the transmission of neural impulses; mimic the action of neurotransmitters
- e. speed up the transmission of neural impulses; increase the effectiveness of neurotransmitters

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters. TOP: MOD: 2.1 KEY: Evaluate/Explain
MSC: conceptual

45. Which of the following describes the function of dopamine in the brain?
- a. It is the neurotransmitter that prevents neurons from overexciting their neighboring neurons.
 - b. It is the neurotransmitter that keeps the central nervous system aroused.
 - c. It is the neurotransmitter most involved in the neural pathways that regulate pleasure states.
 - d. It is the neurotransmitter that plays a role in regulating mood states and sleep.
 - e. It is the neurotransmitter that serves as the body's natural painkillers.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Define/Describe MSC: factual

46. Regarding Parkinson's disease, which of the following statements is FALSE?
- a. Scientists believe that genetic factors are involved.
 - b. It is a degenerative brain disease.
 - c. Symptoms include tremors, muscle rigidity, and difficulty controlling finger and hand movements.
 - d. It affects about 1.5 million Americans.
 - e. It involves an excess of the neurotransmitter glutamate.

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Evaluate/Explain MSC: factual

47. Loss of dopamine-producing neurons in the brain can result in:
- a. Huntington's disease.
 - b. polio.
 - c. Parkinson's disease.
 - d. multiple sclerosis.
 - e. Alzheimer's disease.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Identify MSC: factual

48. Agonists do all of the following EXCEPT:
- a. increase the availability of neurotransmitters.
 - b. increase the effectiveness of neurotransmitters.
 - c. block reuptake of neurotransmitters.
 - d. mimic the action of neurotransmitters.
 - e. block receptor sites.

ANS: E PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters. TOP: MOD: 2.1 KEY: Evaluate/Explain

MSC: conceptual NOT: WWW

49. Which of the following is an excitatory neurotransmitter that helps keep the central nervous system aroused?
- GABA
 - Serotonin
 - Endorphin
 - Glutamate
 - Dopamine

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Identify MSC: factual

50. In contrast to agonists, antagonists are drugs that:
- increase the availability of neurotransmitters.
 - increase the effectiveness of neurotransmitters.
 - block receptor sites.
 - mimic the action of neurotransmitters.
 - speed up the transmission of neural impulses.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters. TOP: MOD: 2.1 KEY: Evaluate/Explain
MSC: conceptual

51. Jane has schizophrenia and experiences hallucinations and delusions. She is prescribed an antipsychotic that:
- acts as an antagonist to dopamine.
 - acts as an agonist to dopamine.
 - acts as an antagonist to serotonin and norepinephrine.
 - acts as an agonist to serotonin and norepinephrine.
 - acts as an agonist to serotonin only.

ANS: A PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters. TOP: MOD: 2.1 KEY: Apply | Evaluate/Explain
MSC: applied

52. Shelley drinks two large caffeinated lattes every morning. In terms of neurotransmission, what is happening in Shelley's body?
- Caffeine in the coffee serves as an agonist that suppresses the actions of glutamate and enhances the actions of dopamine.
 - Caffeine in the coffee serves as an agonist that suppresses the actions of dopamine.
 - Caffeine in the coffee serves as an antagonist that enhances the actions of glutamate.
 - Caffeine in the coffee serves as an agonist that enhances the actions of glutamate.
 - Caffeine in the coffee serves as an antagonist that suppresses the actions of dopamine.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters. TOP: MOD: 2.1 KEY: Apply | Define/Describe
MSC: applied

53. Cocaine and amphetamines increase the availability of which neurotransmitter?
- Glutamate

- b. Serotonin
- c. Acetylcholine
- d. Dopamine
- e. GABA.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters. TOP: MOD: 2.1 KEY: Identify MSC: factual

54. Which of the following is an example of an antagonist blocking the actions of a particular neurotransmitter?
- a. Amphetamines that produce states of pleasure
 - b. Caffeine that keeps the central nervous system stimulated
 - c. Antipsychotic drugs that help control hallucinations and delusional thinking
 - d. Alcohol that produces a relaxed feeling
 - e. A tranquilizer like Valium that reduces anxiety in people with panic disorder

ANS: C
Module: 2.1

PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters KEY: Define/Describe MSC: factual

55. Anxiety disorders, such as panic disorder, may be due to reduced levels of:
- a. dopamine.
 - b. glutamate.
 - c. acetylcholine.
 - d. GABA.
 - e. fluoxetine.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Identify MSC: factual

56. The inhibitory neurotransmitter that helps regulate moods, produces feelings of satiation after eating, and induces sleepiness is:
- a. glutamate.
 - b. acetylcholine.
 - c. epinephrine.
 - d. serotonin.
 - e. dopamine.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Identify MSC: factual

57. Which of the following does NOT describe the function of the neurotransmitter gamma-aminobutyric acid (GABA)?
- a. It prevents neurons from overly exciting adjacent nerve cells.
 - b. It keeps the central nervous system aroused.
 - c. It is the major inhibitory neurotransmitter in the adult brain.
 - d. It helps regulate nervous system activity.
 - e. It is the neurotransmitter implicated in playing a role in anxiety and panic disorders.

ANS: B PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Define/Describe | Evaluate/Explain
MSC: factual NOT: WWW

58. Sixteen-year-old Anton takes Prozac for his depression. Chemically speaking, Prozac works for Anton by increasing the availability of which neurotransmitter in his brain?
- Dopamine
 - GABA
 - Acetylcholine
 - Glutamate
 - Serotonin

ANS: E
Module: 2.1

PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 4-Explain difference between agonists and antagonists; describe their effects on neurotransmitters KEY: Apply | Define/Describe MSC: applied

59. The brain naturally produces neurotransmitters that are "chemical cousins" of narcotic drugs. They are called:
- adrenaline and noradrenaline.
 - glutamates.
 - gamma-aminobutyric acids.
 - endorphins.
 - epinephrine and norepinephrine.

ANS: D PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Identify MSC: factual

60. Sharon is a long-distance runner. After a certain point in her workout, she begins to feel a natural "high" instead of pain. This feeling is a result of chemicals in her brain called:
- dopamines.
 - acetylcholines.
 - endorphins.
 - glutamates.
 - serotonins.

ANS: C PTS: 1 REF: Neurons: The Body's Wiring
OBJ: 2-Identify key neurotransmitters and describe their functions.
TOP: MOD: 2.1 KEY: Apply | Identify MSC: applied

61. Your anatomy professor states that today's lecture will be about the central nervous system. Which parts of the body do you expect to learn about?
- Brain
 - Spinal cord
 - Brain and spinal cord
 - Brain, spinal cord, and all other nerves
 - Brain, spinal cord, and the sensory organs

ANS: C PTS: 1
REF: The Nervous System: Your Body's Information Superhighway
OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Identify MSC: factual

62. The brain and the spinal cord make up the:
- nervous system.
 - somatic nervous system.
 - peripheral nervous system.
 - autonomic nervous system.
 - central nervous system.

ANS: E PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Identify MSC: factual

63. The peripheral nervous system connects the spinal cord and brain with the:
- sensory organs and muscles.
 - sensory organs and glands.
 - muscles and glands.
 - sensory organs, glands, and muscles.
 - muscles.

ANS: D PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Identify MSC: factual

64. The peripheral nervous system consists of:
- the brain and the spinal cord.
 - the somatic nervous system and the central nervous system.
 - the autonomic nervous system and the somatic nervous system.
 - the autonomic nervous system, the somatic nervous system, and the central nervous system.
 - the sympathetic nervous system and the parasympathetic nervous system.

ANS: C PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Define/Describe | Identify MSC: factual

65. Which of the following statements about spinal reflexes is FALSE?
- They are unlearned reactions.
 - They bypass the brain.
 - Some are controlled by the spinal cord.
 - They always involve three neurons.
 - They are automatic.

ANS: D PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

TOP: MOD: 2.2 KEY: Evaluate/Explain MSC: factual

66. On a camping trip, Eleni accidentally steps on a hot coal from the campfire. Upon touching the coal, her foot reflexively withdraws from the coal. What is the sequence of response in Eleni's neurons?
- Sensory neuron – interneuron – motor neuron
 - Sensory neuron – motor neuron – interneuron
 - Motor neuron – interneuron – sensory neuron

- d. Motor neuron – sensory neuron – interneuron
- e. Interneuron – sensory neuron – motor neuron

ANS: A PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Apply | Define/Describe MSC: applied

NOT: WWW

67. Which of the following DOES NOT describe functions of the autonomic nervous system?
- a. It operates without conscious direction.
 - b. It transmits messages between the central nervous system and sensory organs and muscles.
 - c. It consists of the parasympathetic and sympathetic nervous systems.
 - d. It regulates involuntary bodily processes.
 - e. It regulates respiration.

ANS: B PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Define/Describe | Evaluate/Explain

MSC: factual

68. Your heartbeat, digestion, and pupil dilations are _____ processes regulated by the _____ nervous system.
- a. involuntary; somatic
 - b. involuntary; autonomic
 - c. controllable; somatic
 - d. voluntary; somatic
 - e. voluntary; autonomic

ANS: B PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Identify MSC: factual

69. Which of the following involves the type of physical functioning primarily influenced by the parasympathetic nervous system?
- a. Aaron's body releases glucose when he stands up to the bully at school.
 - b. Betty meditates and visualizes positive outcomes every morning upon awakening.
 - c. Chan's pupils dilate when he tells a lie to his father.
 - d. Dawn's heart beats faster as she prepares to take her first psychology exam.
 - e. Evan's breathing rate increases while giving a speech.

ANS: B PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

OBJ: 5-Describe the organization of the nervous system and functions of its parts.

TOP: MOD: 2.2 KEY: Apply | Define/Describe MSC: applied

70. What are the two subdivisions of the autonomic nervous system?
- a. The central and the peripheral nervous systems
 - b. The sympathetic and the parasympathetic nervous systems
 - c. The voluntary and involuntary nervous systems
 - d. The somatic and the peripheral nervous systems
 - e. The brain and the spinal cord

ANS: B PTS: 1
REF: The Nervous System: Your Body's Information Superhighway
OBJ: 5-Describe the organization of the nervous system and functions of its parts.
TOP: MOD: 2.2 KEY: Define/Describe MSC: factual

71. The sympathetic nervous system does all of the following EXCEPT:
- increase heart rate.
 - release glucose.
 - increase respiration.
 - draw stored energy from bodily reserves.
 - promote digestion.

ANS: E PTS: 1
REF: The Nervous System: Your Body's Information Superhighway
OBJ: 5-Describe the organization of the nervous system and functions of its parts.
TOP: MOD: 2.2 KEY: Define/Describe | Evaluate/Explain
MSC: factual

72. The _____ speeds up bodily processes and the _____ slows them down.
- peripheral nervous system; central nervous system
 - sympathetic nervous system; parasympathetic nervous system
 - autonomic nervous system; peripheral nervous system
 - parasympathetic nervous system; sympathetic nervous system
 - peripheral nervous system; autonomic nervous system

ANS: B PTS: 1
REF: The Nervous System: Your Body's Information Superhighway
OBJ: 5-Describe the organization of the nervous system and functions of its parts.
TOP: MOD: 2.2 KEY: Define/Describe MSC: factual
NOT: WWW

73. The part of the nervous system that allows you to perceive the world around you is the:
- autonomic nervous system.
 - perceptual nervous system.
 - somatic nervous system.
 - sympathetic nervous system.
 - parasympathetic nervous system.

ANS: C PTS: 1
REF: The Nervous System: Your Body's Information Superhighway
OBJ: 5-Describe the organization of the nervous system and functions of its parts.
TOP: MOD: 2.2 KEY: Identify MSC: factual

74. The brain has _____ major parts and they are called the _____.
- four; frontal, parietal, occipital, and temporal lobes
 - two; sympathetic and parasympathetic regions
 - three; amygdala, hippocampus, and thalamus
 - three; hindbrain, midbrain, and forebrain
 - three; medulla, pons, and cerebellum

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

75. Which of the following is NOT part of the hindbrain?

- a. Cerebellum
- b. Reticular formation
- c. Medulla
- d. Pons
- e. Brainstem core

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify | Evaluate/Explain MSC: factual

76. During the past hour, nine-month-old Heather has engaged in each of the following actions. Which action was NOT controlled by her medulla?
- a. Her heart beat accelerated after her older brother shouted “Boo!”
 - b. She coughed as some mucus ran down her throat.
 - c. She swallowed the saliva in her mouth.
 - d. She smiled when she saw the wind move her mobile.
 - e. She sneezed after breathing in some dust particles.

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior
TOP: MOD: 2.3 KEY: Apply | Define/Describe | Evaluate/Explain
MSC: applied NOT: WWW

77. Trina has recently been having trouble staying awake throughout the day. Which area of Trina's brain is related to her difficulty?
- a. Cerebellum
 - b. Pons
 - c. Medulla
 - d. Cerebrum
 - e. Hippocampus

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Apply | Identify MSC: applied

78. Which part of the brain controls balance and coordination?
- a. Cerebrum
 - b. Cerebellum
 - c. Pons
 - d. Medulla
 - e. Thalamus

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

79. The fact that alcohol often causes problems with balance and coordination suggests that it may have an effect on the:
- a. cerebrum.
 - b. corpus callosum.
 - c. cerebellum.
 - d. thalamus.
 - e. reticular formation.

ANS: C PTS: 1 REF: The Brain: Your Crowning Glory

OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify | Evaluate/Explain MSC: conceptual

80. Regarding the midbrain, which of the following statements is TRUE?
- The midbrain plays an important role in the regulation of memory and emotions.
 - The midbrain is the oldest part of the brain in evolutionary terms.
 - The midbrain helps to keep the eyes focused when the head moves.
 - The midbrain contains the medulla, pons, and cerebellum.
 - The midbrain is the largest part of the brain.

ANS: C PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe | Evaluate/Explain
MSC: factual

81. Brianna, a new mother, is able to sleep through the noise of her husband watching a boxing match on TV. However, as soon as the baby wakes up and gives a little cry, Brianna wakes up. The part of the brain that filters out the TV noise but allows her to hear the baby's cry, even in her sleep, is the:
- basal ganglia.
 - hypothalamus.
 - amygdala.
 - reticular formation.
 - hippocampus.

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Apply | Identify MSC: applied

82. Which of the following is NOT a function of the reticular formation?
- Connects the hindbrain with the forebrain
 - Regulates attention
 - Regulates arousal
 - Controls heartbeat
 - Screens irrelevant visual and auditory information

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe | Evaluate/Explain
MSC: factual

83. The forebrain contains all of the following structures EXCEPT the:
- thalamus.
 - basal ganglia.
 - hypothalamus.
 - amygdala.
 - cerebellum.

ANS: E PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe | Evaluate/Explain
MSC: factual

84. Which is a cluster of nerve cells that plays a key role in regulating voluntary movement such as walking?
- Basal ganglia

- b. Medulla
- c. Reticular formation
- d. Limbic system
- e. Thalamus

ANS: A PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

85. Which brain structure is best described as a "relay station"?
- a. Hypothalamus
 - b. Thalamus
 - c. Basal ganglia
 - d. Limbic system
 - e. Cerebellum

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: conceptual

86. All of the following senses are routed through the thalamus EXCEPT:
- a. touch.
 - b. taste.
 - c. smell.
 - d. vision.
 - e. hearing.

ANS: C PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify | Evaluate/Explain MSC: factual

87. Which brain structure regulates such bodily functions as thirst and hunger, fluid concentrations, and body temperature?
- a. Reticular formation
 - b. Hippocampus
 - c. Thalamus
 - d. Medulla
 - e. Hypothalamus

ANS: E PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

88. Damage to the hypothalamus might result in which of the following behaviors?
- a. Excessive eating
 - b. Jerky muscle movement
 - c. Increased sexual desire
 - d. Impulsivity
 - e. Falling down

ANS: A PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe MSC: applied

89. Regarding the limbic system, which of the following statements is TRUE?

- a. It is located in the midbrain.
- b. It regulates hunger and thirst.
- c. It includes the basal ganglia.
- d. It plays a role in emotional processing and memory.
- e. It is important in controlling balance and coordination.

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe | Evaluate/Explain
MSC: factual

90. After a motorcycle accident in which she wasn't wearing a helmet, Vanessa has difficulty responding emotionally to unpleasant stimuli. Vanessa most likely experienced damage to which brain structure?
- a. Medulla
 - b. Amygdala
 - c. Thalamus
 - d. Hippocampus
 - e. Cerebellum

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Apply | Identify MSC: applied

91. The _____ is located just behind the amygdala and can be described as playing an important role in the formation of memories.
- a. hypothalamus
 - b. thalamus
 - c. hippocampus
 - d. cerebellum
 - e. pons

ANS: C PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

92. The cerebral cortex accounts for approximately what percentage of the brain's total mass?
- a. 25%
 - b. 40%
 - c. 50%
 - d. 80%
 - e. 90%

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
TOP: MOD: 2.3 KEY: Identify MSC: factual

93. What is the thin, outer layer of the cerebrum called?
- a. Corpus callosum
 - b. Cerebral cortex
 - c. Basal ganglia
 - d. Reticular formation
 - e. Forebrain

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

94. Which of the following describes the corpus callosum?
- It is the thin outer layer of the cerebrum.
 - It links the brain and the peripheral nervous system.
 - It consists of four parts: the occipital, parietal, frontal, and temporal lobes.
 - It consists of the left and right hemisphere.
 - It is the connection between the two cerebral hemispheres.

ANS: E PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe MSC: factual

95. Regarding the organization of the cerebral cortex and cerebrum, which of the following statements is FALSE?
- The cerebral cortex is divided into four parts, with the occipital and parietal lobes in the right hemisphere and the frontal and temporal lobes in the left hemisphere.
 - In general, each of the cerebral hemispheres controls feeling and movement on the opposite side of the body.
 - The cerebral hemispheres are connected by the corpus callosum.
 - The cerebrum consists of two large masses, called the left and right hemispheres.
 - The cerebral cortex forms the thin, outer layer of the largest part of the forebrain, the cerebrum.

ANS: A PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe | Evaluate/Explain
MSC: factual

96. In the cerebral cortex, _____ is to vision as _____ is to hearing.
- occipital; parietal
 - temporal; frontal
 - frontal; parietal
 - parietal; temporal
 - occipital; temporal

ANS: E PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify | Evaluate/Explain MSC: conceptual

97. Which lobe processes information related to touch and body movement?
- Occipital
 - Temporal
 - Parietal
 - Frontal
 - Cerebral

ANS: C PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: conceptual

98. Damage to which portion of the cerebral cortex would most likely interfere with a person's hearing?
- Temporal lobe
 - Occipital lobe
 - Parietal lobe
 - Association cortex

e. Somatosensory cortex

ANS: A PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Apply | Identify MSC: factual

99. After a car accident, Brandon lost some of his visual abilities. Which portion of Brandon's cerebral cortex was probably damaged in the accident?

- a. Somatosensory lobe
- b. Temporal lobe
- c. Parietal lobe
- d. Frontal lobe
- e. Occipital lobe

ANS: E PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Apply | Identify MSC: applied
NOT: WWW

100. Which lobe processes somatosensory information?

- a. Occipital
- b. Frontal
- c. Temporal
- d. Parietal
- e. Cerebral

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

101. Following brain damage, Takami cannot feel stimulation of her arms. She probably suffered damage to which portion of the brain?

- a. Frontal lobe
- b. Parietal lobe
- c. Temporal lobe
- d. Occipital lobe
- e. Corpus callosum

ANS: B PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Apply | Identify MSC: applied

102. Which of the following statements is TRUE about the frontal cortex?

- a. It processes information related to hot and cold temperature.
- b. It contains the somatosensory cortex.
- c. It processes auditory information.
- d. It can be described as containing "you."
- e. It is involved in processing visual stimuli.

ANS: E PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Define/Describe | Evaluate/Explain
MSC: conceptual

103. Which part of the forebrain is sometimes described as the “executive center” and can be likened to the central processing unit of a computer?
- Frontal lobes
 - Temporal lobes
 - Cerebral lobes
 - Parietal lobes
 - Occipital lobes

ANS: A PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: conceptual

104. The majority of the cerebral cortex is made up of the _____.
- frontal lobes
 - parietal lobes
 - corpus callosum
 - association areas
 - occipital lobes

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

105. Which part of the brain is best described as responsible for piecing together sensory input to form meaningful perceptions of the world?
- Frontal lobes
 - Association areas
 - Temporal lobes
 - Parietal lobes
 - Occipital lobes

ANS: D PTS: 1 REF: The Brain: Your Crowning Glory
OBJ: 6-Identify major brain structures/Describe their organization and role in behavior.
TOP: MOD: 2.3 KEY: Identify MSC: factual

106. Sonal is at a brain research center, participating in a study. She is hooked up to a machine that measures electrical activity in her brain through the use of electrodes attached to her scalp. Which technique is the researcher using with Sonal?
- Computed tomography
 - Electroencephalography
 - Positron emission tomography
 - Magnetic resonance imagery
 - Lesioning

ANS: B PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Apply | Identify MSC: applied

107. Which technique can best be described as taking snapshots of the brain in action?
- Computed tomography
 - Electroencephalography
 - CT scan
 - Magnetic resonance imagery
 - Functional magnetic resonance imagery

ANS: E PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain
TOP: MOD: 2.4 KEY: Identify MSC: factual

108. Positron emission tomography (PET) scans work by:
- measuring the reflection of a narrow X-ray beam as it passes through the brain.
 - tracing the amount of glucose used in different parts of the brain.
 - measuring the signals emitted by the brain when placed in a strong magnetic field.
 - destroying parts of the brain to observe the effects on behavior.
 - using mild electrical currents to observe the effects of stimulating parts of the brain.

ANS: B PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Define/Describe MSC: factual
NOT: WWW

109. Which technique can best be described as using measurement of radioactive isotopes to evaluate the activity of the brain?
- Electroencephalography
 - Computerized tomography
 - Lesioning
 - Magnetic resonance imaging
 - Positron emission tomography

ANS: E PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Identify MSC: factual

110. To see whether Jay's headaches were caused by a tumor, Dr. Ariton passed an X-ray beam through Jay's head from different angles to produce a three-dimensional image. Dr. Ariton was using which imaging technique?
- Electroencephalography
 - Computerized tomography
 - Lesioning
 - Magnetic resonance imaging
 - Positron emission tomography

ANS: B PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Apply | Identify MSC: applied

111. Which technique has helped scientists understand why people cannot tickle themselves?
- Functional MRI
 - MRI
 - PET scan
 - EEG
 - Lesioning

ANS: A PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Identify MSC: factual

112. Scientists were able to discover how individual neurons in the visual cortex respond to particular types of visual stimuli using which experimental method?
- Electrical recording

- b. Electrical stimulation
- c. Lesioning
- d. PET scan
- e. Computed topography scanning

ANS: A PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Identify MSC: factual

113. A lesion is:

- a. an electrode that is placed in the brain to stimulate neurons.
- b. an electrode that is placed in the brain to record neural activity.
- c. damage in the tissue of the brain.
- d. a doughnut-shaped device used to produce an image of the brain.
- e. an image generated by a PET scan.

ANS: C PTS: 1 REF: Methods of Studying the Brain
TOP: MOD: 2.4 KEY: Define/Describe MSC: factual

114. Electrical stimulation involves:

- a. applying electrical shocks to the brain to treat extreme cases of depression.
- b. using electricity to destroy brain tissue to observe effects on behavior.
- c. placing electrodes in brain tissue to record changes in electrical activity in response to certain stimuli.
- d. attaching electrodes to the scalp to measure electrical currents in the brain.
- e. passing a mild electric current through certain parts of the brain to determine their functions.

ANS: E PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Define/Describe MSC: factual

115. Lesioning is:

- a. removing a section of brain tissue to determine its functions..
- b. stimulating a section of brain tissue to determine its functions.
- c. imaging a section of brain tissue to determine its functions.
- d. destroying a section of brain tissue to determine its functions.
- e. radiating a section of brain tissue to determine its functions.

ANS: D PTS: 1 REF: Methods of Studying the Brain
OBJ: 7-Identify and describe methods to study workings of the brain.
TOP: MOD: 2.4 KEY: Define/Describe MSC: factual

116. Of the following people, who is most likely to be relying primarily on the use of the right hemisphere?

- a. Anthony, who is giving a speech
- b. Becca, who is reading a book
- c. Clarita, who is writing a story
- d. Jamal, who is performing math computations
- e. Dominic, who is listening to music

ANS: E PTS: 1 REF: The Divided Brain: Specialization of Functioning
OBJ: 8-Explain how the two halves of the brain differ in their functions.
TOP: MOD: 2.5 KEY: Apply | Evaluate/Explain MSC: applied
NOT: WWW

117. Scientists use the term _____ to describe the division of functions between the right and left hemispheres of the brain.
- all-or-none principle
 - plasticity
 - split-brain
 - handedness
 - lateralization

ANS: E PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Identify MSC: factual

118. All of the following are areas of right-hemisphere dominance EXCEPT:
- understanding spatial relationships.
 - recognizing faces.
 - solving problems.
 - interpreting gestures.
 - expressing emotion.

ANS: C PTS: 1 REF: The Divided Brain: Specialization of Functioning
OBJ: 8-Explain how the two halves of the brain differ in their functions.
TOP: MOD: 2.5 KEY: Evaluate/Explain MSC: factual

119. Regarding handedness and language dominance, which of the following statements is TRUE?
- Among the majority of right-handed people, the right hemisphere is dominant for language.
 - Among the majority of left-handed people, the right hemisphere is dominant for language.
 - The right hemisphere is dominant for language among right-handed people, and the left hemisphere is dominant for language among left-handed people.
 - About 15 percent of left-handed people show a pattern of mixed dominance.
 - Compared to right-handed people, left-handed people are more likely to be left-hemisphere dominant.

ANS: D PTS: 1 REF: The Divided Brain: Specialization of Functioning
OBJ: 8-Explain how the two halves of the brain differ in their functions.
TOP: MOD: 2.5 KEY: Evaluate/Explain MSC: factual

120. Broca's area is located in the _____ lobe, and Wernicke's area is located in the _____ lobe.
- left frontal; left temporal
 - left frontal; right frontal
 - right frontal; left temporal
 - right frontal; right temporal
 - right temporal; left temporal

ANS: A PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Identify MSC: factual

121. As a result of the car accident, two friends sustained a brain injury. Patrick had significant damage in his Broca's area, whereas Angelo had significant damage in his Wernicke's area. Consequently, Patrick was unable to _____, and Angelo was unable to _____.
- use his left hand; use his right hand
 - think clearly; express emotions
 - speak; understand speech
 - dance; sing
 - write; read

ANS: C PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Apply | Identify MSC: applied

122. Regarding handedness, which of the following statements is FALSE?
- Prenatal hormones, genetics, and social factors all influence the development of handedness.
 - Males are more likely than females to be left-handed.
 - About 95% of fetuses suck their right thumbs.
 - When one parent is left-handed and one parent is right-handed, the chances of their offspring being left-handed are 1 in 2.
 - Forcing a child to switch to his or her non-dominant hand can cause the child to develop emotional problems.

ANS: D PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Evaluate/Explain MSC: factual

123. Split-brain patients are the result of an operation that severs the:
- cerebrum.
 - cerebellum.
 - corpus callosum.
 - cortex.
 - reticular formation.

ANS: C PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Identify MSC: factual

124. In a split-brain research study, what will happen when a pencil is presented in the patient's visual field?
- The patient will be able to pick out the pencil from a group of objects, but not be able to say "pencil" regardless of which visual field the pencil is presented to.
 - The patient will be able to say "pencil," but will not be able to pick out the pencil from a group of objects regardless of which visual field the pencil is presented to.
 - The patient will be able to say "pencil" when the pencil is presented to the right visual field, but not when it is presented to the left visual field.
 - The patient will be able to say "pencil" when the pencil is presented to the left visual field, but not when it is presented to the right visual field.
 - The patient will be able to pick out the pencil from a group of objects, but will not be able to say "pencil" when the pencil is presented to the right visual field.

ANS: C PTS: 1 REF: The Divided Brain: Specialization of Functioning
OBJ: 8-Explain how the two halves of the brain differ in their functions.
TOP: MOD: 2.5 KEY: Apply | Evaluate/Explain MSC: factual
NOT: WWW

125. Phineas Gage showed severe personality changes following an accident that damaged his:
- temporal cortex.
 - hypothalamus.
 - hippocampus.
 - prefrontal cortex.
 - cerebellum.

ANS: D PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Identify MSC: factual

126. _____ is the brain's ability to adapt and reorganize itself following trauma or surgical alteration.
- Aphasia

- b. Plasticity
- c. Biofeedback
- d. Concordance
- e. Depolarization

ANS: B PTS: 1 REF: The Divided Brain: Specialization of Functioning
TOP: MOD: 2.5 KEY: Identify MSC: factual

127. Annabelle was experiencing disturbances in her sleep-wake cycles. This may be due to dysregulation of the hormone, _____, which is secreted by the _____ gland.
- a. ACTH; pituitary
 - b. melatonin; pineal
 - c. epinephrine; thyroid
 - d. ACTH; pancreas
 - e. melatonin; hypothalamus

ANS: B PTS: 1
REF: The Endocrine System: The Body's Other Communication System
OBJ: 9-Apply knowledge of the endocrine system to the roles of hormones in behavior.
TOP: MOD: 2.6 KEY: Apply | Evaluate/Explain MSC: applied

128. The hormone _____ is to the pituitary gland as the hormone _____ is to the pancreas.
- a. ACTH; oxytocin
 - b. oxytocin; insulin
 - c. insulin; norepinephrine
 - d. norepinephrine; melatonin
 - e. melatonin; ACTH

ANS: B PTS: 1
REF: The Endocrine System: The Body's Other Communication System
TOP: MOD: 2.6 KEY: Identify MSC: factual

129. The male sex hormones are produced by the _____, and female sex hormones are produced by the _____. Collectively, these glands are called the _____.
- a. testes; ovaries; gonads
 - b. ovaries; testes; gonads
 - c. testes, ovaries; adrenals
 - d. adrenals; ovaries; testes
 - e. testes; adrenals; gonads

ANS: A PTS: 1
REF: The Endocrine System: The Body's Other Communication System
TOP: MOD: 2.6 KEY: Identify MSC: factual

130. Jake's coach noticed that Jake had significantly increased his muscle mass and was extremely irritable and belligerent in recent months. He suspected that Jake was injecting anabolic steroids, a synthetic form of which hormone?
- a. Insulin
 - b. Melatonin
 - c. Testosterone
 - d. Progesterone
 - e. Estrogen

ANS: C PTS: 1
REF: The Endocrine System: The Body's Other Communication System

OBJ: 9-Apply knowledge of the endocrine system to the roles of hormones in behavior.
TOP: MOD: 2.6 KEY: Apply | Identify MSC: applied
NOT: WWW

131. Charlize is excessively anxious and irritable and has been losing weight. Charlize probably has an excess of which type of hormone?
- Thyroid
 - Melatonin
 - ACTH
 - Insulin
 - Cortical steroids

ANS: A PTS: 1

REF: The Endocrine System: The Body's Other Communication System

OBJ: 9-Apply knowledge of the endocrine system to the roles of hormones in behavior.
TOP: MOD: 2.6 KEY: Apply | Identify MSC: applied

132. Ella is experiencing premenstrual syndrome (PMS). Which of the following statements about her is FALSE?
- Ella is in a majority group: 75% of all women experience some form of PMS.
 - Ella's bloating and irritability are symptoms of her PMS.
 - Ella has an imbalance of hormones—either too little estrogen or too little progesterone.
 - Ella's PMS may be influenced by what her culture teaches her about menstruation.
 - Ella may be experiencing some disturbances in the functioning of the neurotransmitter serotonin.

ANS: C PTS: 1

REF: The Endocrine System: The Body's Other Communication System

OBJ: 9-Apply knowledge of the endocrine system to the roles of hormones in behavior.
TOP: MOD: 2.6 KEY: Apply | Evaluate/Explain MSC: applied
NOT: WWW

133. Which of the following is the best definition of genotype?
- Structures in a cell's nucleus that house a person's genes
 - Observable physical and behavioral characteristics
 - A trait influenced by multiple genes interacting in complex ways
 - The basic unit of heredity that contains a person's genetic material
 - An organism's genetic code

ANS: E PTS: 1

REF: Genes and Behavior: A Case of Nature and Nurture TOP: MOD: 2.7

KEY: Define/Describe MSC: factual

134. Which of the following types of studies have been used to demonstrate that there is likely a genetic component to schizophrenia?
- Sibling study
 - Adoptee study
 - Twin study
 - Fraternal Twin study
 - Familial association study

ANS: C PTS: 1

REF: Genes and Behavior: A Case of Nature and Nurture TOP: MOD: 2.7

KEY: Identify MSC: factual

135. Which type of study provides the clearest way to address the nature-nurture question?
- Twin study
 - Adoptee study
 - Split-brain study
 - Familial association study
 - Human genome study

ANS: B PTS: 1

REF: Genes and Behavior: A Case of Nature and Nurture

OBJ: 10-Identify and describe scientific methods used to study roles of genes and environment in behavior. TOP: MOD: 2.7 KEY: Identify | Evaluate/Explain

MSC: conceptual NOT: WWW

136. Dr. Werner theorized that people inherit their sense of humor. Therefore, she did a twin study and found that 70 percent of identical twins received similar scores for humor, whereas only 30 percent of fraternal twins did. Those numbers represent:
- genotypes.
 - concordance rates.
 - plasticity rates.
 - lateralization rates.
 - releasing factors.

ANS: B PTS: 1

REF: Genes and Behavior: A Case of Nature and Nurture

OBJ: 10-Identify and describe scientific methods used to study roles of genes and environment in behavior. TOP: MOD: 2.7 KEY: Apply | Identify

MSC: applied

137. Twenty-three-year-old Thomas has schizophrenia. Familial association studies suggest that which of Thomas's relatives is most likely also to have schizophrenia?
- One of his parents
 - One of his grandparents
 - His older sibling
 - His dizygotic twin
 - His monozygotic twin

ANS: E PTS: 1

REF: Genes and Behavior: A Case of Nature and Nurture

OBJ: 11-Evaluate the influence of genetics on personality and behavior.

TOP: MOD: 2.7 KEY: Apply | Evaluate/Explain MSC: applied

NOT: WWW

138. According to research examining the relationship between genetics and shyness (Reiss et al., 2000), parents who are overprotective of a shy child may:
- accentuate the child's shyness.
 - minimize the child's shyness.
 - see the child outgrow his/her natural shyness over time.
 - also have outgoing children who tend to dominate the shy child.
 - have relatively little influence on the child's genetically determined shyness.

ANS: A PTS: 1

REF: Genes and Behavior: A Case of Nature and Nurture

OBJ: 11-Evaluate the influence of genetics on personality and behavior.

TOP: MOD: 2.7 KEY: Evaluate/Explain MSC: conceptual

MSC: conceptual

143. Dr. Asha Bombay is interested in the use of brain scans for selecting job applicants. Based on the text, which of the following research is most relevant to her work?
- Researchers have identified memory circuits in the human brain that help them remember how to perform certain tasks.
 - Researchers have been able to differentiate between extroverts and neurotics by monitoring their reactions to proposed work tasks.
 - Researchers found that activation in a particular area of the prefrontal cortex was a reliable predictor of how well subjects performed work tasks.
 - Researchers have been able to detect ADHD through brain scans, which can be used to weed out job applicants who are impulsive and distractible.
 - Researchers have explored how brain activation patterns in response to positive and negative images reveal which individuals are better suited for particular tasks.

ANS: E

PTS: 1

REF: Looking Under the Hood: Scanning the Human Brain

OBJ: 12-Apply knowledge of brain scanning techniques.

TOP: MOD: 2.8

KEY: Apply | Evaluate/Explain

MSC: applied

NOT: WWW

144. As discussed in the text, which of the following have researchers demonstrated through the use of brain scans?
- Identified memory circuits in the human brain that hold life experiences
 - Found that activation of a particular area of the prefrontal cortex while people watched a public service announcement on sunscreen use predicted their actual sunscreen use
 - Installed a brain scan facility at a major corporate location to allow for a more scientifically precise selection of executives
 - Blocked the dopamine receptors of compulsive shoppers to dull the pleasure they receive from spending money
 - Set up fMRI equipment in federal government offices to use as reliable lie detectors for those applying for sensitive government positions

ANS: B

PTS: 1

REF: Looking Under the Hood: Scanning the Human Brain

OBJ: 12-Apply knowledge of brain scanning techniques.

TOP: MOD: 2.8

KEY: Apply | Evaluate/Explain

MSC: conceptual

145. How might brain scans be useful for clinical psychologists in the near future?
- By helping to determine how much money people are likely to make in their lifetimes
 - By helping to predict who will make the best use of therapy
 - By helping to predict who will respond best to medication
 - By helping to reliably diagnose disorders such as ADHD, schizophrenia, and bipolar disorder
 - By helping determine whether clients would benefit more from psychodynamic or behavioral therapies

ANS: D

PTS: 1

REF: Looking Under the Hood: Scanning the Human Brain

OBJ: 12-Apply knowledge of brain scanning techniques.

TOP: MOD: 2.8

KEY: Apply

MSC: conceptual

ESSAY

- Describe the main components of a neuron and explain how it transmits information internally.

ANS:

There are four main components to a neuron: dendrites, which receive information from other neurons; a soma (cell body), which handles basic metabolic functioning of the neuron and contains the neuron's genetic instructions; an axon, which conveys information toward other neurons; and terminal buttons, which release neurotransmitters to adjacent neurons. Normally, the inside of the neuron is negatively charged (-70 mV) with respect to the outside because of the unequal distribution of ions. Information is conducted along the axon by means of an action potential, a rapid change in electric potential from -70 mV to $+50$ mV and back again. This occurs when the neuron receives adequate stimulation from the neurons communicating with it.

PTS: 1

REF: Neurons: The Body's Wiring

TOP: MOD: 2.1

2. Explain the difference between antagonists and agonists and why they are important from a pharmaceutical point of view.

ANS:

Antagonists are drugs or chemicals that interfere with or reduce the availability of certain neurotransmitters. For example, antipsychotic drugs block the receptor sites for the neurotransmitter dopamine, thereby decreasing the amount of excess dopamine in the brain. Agonists do the opposite. They are chemicals, or drugs, that increase the availability of neurotransmitters by interfering with their reuptake or by binding to their receptor sites and mimicking their actions. For example, the drug Prozac increases the availability of the neurotransmitter serotonin by preventing its reuptake by the transmitting neuron. Some psychological disorders are due to irregularities in the activity of certain neurotransmitters. For example, in schizophrenia, increased levels of dopamine are linked to positive symptoms, such as delusions and hallucinations. Because antagonists work to block receptor sites and therefore blunt the activity of neurotransmitters, identifying the antagonist that blocks dopamine has made it possible to develop antipsychotic drugs that alleviate those symptoms. On the other hand, sometimes it's necessary to increase the available amount of a transmitter. Symptoms of depression have been linked with decreased levels of serotonin. When Prozac increases the availability of the neurotransmitter, the symptoms of depression wane.

PTS: 1

REF: Neurons: The Body's Wiring

TOP: MOD: 2.2

3. Describe how the nervous system is organized and the function of its various parts.

ANS:

The nervous system is composed of the central nervous system (CNS) and the peripheral nervous system (PNS). The CNS contains the brain and spinal cord. The PNS consists of the nerves that carry information away from (efferent, or motor, nerves) and into (afferent, or sensory, nerves) the CNS. The PNS consists of the somatic nervous system and the autonomic nervous system. The somatic nervous system conveys information between the CNS and sense organs and muscles. The autonomic nervous system controls internal bodily processes such as heartbeat and respiration. It contains two divisions, the sympathetic and parasympathetic nervous systems. The sympathetic division speeds up most bodily processes and releases energy. The parasympathetic division helps the body replenish stores of energy.

PTS: 1

REF: The Nervous System: Your Body's Information Superhighway

TOP: MOD: 2.2

4. Outline the structure and function of the cerebral cortex.

ANS:

The cerebral cortex has a left and right hemisphere, each of which contains four primary divisions or lobes. The two hemispheres are connected by a broad band of fibers called the corpus callosum. The frontal lobe is at the front. It is the central executive that involves higher functions such as problem solving and decision making. At the very rear of the frontal lobe is a thin slice called the motor cortex. This contains neurons that control voluntary muscle movement. Behind the frontal lobe is the parietal lobe.

At the front of the parietal lobe is the somatosensory cortex. This is where sensations from the parts of the body are received. At the rear of the brain is the occipital lobe. It is the primary station for initial processing of visual information. At the side of the brain is the temporal lobe, where initial processing of auditory information occurs.

PTS: 1 REF: The Brain: Your Crowning Glory TOP: MOD: 2.3

5. Discuss the relationship between hormones and behavior.

ANS:

Excess or deficient hormone levels have been found to affect behavior. For example, excess thyroid hormones are linked to anxiety and irritability. In males, excess testosterone is associated with aggression, whereas deficiencies of testosterone are associated with lack of sexual desire for both men and women. There is also some evidence to suggest that fluctuations in, or sensitivity to, the levels of the hormones estrogen and progesterone before and during females' menstrual cycles are responsible for the symptoms of premenstrual syndrome (PMS).

PTS: 1 REF: The Endocrine System: The Body's Other Communication System
TOP: MOD: 2.6