

## Chapter 2—How Does Biology Influence Our Behavior?

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### MULTIPLE CHOICE

1. Reflexive activity such as jerking your hand away from a hot stove is governed by the
- rescue system.
  - endocrine system.
  - nervous system.
  - parasympathetic system.

ANS: C                    DIF: Easy                    REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

2. The action of tying your shoes is most likely to involve the \_\_\_\_\_ system.
- endocrine
  - sympathetic
  - nervous
  - parasympathetic

ANS: C                    DIF: Easy                    REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

3. Glial cells
- form myelin.
  - direct the activity of hormones.
  - provide very little benefit to the brain.
  - can occasionally function as neurotransmitters.

ANS: A                    DIF: Moderate                    REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

4. Which of the following statements is *true* regarding the recent belief about the number of neurons and glial cells in the adult human brain?
- Neurons are far more numerous than glial cells.
  - Neurons are somewhat more numerous than glial cells.
  - Neurons and glial cells are about the same in number.
  - Neurons are less numerous than glial cells.

ANS: C                    DIF: Difficult                    REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

5. Myelin
- is a type of neurotransmitter.
  - disrupts neurological activity.
  - is produced by the action potential.
  - speeds up neural signals.

ANS: D                    DIF: Moderate                    REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

6. If you had a disease called multiple sclerosis, what symptoms would you likely exhibit?
- Difficulty with voluntary movement
  - Some vision loss
  - Numbness
  - All of these choices

ANS: D                    DIF: Moderate        REF: 43-44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

7. Without glial cells, your brain would
- not function differently than otherwise.
  - be unable to communicate within itself.
  - repair itself more rapidly than normal in the case of an injury.
  - send information more slowly.

ANS: D                    DIF: Moderate        REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

8. If the neural impulses generated in your brain are not traveling as fast as normal, it may be because
- you don't have enough substance P.
  - you have too much serotonin.
  - your sympathetic nervous system is overactive.
  - you do not have enough myelin cells.

ANS: D                    DIF: Moderate        REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

9. Which of the following involves myelin loss, causing neural impulses to travel around in the brain without making it to their destinations?
- Depression
  - Multiple sclerosis
  - Parkinson's disease
  - Alzheimer's disease

ANS: B                    DIF: Difficult        REF: 43-44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

10. The part of the neuron that receives signals from other neurons is(are) the
- axon.
  - dendrites.
  - cell body.
  - synaptic cleft.

ANS: B                    DIF: Easy            REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

11. Dr. Adelman is biological psychologist who is most interested in studying the part of the neuron that receives input from other neurons. He is most likely to focus on which of the following?
- Myelin
  - Axon bulbs
  - Dendrites
  - Glial cells

ANS: C                    DIF: Easy                    REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

12. Within a single neuron, dendrites are \_\_\_\_\_ and axon bulbs are \_\_\_\_\_.
- active in communication; active in cell metabolism
  - myelinated; unmyelinated
  - at the beginning; at the end
  - much smaller; much larger

ANS: C                    DIF: Easy                    REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

13. The axons of neurons in the brain are typically
- longer than those in the peripheral nervous system.
  - shorter than those in the peripheral nervous system.
  - about the same size as those in the peripheral nervous system.
  - extremely variable in length, with some being very long and others very short.

ANS: B                    DIF: Difficult                    REF: 44-45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

14. The gap between adjacent neurons is called the
- synapse.
  - myelin sheath.
  - dendrite space.
  - cellular gap.

ANS: A                    DIF: Easy                    REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

15. The vesicles at the end of an axon contain
- sodium (Na<sup>+</sup>) ions.
  - neurotransmitters.
  - myelin.
  - DNA.

ANS: B                    DIF: Moderate                    REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

16. Each neuron in the brain can potentially synapse with up to \_\_\_\_\_ other neuron(s).
- only 1
  - 10
  - 1,000
  - 10,000

ANS: D                    DIF: Moderate        REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

17. In terms of the function of dendrites, they are most like the \_\_\_\_\_ in your home.
- front door
  - back door
  - kitchen
  - bedroom

ANS: A                    DIF: Difficult        REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

18. In terms of the function of axon bulbs, they are most like a(n) \_\_\_\_\_ in a building.
- entrance
  - exit
  - office
  - drinking fountain

ANS: B                    DIF: Difficult        REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

19. Without an axon, a neuron would not be able to
- receive neural impulses from other neurons.
  - duplicate itself.
  - direct the development of the neuron.
  - send neural impulses to other neurons.

ANS: D                    DIF: Moderate        REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

20. A neuron's DNA exists within its
- cell body.
  - dendrites.
  - axon.
  - axon bulb.

ANS: A                    DIF: Moderate        REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

21. If your neurosurgeon were able to take a neuron out of your brain and examine it, she would most likely find that
- its axon would be very short.
  - it would have two cell bodies.
  - it would have more than one axon.
  - its cell body would not have any dendrites attached to it.

ANS: A                    DIF: Moderate        REF: 44-45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

22. When you speak into the receiver on a telephone, the receiver's function is most like the function of which part of the neuron?
- Axon
  - Myelin sheath
  - Axon hillock
  - Dendrites

ANS: D                    DIF: Moderate        REF: 44

OBJ: How Does the Brain Communicate?

KEY: WWW

MSC: TYPE: Applied

23. A telephone wire that carries a telephone signal from the telephone pole to your house is most analogous to which part of the neuron?
- Axon
  - Myelin sheath
  - Dendrites
  - Synapse

ANS: A                    DIF: Moderate        REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

24. Francisco has a disease that is destroying the myelin on his neurons. What effects will this disease most likely have on Francisco?
- His brain and spinal cord will completely cease to function.
  - He will be paralyzed on one side of his body only.
  - His neural signals will slow down.
  - His neural signals will speed up.

ANS: C                    DIF: Moderate        REF: 43

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

25. Lucinda is eating fried eggs for breakfast. Which part of the neuron should the egg most remind her of?
- The dendrites
  - The axon
  - The axon branches
  - The cell body

ANS: D                    DIF: Easy              REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

26. If you wanted to trace the flow of information through a single neuron, you would have to start at the \_\_\_\_\_, go through the \_\_\_\_\_, and end at the \_\_\_\_\_.
- dendrites; medulla; dendrites
  - axon hillock; axon bulb; dendrites
  - dendrites; axon; axon bulb
  - axon bulb; brain stem; dendrites

ANS: C                      DIF: Moderate                      REF: 44

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

27. If you needed to explain to your friend what the synapse is, what should you say?
- It's the part of the neuron that receives incoming signals, and starts the action potential.
  - It's the tiny gap between the axon bulb of one neuron and the dendrites of another.
  - It's the insulation on the outside of the neuron.
  - None of these choices

ANS: B                      DIF: Easy                      REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

28. When your teacher is attempting to describe a postsynaptic neuron, she is essentially talking about
- neurons that are myelinated.
  - neurons that are unmyelinated.
  - a neuron that receives input from another neuron.
  - a neuron that sends messages to another neuron.

ANS: C                      DIF: Easy                      REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

29. A synapse is essentially a(n)
- gap.
  - wire.
  - chemical.
  - electrical charge.

ANS: A                      DIF: Easy                      REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

30. Receptor sites for communication exist on
- sodium ions.
  - neurotransmitters.
  - postsynaptic neurons.
  - myelin.

ANS: C                      DIF: Easy                      REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

31. Neurotransmitters are most analogous to
- managers making decisions.
  - mail carriers delivering mail.
  - receptionists taking phone calls.
  - doctors helping to repair physical problems.

ANS: B                      DIF: Moderate                      REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

32. There are many more neural connections in the brain than the number of neurons because
- each neuron can synapse with many other neurons.
  - neural connections also occur between glial cells.
  - all that is needed for a neural connection is two different types of brain material.
  - any two neurons can communicate in both directions across the same synapse.

ANS: A                    DIF: Moderate        REF: 45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

33. Which is the correct sequence of information transmission within a single neuron?
- Cell body, dendrites, synapse, axon
  - Axon, cell body, dendrites, synapse
  - Synapse, dendrites, axon, cell body
  - Dendrites, cell body, axon, synapse

ANS: D                    DIF: Moderate        REF: 44-45

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

34. If Clark had no ions in his nervous system,
- his action potentials would be faster.
  - his action potentials would be slower.
  - he would not be able to generate any action potentials.
  - he would be able to move, but he would not be able to think.

ANS: C                    DIF: Moderate        REF: 45-46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

35. The action potential is directly created when
- vesicles in the axon release neurotransmitters.
  - myelin is produced by the cell body.
  - sodium (Na<sup>+</sup>) ions flood into the axon.
  - DNA is released into the synapse.

ANS: C                    DIF: Difficult        REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

36. Which of the following is *false* regarding the resting potential of a neuron?
- In mammals, it is about -70 millivolts.
  - During its resting state, all ionized particles can move freely into and out of the neuron.
  - The potential is partially maintained by high concentrations of sodium (Na<sup>+</sup>) outside the neuron.
  - It can also be referred to as a polarized state.

ANS: B                    DIF: Difficult        REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

37. Which of the following axon membrane potentials represents the greatest amount of polarization?
- 70 millivolts
  - 45 millivolts
  - 0 millivolts
  - +5 millivolts

ANS: A                    DIF: Difficult        REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

38. Which phrase best describes how the action potential occurs?
- “All or none”
  - “Slow but sure”
  - “Speed equals intensity”
  - “All for one, and one for all”

ANS: A                    DIF: Easy                    REF: 46

OBJ: How Does the Brain Communicate?

KEY: WWW

MSC: TYPE: Conceptual

39. When the inside of the axon has a greater negative charge than the outside, it is safe to conclude that
- an action potential is not being generated in that part of the axon.
  - the axon is depolarized.
  - there is an especially large concentration of Na<sup>+</sup> ions inside the axon.
  - an action potential is being generated in that part of the axon.

ANS: A                    DIF: Moderate                    REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

40. When neurotransmitters bind with receptor sites, what is the essential event that eventually causes the postsynaptic neuron to generate an action potential?
- The creation of myelin sheathing
  - The leaking of sodium (Na<sup>+</sup>) into the cell
  - The removal of anions from the cell
  - The generation of electrical current in the dendrites

ANS: B                    DIF: Difficult                    REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

41. If you take a drug that indirectly causes chloride (Cl<sup>-</sup>) to enter your postsynaptic neurons, the drug would have \_\_\_\_\_ effects.
- excitatory
  - inhibitory
  - hallucinogenic
  - sedative

ANS: B                    DIF: Difficult                    REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

42. If you had a neurological problem that could be fixed by increasing the likelihood that your neurons will fire action potentials, your doctor may prescribe a drug that has \_\_\_\_\_ effects.
- impulsive
  - binding
  - excitatory
  - inhibitory

ANS: C                    DIF: Easy                    REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

43. When potassium ions ( $K^+$ ) are being pumped out of the axon, it is safe to conclude that the
- axon is in the midst of firing an action potential.
  - dendrites have just received messages from presynaptic neurons.
  - axon is in a refractory period.
  - cell body is adding up excitatory and inhibitory inputs.

ANS: C                      DIF: Difficult                      REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

44. An action potential is a
- chemical imbalance.
  - possible activity.
  - reflex movement.
  - neural impulse.

ANS: D                      DIF: Easy                      REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

45. After an action potential has occurred, what happens inside the axon?
- Potassium ions ( $K^+$ ) move back into the axon.
  - Reuptake pushes the neuron back to its resting potential.
  - Sodium ions ( $Na^+$ ) move back out of the axon.
  - Lithium is released, causing a refractory period.

ANS: C                      DIF: Difficult                      REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

46. In mammals, -70 millivolts is to \_\_\_\_\_, as -55 millivolts is to \_\_\_\_\_.
- resting potential; threshold of excitation
  - threshold of excitation; resting potential
  - home electrical capacity; the body's electrical capacity
  - the body's electrical capacity; home electrical capacity

ANS: A                      DIF: Difficult                      REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

47. Why is it important for sodium ions ( $Na^+$ ) to move back out of the axon once an action potential has been fired?
- Their continued presence would be damaging to the tissues of the axon.
  - So the neuron will have the ability to generate another action potential.
  - Because it needs to bind with chlorine ( $Cl^-$ ) in order for the refractory period to begin.
  - In order to create a more negative charge outside than inside the neuron.

ANS: B                      DIF: Moderate                      REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

48. The refractory period is the
- time it takes to fire an action potential.
  - period of time that neurotransmitters are active within the synapse.
  - time during which a neuron is restoring its resting potential after an action potential has been fired.
  - the total period of time it takes for a neuron to receive information from one neuron and transmit it to another one.

ANS: C                    DIF: Moderate            REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

49. Once an action potential reaches the end of the axon, how does the information usually get to the next neuron?
- The action potential jumps across the synaptic cleft to the next neuron in the form of an electrical impulse.
  - Myelin acts as a bridge to transport it across the synaptic cleft.
  - Chlorine ions (Cl<sup>-</sup>) move back and forth between neurons to carry the information across.
  - Vesicles at the end of the axon release neurotransmitters that float across the synaptic cleft to the next neuron.

ANS: D                    DIF: Moderate            REF: 47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

50. If neurotransmitters are being released by a presynaptic neuron into the synapse, it is because
- the neuron is in a refractory period.
  - there is a large concentration of Na<sup>+</sup> ions outside of the presynaptic axon.
  - action potentials have occurred in the postsynaptic neuron.
  - action potentials have occurred in the presynaptic neuron.

ANS: D                    DIF: Moderate            REF: 47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

51. An axon that has a -55mv electric potential across its membrane
- probably does not have any myelin sheathing.
  - is going to fire an action potential.
  - has a very large concentration of Na<sup>+</sup> ions inside the axon.
  - has just released several neurotransmitters.

ANS: B                    DIF: Difficult            REF: 46-47

OBJ: 2

MSC: TYPE: Factual

52. You are a neurosurgeon performing surgery on a 50-year-old man. When you insert an electrode into the axon of one of his neurons while it is not receiving or sending information, what voltage should you record with your instruments?
- +55mv
  - 55mv
  - +70mv
  - 70mv

ANS: D                    DIF: Difficult            REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

53. Marta is injected with a drug that prevents sodium ( $\text{Na}^+$ ) from entering into neurons in the part of the brain that controls the movement of the arms. What effect will this drug most likely have on Marta?
- Her arms will move spasmodically.
  - She will not be able to move her arms.
  - Her arms will be numb, but she will be able to move them.
  - Marta will die.

ANS: B                    DIF: Difficult            REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

54. If you were to inject sodium ( $\text{Na}^+$ ) into a neuron in a rat's brain, what effect would it have on the neuron?
- It would make the neuron more likely to fire an action potential.
  - It would make the neuron less likely to fire an action potential.
  - It would prevent the neuron from firing action potentials.
  - It would make the neuron fire action potentials that travel more slowly than normal.

ANS: A                    DIF: Difficult            REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

55. After an action potential has been generated, the restoration of the membrane resting potential is most like
- getting a drink of water when you are hungry.
  - sharing your feelings with someone you love.
  - taking a nap when you are tired.
  - cocking a gun after it has been fired.

ANS: D                    DIF: Moderate            REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

56. If after firing once, Michelle's neurons did not return to their resting potential, her neurons would be
- unable to fire again.
  - able to fire more rapidly than normal.
  - seriously damaged from lack of rest.
  - totally normal.

ANS: A                    DIF: Moderate            REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

57. As one of Wilbur's neurons fires an action potential, the charge inside the neuron becomes
- negative.
  - positive.
  - stable.
  - unpredictable.

ANS: B                    DIF: Easy                    REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

58. The refractory period occurs
- during the night when our neurons are at rest.
  - between 1:00PM and about 3:00PM
  - between action potentials.
  - when the neuron is depolarizing.

ANS: C                    DIF: Moderate            REF: 46-47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

59. Prozac inhibits the reuptake of the neurotransmitter serotonin. When you take Prozac, the effect of this drug will be to
- reduce the action of serotonin in the brain.
  - increase the time serotonin spends in the synapses of the brain.
  - prevent the release of serotonin in the synapses of the brain.
  - prevent the absorption of serotonin in the postsynaptic neuron.

ANS: B                    DIF: Moderate            REF: 50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

60. How do neurotransmitters “communicate” with postsynaptic neurons?
- Like a “key fitting into a lock,” they bind with corresponding receptor sites on dendrites of the neuron.
  - Like “water over a dam,” they build up until they flood into the next neuron through sheer force.
  - Like a “hot knife through butter,” they easily penetrate right into the cell body through the dendrites.
  - Like “throwing darts,” they are propelled across the synapse and communicate with the neuron wherever they land.

ANS: A                    DIF: Easy                    REF: 47

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

61. Excitation causes a postsynaptic cell to
- become more negative in its resting potential.
  - become more positive in its resting potential.
  - move further away from the threshold for creating an action potential.
  - leak chlorine ions (Cl<sup>-</sup>) into its axon.

ANS: B                    DIF: Difficult            REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

62. If you take a drug that causes neurons in your brain to stop firing, the drug is said to have \_\_\_\_\_ effects.
- excitatory
  - stimulatory
  - inhibitory
  - cancellatory

ANS: C                    DIF: Easy                    REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

63. Inhibition occurs when
- sodium ions (Na<sup>+</sup>) leak into the axon of a neuron.
  - the resting potential of a postsynaptic neuron is moved closer to -55 millivolts.
  - a neurotransmitter makes a postsynaptic neuron less likely to fire an action potential.
  - neurotransmitters become reluctant to do their jobs due to embarrassment.

ANS: C                    DIF: Moderate            REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

64. Moving your arm requires
- inhibition only.
  - excitation only.
  - neither inhibition nor excitation.
  - both inhibition and excitation.

ANS: D                    DIF: Moderate            REF: 50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

65. Which of the following is *true* regarding the processes of excitation and inhibition?
- In order for the body to work normally, neurotransmitters should usually be excitatory.
  - In order for the body to work normally, neurotransmitters should usually be inhibitory.
  - Both inhibitory and excitatory processes are necessary for normal neurological activity.
  - Neither excitatory nor inhibitory processes are good for normal neurological activity.

ANS: C                    DIF: Moderate            REF: 48-50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

66. Reuptake describes the
- recycling and returning of neurotransmitters to the presynaptic neuron.
  - movement of ions back outside the axon after the action potential has been fired.
  - process of neurons stretching and then retracting as they communicate with neighboring neurons.
  - shrinking of myelin on the axons of neurons.

ANS: A                    DIF: Easy                    REF: 50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

67. Reuptake is essential to normal neurological function because it ensures that the
- electrical current stays within the synapse.
  - right amount of excitation and inhibition occurs.
  - speed of action potentials is always at the highest level.
  - neuron never enters a resting phase.

ANS: B                    DIF: Difficult            REF: 50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

68. If you are currently taking a drug that affects your behavior, most likely it is affecting the
- speed of your action potentials.
  - strength of your action potentials.
  - number of new neurons your brain produces.
  - activity occurring within your synapses.

ANS: D                    DIF: Moderate            REF: 50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

69. Rick is given a medication that prevents chloride (Cl<sup>-</sup>) from entering his neurons. What effect will this most likely have on Rick's nervous system?
- He will have less inhibition in his nervous system.
  - He will have more inhibition in his nervous system.
  - He will have less excitation in his nervous system.
  - This drug will not affect the functioning of Rick's nervous system.

ANS: A                    DIF: Difficult            REF: 48

OBJ: How Does the Brain Communicate?

KEY: WWW

MSC: TYPE: Applied

70. Elena is given a drug that moves the resting potential of her neurons to -90mv. What effect will this likely have on Elena?
- It will take less stimulation to get her neurons to fire action potentials.
  - It will take more stimulation to get her neurons to fire action potentials.
  - It will be impossible to get her neurons to fire action potentials.
  - Her neurons will begin to fire action potentials at random.

ANS: B                    DIF: Moderate            REF: 46

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

71. If you were to remove potassium ions (K<sup>+</sup>) from inside of a neuron, the net effect on the neuron would be
- excitation.
  - inhibition.
  - the firing of an action potential.
  - none of these choices

ANS: B                    DIF: Difficult            REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Conceptual

72. Melanie is given an injection of a drug that increases inhibition in her brain. The net effect of this drug will most likely be
- death.
  - more action potentials in her brain.
  - fewer action potentials in her brain.
  - all of these choices are equally likely

ANS: C                    DIF: Easy                    REF: 48

OBJ: How Does the Brain Communicate?

MSC: TYPE: Applied

73. Most drugs taken by humans primarily affect the
- movement of ions across the membrane of the axon.
  - activity of neurotransmitters in the synapse.
  - development of myelin around the axon.
  - creation or death of neurons in the brain.

ANS: B                    DIF: Moderate            REF: 50

OBJ: How Does the Brain Communicate?

MSC: TYPE: Factual

74. The first neurotransmitter discovered was
- acetylcholine.
  - dopamine.
  - serotonin.
  - epinephrine.

ANS: A                    DIF: Easy                    REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

75. Alzheimer's patients are often prescribed medications that are designed to improve awareness and memory. The neurotransmitter most likely affected by these drugs is
- testosterone.
  - GABA.
  - acetylcholine.
  - adrenaline.

ANS: C                    DIF: Moderate                    REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

76. The fact that most of us gain pleasure from eating and sexual activity is at least partially due to the effects of neurotransmitters. Which one of the following is the most likely source of this pleasure?
- Epinephrine
  - Glutamate
  - Endorphins
  - Dopamine

ANS: D                    DIF: Easy                    REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Conceptual

77. Treating a patient with Parkinson's disease with a drug that increases dopamine activity too greatly could lead to symptoms of
- depression.
  - autism.
  - schizophrenia.
  - paralysis.

ANS: C                    DIF: Moderate                    REF: 51-52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

78. Treating a patient with schizophrenia with a drug that decreases dopamine activity too greatly could lead to symptoms of
- Parkinson's disease.
  - autism.
  - anxiety.
  - dissociative identity disorder.

ANS: A                    DIF: Moderate                    REF: 51-52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

79. If your teacher required you to learn the names and functions of all the neurotransmitters that researchers have identified, you would have to learn about \_\_\_\_\_ neurotransmitters.
- less than 10
  - 25
  - 45
  - more than 100

ANS: D                    DIF: Moderate        REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

80. Dr. Bush specializes in the study of hormones and neurotransmitters. His research would show that
- some hormones behave like neurotransmitters.
  - hormones never behave like neurotransmitters.
  - hormones and neurotransmitters are actually the same thing.
  - hormones don't affect neurological activity.

ANS: A                    DIF: Moderate        REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

81. One of the reasons that your grandfather with Alzheimer's disease has memory problems might be a(n)
- increased supply of serotonin in his brain.
  - decreased supply of Na<sup>+</sup> around his neurons.
  - decreased supply of acetylcholine in his brain.
  - increased supply of myelin around his axons.

ANS: C                    DIF: Moderate        REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

82. Parkinson's disease is to \_\_\_\_\_ as schizophrenia is to \_\_\_\_\_.
- small amounts of serotonin; small amounts of acetylcholine
  - small amounts of dopamine; large amounts of dopamine
  - large amounts of serotonin; small amounts of serotonin
  - large amounts of acetylcholine; large amounts of dopamine

ANS: B                    DIF: Moderate        REF: 52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Conceptual

83. Acetylcholine is thought to play a role in
- motor skill learning.
  - storing memories.
  - processing memories.
  - all of these choices

ANS: D                    DIF: Moderate        REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

84. Alzheimer's disease has been associated with loss of neurons that release \_\_\_\_\_ into synapses.
- dopamine
  - endorphins
  - acetylcholine
  - GABA

ANS: C                    DIF: Easy                    REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

85. Which of the following is *false* regarding dopamine?
- High levels of dopamine are related with symptoms of schizophrenia.
  - Low levels of dopamine are related with symptoms of Parkinson's disease.
  - It is primarily inhibitory but can also be excitatory in the brain.
  - It was the first neurotransmitter to be discovered.

ANS: D                    DIF: Difficult                    REF: 51-52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

86. A person with schizophrenia who takes a drug that increases brain levels of dopamine will likely
- experience reduced symptoms.
  - experience increased symptoms.
  - become depressed.
  - exhibit the symptoms of Parkinson's disease.

ANS: B                    DIF: Moderate                    REF: 52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Conceptual

87. Those who are prescribed Prozac are presumed to have \_\_\_\_\_ in their brain.
- high levels of GABA
  - low levels of acetylcholine
  - high levels of dopamine
  - low levels of serotonin

ANS: D                    DIF: Moderate                    REF: 52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Conceptual

88. Which neurotransmitter is the primary target of drugs that are used to treat depression, such as Prozac?
- Norepinephrine
  - Serotonin
  - Dopamine
  - Acetylcholine

ANS: B                    DIF: Moderate                    REF: 52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

KEY: WWW                    MSC: TYPE: Factual

89. Many sedative medications such as Valium exert their effects by acting on
- glutamate.
  - endorphins.
  - dopamine.
  - GABA.

ANS: D                    DIF: Moderate                    REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

90. The chief inhibitory neurotransmitter in the brain is \_\_\_\_\_, and the chief excitatory neurotransmitter is \_\_\_\_\_.
- GABA; glutamate
  - epinephrine; norepinephrine
  - serotonin; dopamine
  - acetylcholine; substance P

ANS: A                    DIF: Difficult                    REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

91. Endorphins
- are a type of neurotransmitter that block pain messages.
  - facilitate and increase the activity of substance P.
  - help to create the sense of fatigue and pain felt when the body is stressed.
  - all of these choices

ANS: A                    DIF: Easy                    REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

92. If you have just completed a vigorous physical workout, your central nervous system is most likely to have
- decreased levels of dopamine.
  - decreased levels of serotonin.
  - increased levels of endorphins.
  - increased levels of GABA.

ANS: C                    DIF: Easy                    REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Conceptual

93. When substance P activity is at a high level in your body, you are probably feeling
- tired.
  - euphoric.
  - pain.
  - hungry.

ANS: C                    DIF: Moderate                    REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

94. Which of the following is not primarily an inhibitory neurotransmitter?
- Serotonin
  - Norepinephrine
  - GABA
  - Glutamate

ANS: D                    DIF: Difficult            REF: 52-53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

95. Which of the following is primarily an excitatory neurotransmitter?
- Glutamate
  - Serotonin
  - Dopamine
  - All of these choices

ANS: A                    DIF: Difficult            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Factual

96. George has a disease that is associated with a lack of dopamine producing neurons in his brain. George most likely has
- multiple sclerosis.
  - cancer.
  - Parkinson's disease.
  - Alzheimer's disease.

ANS: C                    DIF: Easy                    REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

97. Hedda takes a drug that increases the amount of acetylcholine in her brain. Hedda is most likely taking this drug for which condition?
- Multiple sclerosis
  - Alzheimer's disease
  - Parkinson's disease
  - Schizophrenia

ANS: B                    DIF: Moderate            REF: 51

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

98. Emilio is taking a drug for his Parkinson's disease. What effect would you expect this drug to have on Emilio's brain?
- Increase his dopamine levels
  - Increase his serotonin levels
  - Increase his acetylcholine levels
  - Increase his endorphin levels

ANS: A                    DIF: Easy                    REF: 51-52

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

99. The symptoms of depression that may follow heavy use of MDMA (ecstasy) may result from depleted levels of
- dopamine.
  - serotonin.
  - GABA.
  - glutamate.

ANS: B                    DIF: Easy                    REF: 52  
OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
MSC: TYPE: Factual

100. The chief excitatory neurotransmitter in the brain is
- serotonin.
  - dopamine.
  - GABA.
  - glutamate.

ANS: D                    DIF: Moderate                    REF: 53  
OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
MSC: TYPE: Factual

101. One of the side effects of taking too much medication for Parkinson's disease would most likely be
- depression.
  - hyperactivity.
  - hallucinations.
  - mania.

ANS: C                    DIF: Difficult                    REF: 52  
OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
MSC: TYPE: Conceptual

102. Juan, a nine-year-old boy, was in an accident and suffered a brain injury. Which of the following neurotransmitters will most likely most help Juan recover from his injury?
- Acetylcholine
  - Serotonin
  - Glutamate
  - Norepinephrine

ANS: D                    DIF: Difficult                    REF: 53  
OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
MSC: TYPE: Applied

103. Carmela was in a skiing accident and broke her leg. Which of the following neurotransmitters would help her deal with the immediate pain of this injury?
- Endorphins
  - Dopamine
  - Serotonin
  - GABA

ANS: A                    DIF: Easy                    REF: 53  
OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
MSC: TYPE: Applied

104. If large amount of endorphins are being released in your central nervous system, it is most likely in response to
- overeating.
  - physical stress.
  - sleeping too much.
  - witnessing something violent.

ANS: B                    DIF: Moderate            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

105. Dr. Hebda injects a large dose of the neurotransmitter glutamate into the brain of a living rat. What effect would this most likely have on the rat?
- The rat will become much more intelligent.
  - The rat will experience the death of many neurons.
  - The rat will become very hungry.
  - The rat will exhibit symptoms of schizophrenia.

ANS: B                    DIF: Difficult            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

106. Your college roommate likes to binge drink on Saturday nights. After one particularly bad weekend, she becomes concerned about the effects of so much alcohol on her brain. Knowing that you are studying the brain in psychology, she asks you to explain the effects of alcohol on the brain. You should tell her that alcohol affects the function of the neurotransmitter
- acetylcholine.
  - dopamine.
  - GABA.
  - norepinephrine.

ANS: C                    DIF: Moderate            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

107. Endorphins are to \_\_\_\_\_ as substance P is to \_\_\_\_\_.
- suppression of pain; experiencing pain
  - experiencing pain; suppression of pain
  - suppression of pleasure; experiencing pleasure
  - experiencing pleasure; suppression of pleasure

ANS: A                    DIF: Moderate            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Conceptual

108. A person may be prescribed Valium in order to \_\_\_\_\_ activity.
- increase dopamine
  - increase GABA
  - decrease serotonin
  - decrease glutamate

ANS: B                    DIF: Moderate            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

109. If you were to insert an electrode at random into the brain, the odds are that the neuron you would hit would be one that uses the neurotransmitter
- glutamate.
  - serotonin.
  - acetylcholine.
  - endorphin.

ANS: A                    DIF: Difficult            REF: 53

OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?

MSC: TYPE: Applied

110. The two main divisions of the nervous system are the \_\_\_\_\_ and the \_\_\_\_\_.
- brain; spinal cord
  - muscles; organs
  - parasympathetic; sympathetic
  - central; peripheral

ANS: D                    DIF: Easy                    REF: 55

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

111. The branch of the nervous system that includes neurons that run between the brain and the muscles *and* between the brain and the internal organs is the
- central nervous system.
  - peripheral nervous system.
  - somatic nervous system.
  - autonomic nervous system.

ANS: B                    DIF: Moderate            REF: 55

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

112. If your teacher informs you that the day's lecture will be on the central nervous system, it would be most appropriate to assume that you will learn about
- sensory and motor neurons.
  - the autonomic and somatic nervous systems.
  - the cerebral cortex only.
  - the brain and spinal cord.

ANS: D                    DIF: Easy                    REF: 55

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

113. Which of the following is a subset of the autonomic nervous system?
- The sympathetic nervous system
  - The central nervous system
  - The peripheral nervous system
  - The somatic nervous system

ANS: A                    DIF: Moderate            REF: 56-57

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

114. Which of the following includes the sympathetic nervous system?
- The parasympathetic nervous system
  - The somatic nervous system
  - The autonomic nervous system
  - None of these choices

ANS: C                    DIF: Moderate            REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

115. The central nervous system includes the
- brain only.
  - brain and spinal cord.
  - brain, spinal cord, and internal organs.
  - brain, spinal cord, and muscles.

ANS: B                    DIF: Easy                    REF: 55

OBJ: Is the Nervous System a Single System?

KEY: WWW

MSC: TYPE: Factual

116. Motor neurons are to \_\_\_\_\_ as sensory neurons are to \_\_\_\_\_.
- outward; inward
  - inward; outward
  - inhibitory; excitatory
  - excitatory; inhibitory

ANS: A                    DIF: Difficult            REF: 55

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Conceptual

117. When you reach out and accidentally touch a hot stove, information is sent through \_\_\_\_\_ neurons to tell your central nervous system that it is hot.
- sympathetic
  - autonomic
  - sensory
  - motor

ANS: C                    DIF: Moderate            REF: 55

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

118. On the dance floor, when you want to make an impressive dance move, information is sent through your \_\_\_\_\_ neurons to make your muscles respond appropriately.
- parasympathetic
  - motor
  - sensory
  - autonomic

ANS: B                    DIF: Moderate            REF: 55

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

119. The parasympathetic nervous system
- is a branch of the somatic nervous system.
  - is sometimes referred to as the “flight or fight” system.
  - helps keep heart rate, blood pressure, and respiration at normal levels.
  - all of these choices

ANS: C                    DIF: Moderate        REF: 57

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

120. When making a drive to the basket in a basketball game, your \_\_\_\_\_ nervous system sends signals to your muscles to coordinate your movements.
- somatic
  - sympathetic
  - parasympathetic
  - autonomic

ANS: A                    DIF: Moderate        REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

121. The autonomic nervous system allows us to
- walk and talk.
  - remember important events.
  - reason logically about difficult concepts.
  - breathe without having to think about it.

ANS: D                    DIF: Moderate        REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Conceptual

122. If you have just witnessed a car accident, your heart rate and respiration rate are likely to be elevated due to \_\_\_\_\_ nervous system activity.
- somatic
  - parasympathetic
  - iconic
  - sympathetic

ANS: D                    DIF: Moderate        REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

123. The sympathetic nervous system activates a(n) \_\_\_\_\_ response, and the parasympathetic nervous system activates a(n) \_\_\_\_\_ response.
- stress; calming
  - calming; stress
  - involuntary; voluntary
  - voluntary; involuntary

ANS: A                    DIF: Moderate        REF: 56-57

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

124. The somatic nervous system involves neurons that control
- the sensory systems.
  - skeletal muscles.
  - internal organs.
  - smooth muscles (such as the heart).

ANS: B                    DIF: Moderate        REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

125. The autonomic nervous system involves neurons that control
- the sensory systems.
  - skeletal muscles.
  - internal organs.
  - the cortex of the brain.

ANS: C                    DIF: Easy                REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Factual

126. After cheering wildly at an exciting football game, your body may begin to relax on the way home. This relaxation reflects activity of the \_\_\_\_\_ nervous system.
- parasympathetic
  - sympathetic
  - somatic
  - iconic

ANS: A                    DIF: Moderate        REF: 57

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

127. Yanny is sitting in his psychology class listening to a lecture on the brain. Knowing what you know about the nervous system, which branch of Yanny's nervous system is most likely controlling the function of his internal organs as he sits in class?
- Somatic
  - Sympathetic
  - Parasympathetic
  - Endocrine

ANS: C                    DIF: Moderate        REF: 57

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

128. Kiesha was driving in her car when a tractor-trailer pulled out in front of her and almost caused an accident. Which branch of Kiesha's nervous system would be most responsible for the functioning of Kiesha's internal organs during this crisis?
- Somatic
  - Sympathetic
  - Parasympathetic
  - Endocrine

ANS: B                    DIF: Moderate        REF: 56

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

129. Damon is giving a speech in his geography class and is very nervous. Because he is nervous, Damon's sympathetic nervous system is in high gear. Which of the following symptoms is Damon *not* likely to experience as a result of the functioning of his sympathetic nervous system?
- a. Increased digestion
  - b. Increased heart rate
  - c. Dilated pupils
  - d. Increased respiration

ANS: A                      DIF: Moderate                      REF: 56-57

OBJ: Is the Nervous System a Single System?

MSC: TYPE: Applied

130. Which of the following is *not* part of the hindbrain?
- a. Medulla
  - b. Cerebellum
  - c. Hippocampus
  - d. Pons

ANS: C                      DIF: Moderate                      REF: 58-60

OBJ: How Is the Brain Organized?

MSC: TYPE: Factual

131. Whereas the hindbrain is the \_\_\_\_\_ part of the brain, the forebrain is the \_\_\_\_\_ part of the brain.
- a. emotional; physical
  - b. physical; life-sustaining
  - c. intellectual; emotional
  - d. basic; sophisticated

ANS: D                      DIF: Moderate                      REF: 58

OBJ: How Is the Brain Organized?

MSC: TYPE: Conceptual

132. The medulla is responsible for
- a. decision-making.
  - b. biological drives such as hunger and thirst.
  - c. voluntary movement.
  - d. heartbeat and respiration.

ANS: D                      DIF: Easy                      REF: 58

OBJ: How Is the Brain Organized?

MSC: TYPE: Factual

133. The pons is part of the
- a. forebrain.
  - b. midbrain.
  - c. hindbrain.
  - d. spinal cord.

ANS: C                      DIF: Easy                      REF: 58-59

OBJ: How Is the Brain Organized?

MSC: TYPE: Factual

134. What do the medulla and the pons have in common? They are both
- part of the midbrain.
  - crucial to life.
  - responsible for arm and leg movement.
  - all of these choices

ANS: B                    DIF: Moderate        REF: 58                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

135. Of the following, alcohol primarily impairs the functioning of the
- medulla.
  - cerebellum.
  - thalamus.
  - amygdala.

ANS: B                    DIF: Moderate        REF: 59-60                OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

136. If you were in an accident and suffered severe damage to your medulla, your doctors would be most concerned about whether or not you would be able to
- see.
  - hear.
  - remember.
  - breathe.

ANS: D                    DIF: Easy                REF: 58                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

137. A person whose cerebellum is damaged would most likely experience problems with
- breathing.
  - thinking.
  - physical coordination.
  - consciousness.

ANS: C                    DIF: Easy                REF: 59                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

138. If a person's reticular formation were damaged but his medulla was not, it is most likely that the person would be
- unconscious.
  - dead.
  - unable to digest food.
  - unable to swallow.

ANS: A                    DIF: Moderate        REF: 60                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

139. Which of the following plays an important role in sleep, attention, and consciousness?
- Limbic system
  - Cerebellum
  - Hippocampus
  - Reticular formation

ANS: D                    DIF: Moderate            REF: 60                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

140. The medulla is to \_\_\_\_\_ as the reticular formation is to \_\_\_\_\_.
- muscle movement; emotion
  - judgment; vision
  - breathing; arousal
  - pleasure drives; aggression

ANS: C                    DIF: Moderate            REF: 58, 60                OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

141. Which of the following is *not* a structure in the forebrain?
- Medulla
  - Hippocampus
  - Thalamus
  - Amygdala

ANS: A                    DIF: Easy                    REF: 58                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

142. Recent research has shown that people suffering from autism or Asperger syndrome experience abnormal activity in the
- medulla.
  - cerebellum.
  - pons.
  - amygdala.

ANS: D                    DIF: Moderate            REF: 61                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

143. Contrary to the structures of the hindbrain and the midbrain, most structures of the forebrain are
- duplicated in right and left hemispheres.
  - largely made up of neurons and glial cells.
  - not able to communicate with each other.
  - not part of the central nervous system.

ANS: A                    DIF: Difficult            REF: 60                    OBJ: How Is the Brain Organized?  
KEY: WWW                MSC: TYPE: Conceptual

144. Recent research has indicated that the amygdala may play a role in how we
- perceive and respond to emotion-evoking stimuli.
  - process and remember factual information, such as names and dates.
  - develop a tolerance for addictive substances.
  - move from various states of consciousness, such as from wakefulness to sleep.

ANS: A                    DIF: Difficult            REF: 61                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

145. Your ability to experience happiness and pleasure is probably most dependent upon which brain structure?
- a. The limbic system
  - b. The occipital lobe
  - c. The thalamus
  - d. The corpus callosum

ANS: A                      DIF: Moderate                      REF: 60                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

146. If you are unable to remember any of the events or episodes of your life, it may be because of damage to your
- a. frontal lobe.
  - b. occipital lobe.
  - c. hippocampus.
  - d. pons.

ANS: C                      DIF: Moderate                      REF: 61                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

147. Which of the following is *false* regarding the case of H.M. presented in the textbook?
- a. The surgery to reduce his epileptic seizures destroyed his hippocampus.
  - b. His brain lesions led to an inability to remember the faces of family members.
  - c. Even though his brain lesions led to some memory problems, he was still able to learn new motor skills.
  - d. All of these choices are false

ANS: B                      DIF: Difficult                      REF: 61                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

148. Based on the case of H.M., the hippocampus appears to be important in
- a. experiencing pleasurable sensations.
  - b. sustaining life.
  - c. making logical judgments.
  - d. forming memories for events.

ANS: D                      DIF: Moderate                      REF: 61                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

149. Most of the input from our senses travels through the \_\_\_\_\_ on the way to the appropriate part of the cortex for further processing.
- a. hypothalamus
  - b. pons
  - c. thalamus
  - d. hippocampus

ANS: C                      DIF: Moderate                      REF: 63                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

150. What do H.M. and taxi drivers in London have in common? They both have
- been found to have enlarged amygdalae and corresponding aggression.
  - an underactive septum.
  - been the focus of study for what happens in the hippocampus.
  - a habit of wanting to drive on the left side of the road.

ANS: C                    DIF: Moderate            REF: 61-62            OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

151. Based on the research conducted with London taxi drivers, it can be concluded that
- the drivers' larger hippocampi caused them to be able to remember complicated routes.
  - remembering complicated routes caused the drivers' hippocampi to grow in size.
  - there was an association between the drivers remembering complicated routes and having a larger hippocampus.
  - all of these choices

ANS: C                    DIF: Difficult            REF: 62            OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

152. Research presented in the textbook suggests that the hippocampus plays a role in which of the following?
- Memory and stress
  - Pleasure and pain
  - Hunger and thirst
  - Surprise and fear

ANS: A                    DIF: Moderate            REF: 61-62            OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

153. The thalamus is to \_\_\_\_\_ as the hypothalamus is to \_\_\_\_\_.
- sensation; perception
  - relay station; homeostasis
  - pleasure; movement
  - emotion; intellect

ANS: B                    DIF: Moderate            REF: 63            OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

154. The hypothalamus
- serves as the point of connection between the nervous system and the endocrine system.
  - helps to maintain homeostasis in the body.
  - regulates important biological motives such as hunger and sleep.
  - all of these choices

ANS: D                    DIF: Easy            REF: 63            OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

155. Which one of the following is *not* a lobe of the cortex?
- a. Frontal
  - b. Parietal
  - c. Medial
  - d. Occipital

ANS: C                      DIF: Moderate              REF: 64                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

156. Which of the following is *true* regarding the cortex?
- a. The cortex is primarily responsible for life-sustaining processes.
  - b. The cortex is the thin wrinkled layer of tissue covering the cerebral hemispheres.
  - c. The cortex appears white in color due to the presence of myelin on the axons of its neurons.
  - d. All of these choices

ANS: B                      DIF: Moderate              REF: 63                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

157. If your body is having difficulty maintaining homeostasis in temperature, thirst, or hunger, it may be due to damage to your
- a. hypothalamus.
  - b. hippocampus.
  - c. pons.
  - d. thalamus.

ANS: A                      DIF: Moderate              REF: 63                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

158. If your thalamus was damaged, you would probably have the most difficulty
- a. breathing.
  - b. remembering.
  - c. walking.
  - d. seeing.

ANS: D                      DIF: Difficult              REF: 63                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

159. The structure in the brain that plays the biggest role in physiological motivation is the
- a. hippocampus.
  - b. hypothalamus.
  - c. amygdala.
  - d. thalamus.

ANS: B                      DIF: Difficult              REF: 63                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

160. One of the reasons that you may not want to spend money to attend a seminar on becoming more of a right-brain thinker is that recent research shows that
- all important thinking actually occurs in the left hemisphere.
  - the right hemisphere is more resistant than the left hemisphere to change.
  - the right hemisphere is actually the verbal side, and the left hemisphere is the creative side.
  - both sides work together in most intellectual and behavioral tasks.

ANS: D                    DIF: Moderate            REF: 65                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

161. The most convoluted and folded cortex would belong to a
- human.
  - whale.
  - cat.
  - rat.

ANS: A                    DIF: Easy                    REF: 63                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

162. Wernicke's area is to \_\_\_\_\_ as Broca's area is to \_\_\_\_\_.
- sensing touch; responding to touch
  - seeing; hearing
  - understanding speech; producing speech
  - emotional processing; intellectual processing

ANS: C                    DIF: Moderate            REF: 64                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

163. Damage to \_\_\_\_\_ typically leads to an inability to \_\_\_\_\_.
- Broca's area; recognize faces
  - the frontal lobe; perceive visual stimuli
  - Wernicke's area; understand spoken language
  - the corpus callosum; regulate emotional behavior

ANS: C                    DIF: Moderate            REF: 64                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

164. Which part of the brain forms the outside covering of the hemispheres?
- The forebrain
  - The corpus callosum
  - The anterior commissure
  - The cortex

ANS: D                    DIF: Easy                    REF: 63                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

165. Although both hemispheres of the cortex work together, the left hemisphere seems to be more active during \_\_\_\_\_ processing while the right hemisphere seems to be more active during \_\_\_\_\_ processing.
- a. emotional; intellectual
  - b. linguistic; spatial
  - c. intellectual; emotional
  - d. spatial; linguistic

ANS: B                    DIF: Factual                    REF: 64-65                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

166. The lobes of the brain tend to be wired contralaterally, which means that
- a. the major pathways run perpendicular to each other.
  - b. the corpus callosum runs from the front to the back.
  - c. each hemisphere governs the opposite side of the body.
  - d. both sides work together in most intellectual and behavioral tasks.

ANS: C                    DIF: Difficult                    REF: 64                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

167. Regarding male-female differences in the brain, research presented in the textbook suggests that
- a. female brains are larger and contain more cortical cells.
  - b. the anterior commissure tends to be larger in females.
  - c. the anterior commissure tends to be larger in males.
  - d. there is a clear relationship between brain differences and gender differences.

ANS: B                    DIF: Difficult                    REF: 65                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

168. Michael Gazzaniga's split-brain patients
- a. were unable to name objects they saw in their left visual field.
  - b. could not determine the direction of sounds in the environment.
  - c. had difficulty determining body position.
  - d. gradually developed two separate personalities.

ANS: A                    DIF: Factual                    REF: 66                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

169. If a person's brain is examined and found to be smaller and have a larger number of connections between hemispheres than average, the person is more likely to be \_\_\_\_\_ than \_\_\_\_\_.
- a. female; male
  - b. intelligent; unintelligent
  - c. young; old
  - d. black; white

ANS: A                    DIF: Moderate                    REF: 65                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

170. A person with a split-brain is most likely to have suffered from
- muscular dystrophy.
  - epilepsy.
  - schizophrenia.
  - dissociative identity disorder.

ANS: B                    DIF: Easy                    REF: 66                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

171. When information is received only in the right hemisphere of a split-brain patient, the patient is
- able to verbally describe it, but cannot draw a picture of it.
  - unable to understand the information.
  - unable to verbally describe it.
  - unable to draw a picture of it.

ANS: C                    DIF: Moderate                    REF: 66                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

172. The motor cortex is located in which lobe of the cortex?
- Parietal
  - Occipital
  - Temporal
  - Frontal

ANS: D                    DIF: Moderate                    REF: 67                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

173. Motor-sensory cortex areas comprise about \_\_\_\_\_ percent of the cortex, and association cortex areas comprise about \_\_\_\_\_ percent of the cortex.
- 75; 25
  - 25; 75
  - 40; 60
  - 60; 40

ANS: B                    DIF: Difficult                    REF: 67                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

174. If Phineas Gage had received damage to the back portion of his frontal lobe, he most likely would have had difficulty
- hearing.
  - moving.
  - seeing.
  - feeling.

ANS: B                    DIF: Easy                    REF: 67                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

175. Broca's area is located in the \_\_\_\_\_ lobe of the cortex.
- right temporal
  - left frontal
  - right frontal
  - left temporal

ANS: B                    DIF: Moderate            REF: 64                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

176. Based on the experience of Phineas Gage, who accidentally had a metal rod shot through part of his head, it appears that the
- occipital lobe regulates visual perception.
  - occipital lobe regulates the sense of touch and temperature.
  - frontal lobe regulates judgment and emotional response.
  - frontal lobe regulates motor control.

ANS: C                    DIF: Moderate            REF: 67                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

177. Which of the following represents an accurate association between lobes of the cortex and function?
- Occipital lobe – visual
  - Temporal lobe – somatosensory
  - Frontal lobe – auditory
  - Parietal lobe – motor

ANS: A                    DIF: Moderate            REF: 67-68                OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

178. Which of the following represents an accurate association between lobes of the cortex and function?
- Occipital lobe – auditory
  - Temporal lobe – motor
  - Frontal lobe – visual
  - Parietal lobe – somatosensory

ANS: D                    DIF: Moderate            REF: 67-68                OBJ: How Is the Brain Organized?  
MSC: TYPE: Conceptual

179. Tan was in a diving accident. He hit his head on some rocks and suffered severe damage to his brainstem. In particular, he damaged his medulla. Knowing what you know about the brain, what effect will this injury most likely have on Tan?
- He will have difficulty balancing his body.
  - He will have problems with his short-term memory.
  - He will have problems with his vision.
  - He will have problems sustaining life.

ANS: D                    DIF: Moderate            REF: 58                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

180. Which of the following represents an accurate association between lobes of the cortex and function?
- a. Temporal lobe – somatosensory
  - b. Frontal – motor
  - c. Occipital – auditory
  - d. Parietal – visual

ANS: B                      DIF: Moderate              REF: 67-68              OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

181. Part of the reason that Jean-Dominique Bauby was unable to move his body or make sense of sensory information after his stroke was likely due to the damage to his
- a. amygdala.
  - b. hippocampus.
  - c. pons.
  - d. septum.

ANS: C                      DIF: Moderate              REF: 59                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

182. A drunken person's staggering is most likely due to sedation of which hindbrain structure?
- a. Medulla
  - b. Reticular activating system (RAS)
  - c. Midbrain
  - d. Cerebellum

ANS: D                      DIF: Moderate              REF: 59-60              OBJ: How Is the Brain Organized?  
KEY: WWW              MSC: TYPE: Applied

183. At age 60, Francine had a stroke that damaged her right temporal lobe. The damage was so severe that this lobe was almost completely destroyed. What effect would you expect this injury to have on Francine?
- a. She would be paralyzed on her left side.
  - b. She would be unable to comprehend language.
  - c. She would be numb on her left side.
  - d. She would have some deafness.

ANS: D                      DIF: Difficult              REF: 68                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

184. Tran suffered a head injury last fall in a car accident. Since the accident, friends have noticed that when speaking on the phone, Tran no longer seems to be able to tell when his friends are angry. Knowing what you know about the brain, the most likely site of Tran's brain damage is the
- a. pons.
  - b. amygdala.
  - c. hippocampus.
  - d. hypothalamus.

ANS: B                      DIF: Difficult              REF: 61                      OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

185. Olga was in an accident that damaged her hippocampus. What is the most likely effect of such an injury?
- An inability to recall events that occurred prior to her brain damage
  - An inability to recall events that occurred after her brain damage
  - Emotional problems
  - An inability to comprehend spoken language

ANS: B                    DIF: Moderate            REF: 61                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

186. Gillian is taking a drug for a medical condition. Unfortunately, one of the side effects of this drug is that it disrupts the functioning of her hypothalamus. This side effect is likely to cause which of the following symptoms in Gillian?
- Fluctuations in body temperature
  - Sleep disturbances
  - Changes in appetite
  - All of these choices

ANS: D                    DIF: Moderate            REF: 63                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

187. Uri had a stroke that damaged very large parts of his left frontal lobe. What effect(s) would this damage most likely have on Uri's behavior?
- Paralysis on his right side
  - Trouble comprehending speech
  - Trouble producing speech
  - Both paralysis on his right side and trouble producing speech

ANS: D                    DIF: Moderate            REF: 67                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

188. In an attempt to lessen Ashante's epileptic seizures, doctors performed a split-brain surgery on her. In this procedure, the surgeons would cut which part of Ashante's brain?
- The RAS
  - The hippocampus
  - The corpus callosum
  - The temporal lobe

ANS: C                    DIF: Easy                    REF: 66                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Applied

189. Which brain imaging techniques allow for the observation of structure but do not allow observation of brain activity?
- PET scan and SPECT scan
  - Angiogram and fMRI scan
  - MRI scan and fMRI scan
  - CAT scan and MRI scan

ANS: D                    DIF: Difficult            REF: 70  
OBJ: How Do We Study the Brain?            MSC: TYPE: Conceptual

190. Which of the following allows brain researchers the best opportunity to view the activity of a single cell or organ?
- a. MRI scan
  - b. SPECT scan
  - c. fMRI scan
  - d. CAT scan

ANS: C                    DIF: Difficult                    REF: 70  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Factual

191. If your neurosurgeon wanted get a good picture of your brain in action, she would most likely use a(n)
- a. CAT scan.
  - b. MRI scan.
  - c. angiogram.
  - d. PET scan.

ANS: D                    DIF: Moderate                    REF: 70  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Conceptual

192. Electroencephalograms are useful for measuring
- a. electrical activity in large areas of the brain.
  - b. the structure and size of brain organs.
  - c. neurotransmitter activity between neurons in the nervous system.
  - d. blood flow in the central nervous system.

ANS: A                    DIF: Easy                    REF: 71  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Factual

193. Researchers wish to know which part of a rat's brain is most active as the rat listens to music. Which of the following technologies is least likely to be useful to the researchers in this situation?
- a. An fMRI
  - b. An MRI
  - c. A PET scan
  - d. A SPECT scan

ANS: B                    DIF: Easy                    REF: 70  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Applied

194. Doctors suspect that Abdul has a blood clot on his brain. Which of the following technologies would be most useful in this situation?
- a. Brain stimulation
  - b. An EEG
  - c. A PET scan
  - d. An angiogram

ANS: D                    DIF: Easy                    REF: 70  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Applied

195. If a doctor wanted to create a “map” of the brain, which method would be best to use?
- TMS
  - EEG
  - MRI
  - PET

ANS: A                    DIF: Moderate                    REF: 71  
OBJ: How Do We Study the Brain?                    KEY: WWW                    MSC: TYPE: Applied

196. For researchers to study specific neural networks in the brain’s white matter, the best methodology to use would be
- DTI.
  - TMS.
  - EEG.
  - fMRI.

ANS: A                    DIF: Moderate                    REF: 70  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Applied

197. In contrast to the endocrine system, the nervous system
- is faster acting.
  - is purely chemical in nature.
  - produces longer-lasting changes.
  - is not responsible for reflexive behavior.

ANS: A                    DIF: Moderate                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Conceptual

198. The two major communication systems within the body are the \_\_\_\_\_ system and the \_\_\_\_\_ system.
- limbic; diencephalons
  - sympathetic; parasympathetic
  - nervous; endocrine
  - cortical; electrical

ANS: C                    DIF: Easy                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

199. The nervous system is to \_\_\_\_\_ as the endocrine system is to \_\_\_\_\_ .
- growth and development; sleep and hunger
  - sleep and hunger; growth and development
  - slow acting; fast acting
  - fast acting; slow acting

ANS: D                    DIF: Factual                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
KEY: WWW                    MSC: TYPE: Conceptual

200. The nervous system and the endocrine system
- always work independently from each other.
  - often work together to influence biological activity.
  - work together only during reflex activity.
  - never work together to influence biological activity.

ANS: B                    DIF: Moderate            REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Conceptual

201. In the nervous system information is passed through the body's \_\_\_\_\_, while in the endocrine system, information is passed through the body's \_\_\_\_\_.
- glial cells; neurons
  - bloodstream; neurons
  - neurons; bloodstream
  - neurons; glial cells

ANS: C                    DIF: Easy                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Conceptual

202. When we are motivated to engage in sexual activity, hormones of the \_\_\_\_\_ system may play a large role in this motivation.
- endocrine
  - extrapyramidal
  - nervous
  - interstitial

ANS: A                    DIF: Easy                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Conceptual

203. The structure in the brain that connects the endocrine system and the nervous system is the
- hippocampus.
  - hypothalamus.
  - amygdala.
  - thalamus.

ANS: B                    DIF: Moderate            REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

204. Hormones in the endocrine system
- have a shorter-lasting effect than neurotransmitters in the nervous system.
  - exert a quicker effect than neurotransmitters in the nervous system.
  - are regulated by the hippocampus, which is part of the nervous system.
  - are primarily released by special organs in the body in response to signals from the pituitary gland.

ANS: D                    DIF: Moderate            REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

205. The sex hormones called estrogens are produced by the \_\_\_\_\_, while the sex hormones called androgens are produced by the \_\_\_\_\_.
- adrenal glands; thyroid glands
  - thyroid glands; adrenal glands
  - testes; ovaries
  - ovaries; testes

ANS: D                    DIF: Easy                    REF: 72-73  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Conceptual

206. When the sympathetic nervous system is active, the \_\_\_\_\_ releases epinephrine and norepinephrine into the bloodstream, helping to increase respiration, heart rate, and blood pressure.
- thyroid gland
  - adrenal medulla
  - pituitary gland
  - striate cortex

ANS: B                    DIF: Difficult                    REF: 73  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

207. Which of the following represents the correct sequence for secretion of hormones?
- Hypothalamus, pituitary gland, endocrine glands, organs of the body
  - Endocrine glands, hypothalamus, organs of the body, pituitary gland
  - Pituitary gland, organs of the body, hypothalamus, endocrine glands
  - Organs of the body, endocrine glands, pituitary gland, hypothalamus

ANS: A                    DIF: Difficult                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

208. Hypothyroidism (underactive thyroid) is related to symptoms that often mimic those of
- depression.
  - anxiety.
  - schizophrenia.
  - borderline personality disorder.

ANS: A                    DIF: Moderate                    REF: 73  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

209. Hal is a 54-year-old man. Which of the following hormones will Hal have in his body?
- Androgens
  - Estrogens
  - Norepinephrine
  - All of these choices

ANS: D                    DIF: Moderate                    REF: 73  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Applied

210. Gino suffers from hypothyroidism. Which of the following symptoms is least likely to be found in this condition?
- Being overweight
  - Being tired
  - Bulging eyes
  - Thin, brittle hair

ANS: C                    DIF: Moderate            REF: 73  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Applied

211. In the nature-nurture debate, nature refers to \_\_\_\_\_, and nurture refers to \_\_\_\_\_.
- environment; parenting
  - environment; genes
  - genes; environment
  - parenting; environment

ANS: C                    DIF: Moderate            REF: 74  
OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
MSC: TYPE: Conceptual

212. If you believe that the environment is the major factor that determines individual differences, you are on the \_\_\_\_\_ side of the nature-nurture debate.
- conservative
  - liberal
  - nurture
  - nature

ANS: C                    DIF: Easy                    REF: 74  
OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
MSC: TYPE: Conceptual

213. Creativity provides a good example of the fact that most of our traits are due to
- genes primarily.
  - environment primarily.
  - genes primarily, with a small effect from environment.
  - the interaction between genes and environment.

ANS: D                    DIF: Easy                    REF: 76  
OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
MSC: TYPE: Conceptual

214. Today, the dominant perspective on the nature-nurture debate is interactionism, which is the view that
- nature is most important, but nurture interacts with it to determine traits and behavior.
  - nurture is most important, but nature interacts with it to determine traits and behavior.
  - depending upon the specific trait or behavior, both nature and nurture can be important through their interaction with each other.
  - neither nature nor nurture are as important in determining traits and behavior as the spiritual and existential context of the individual's life.

ANS: C                    DIF: Easy                    REF: 76  
OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
MSC: TYPE: Factual

215. Genes help determine traits and behaviors by
- instructing neurotransmitters where to be released into the nervous system.
  - directing the development of various proteins within cells of the body.
  - controlling the release of hormones to promote the development of the body.
  - facilitating the movement of ionized particles across the membranes of axons in the brain.

ANS: B                    DIF: Moderate            REF: 74

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Factual

216. The actual genetic code that we inherit from our parents is called the
- genotype.
  - phenotype.
  - isotype.
  - karyotype.

ANS: A                    DIF: Easy                    REF: 76

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Factual

217. Dr. Lamson believes that our development is directed by both our genes and environmental influences. Dr. Lamson's point of view reflects the \_\_\_\_\_ perspective on the nature-nurture debate.
- nature
  - nurture
  - determinism
  - interactionist

ANS: D                    DIF: Easy                    REF: 76

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Applied

218. Joe is interested in understanding how the environment can alter the function of genes in one's body even when the DNA sequence of the gene is not actually altered. Joe is interested in
- interactionism.
  - epigenetics.
  - genotype.
  - natural selection.

ANS: B                    DIF: Easy                    REF: 76

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Applied

219. I have medium brown hair. The exact shade of my hair most represents my \_\_\_\_\_ for hair color.
- phenotype
  - genotype
  - genes
  - environmental influences

ANS: A                    DIF: Easy                    REF: 77

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Applied

220. Genotype refers to
- a trait that is entirely, or nearly entirely, due to the effect of nurture.
  - the actual trait or behavior that we develop as a result of nature-nurture interaction.
  - the genetic code that we inherit from our parents.
  - a classification used to describe individuals who are fundamentally different from others.

ANS: B                    DIF: Moderate        REF: 76

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Factual

221. The Human Genome Project found that the total number of genes in the human genome is
- 10,000.
  - 30,000.
  - 75,000.
  - 100,000.

ANS: B                    DIF: Moderate        REF: 76

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Factual

222. Charles Darwin's book, *On the Origin of Species by Means of Natural Selection*, in which he outlined his views of evolution, was first published in
- 1789.
  - 1801.
  - 1859.
  - 1929.

ANS: C                    DIF: Moderate        REF: 77

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Factual

223. Charles Darwin's theory of natural selection maintains that
- traits acquired through experience that promote survival are inherited by future generations.
  - individuals and species with the most unique genetic profiles will be the ones to survive and flourish.
  - genes that promote the ability to successfully use aggression against opponents are the most important.
  - genetic traits that facilitate the ability to reproduce will be passed on to offspring.

ANS: D                    DIF: Difficult        REF: 77

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Factual

224. Given the current state of the world, which of the following human traits would you most expect to see selected through natural selection over the next 100,000 years?
- Being prone to obesity
  - Being prone to high cholesterol
  - Having very fair skin
  - Being resistant to the HIV virus

ANS: D                    DIF: Difficult        REF: 77

OBJ: What Makes Us Who We Are--Our Biology or the Environment?

MSC: TYPE: Applied

225. Where in the brain are the effects of evolution on human intelligence most evident?
- The amygdala
  - The septum
  - The cortex
  - The cerebellum

ANS: C                    DIF: Moderate        REF: 77  
 OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
 MSC: TYPE: Applied

226. The Hardell group has found that
- cell phone use clearly does not cause cancer.
  - cell phone use clearly does cause cancer.
  - cell phone use for 10 years or more is associated with increased risk for some cancers.
  - cell phone use is safest for those under the age of 20.

ANS: C                    DIF: Moderate        REF: 75  
 OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
 MSC: TYPE: Conceptual

**TRUE/FALSE**

1. Glial cells outnumber neurons.

ANS: F                    DIF: Moderate        REF: 43  
 OBJ: How Does the Brain Communicate?                    MSC: TYPE: Factual

2. When information passes from one neuron to another one, the information is transmitted from the presynaptic neuron's dendrites to the postsynaptic neuron's axon.

ANS: F                    DIF: Moderate        REF: 44-45  
 OBJ: How Does the Brain Communicate?                    KEY: WWW  
 MSC: TYPE: Factual

3. The action potential is created when hydrogen (H<sup>+</sup>) ions flood into the neuron.

ANS: F                    DIF: Easy              REF: 46  
 OBJ: How Does the Brain Communicate?                    MSC: TYPE: Factual

4. A neuron can receive both excitatory and inhibitory signals from presynaptic neurons.

ANS: T                    DIF: Moderate        REF: 48  
 OBJ: How Does the Brain Communicate?                    KEY: WWW  
 MSC: TYPE: Factual

5. The chief excitatory neurotransmitter in the central nervous system is GABA.

ANS: F                    DIF: Moderate        REF: 53  
 OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
 MSC: TYPE: Factual

6. Usually only one type of neurotransmitter is present within a synapse.

ANS: F                    DIF: Difficult            REF: 48-50  
OBJ: How Does the Brain Communicate?                    MSC: TYPE: Factual

7. Norepinephrine is thought to play a role in the development of synapses during childhood.

ANS: T                    DIF: Difficult            REF: 53  
OBJ: How Do Neurotransmitters, the Brain's Chemical Messengers, Work?  
KEY: WWW                    MSC: TYPE: Factual

8. The parasympathetic nervous system springs into action under conditions of intense stress.

ANS: F                    DIF: Moderate            REF: 57  
OBJ: Is the Nervous System a Single System?                    KEY: WWW  
MSC: TYPE: Factual

9. The amygdala is part of the limbic system.

ANS: T                    DIF: Difficult            REF: 60-61                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

10. The two hemispheres of the cerebral cortex communicate with each other via the corpus callosum.

ANS: T                    DIF: Moderate            REF: 65                    OBJ: How Is the Brain Organized?  
MSC: TYPE: Factual

11. PET scans allow brain researchers to see brain structure, but not brain activity.

ANS: F                    DIF: Moderate            REF: 70  
OBJ: How Do We Study the Brain?                    MSC: TYPE: Factual

12. In contrast to the nervous system, the endocrine produces longer-lasting influences on the body.

ANS: T                    DIF: Easy                    REF: 72  
OBJ: How Does the Endocrine System Influence Our Behavior?  
KEY: WWW                    MSC: TYPE: Factual

13. Ovaries and testes are part of the endocrine system.

ANS: T                    DIF: Easy                    REF: 73  
OBJ: How Does the Endocrine System Influence Our Behavior?  
MSC: TYPE: Factual

14. The most dominant view in the nature-nurture debate today is interactionism.

ANS: T                    DIF: Easy                    REF: 76  
OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
MSC: TYPE: Factual

15. Modern evolutionary theorists believe that with the exception of language, problem-solving, and planning skills, most other human skills have developed through the process of natural selection.

ANS: F                    DIF: Moderate        REF: 76  
OBJ: What Makes Us Who We Are--Our Biology or the Environment?  
MSC: TYPE: Factual

### SHORT ANSWER

1. Describe the similarities and differences between the nervous and endocrine systems.

ANS: Answer not provided

2. Describe the basic processes involved in the transmission of information from the beginning of one neuron to the beginning of the next neuron.

ANS: Answer not provided

3. Identify three different types of neurotransmitters and describe their typical effects in the brain.

ANS: Answer not provided

4. Describe three different physical or psychological disorders and the element or elements of the nervous system that seem to be at the root of each disorder.

ANS: Answer not provided

5. Describe the basic structure of the nervous system (including its subsystems) in the human body.

ANS: Answer not provided

6. Identify four structures of the brain and the major functions of each.

ANS: Answer not provided

7. Describe the basic structure of the brain including the locations of the hindbrain, midbrain, and forebrain and their important components.

ANS: Answer not provided

8. Describe the effect of having a split-brain, including what would happen if information were given to either the right or the left hemisphere and not the other one.

ANS: Answer not provided

9. Describe the techniques that scientists use to image or study the brain along with their advantages and limitations.

ANS: Answer not provided

10. Describe the nature-nurture debate and the elements of this debate that psychologists have studied.

ANS: Answer not provided