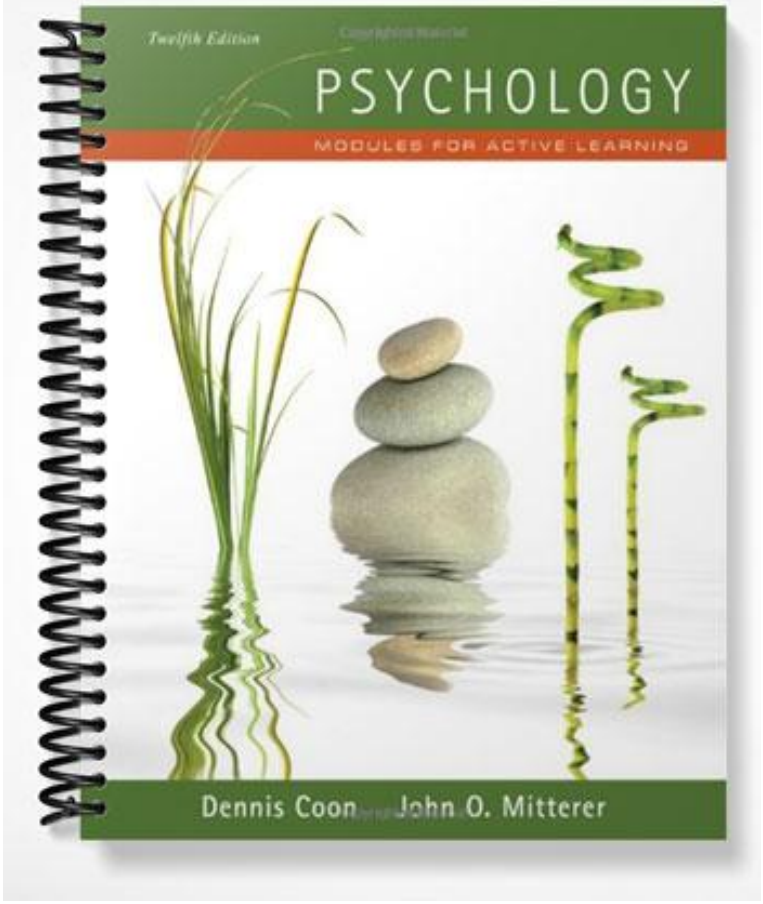
TEST BANK


Twelfth Edition
PSYCHOLOGY
MODULES FOR ACTIVE LEARNING
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Chapter 2: Brain and Behavior
Module 2.1

MULTIPLE CHOICE

1. The brain consists of approximately 100 billion nerve cells called
   a. somas.
   b. nuclei.
   c. neurotransmitters.
   d. neurons.

   ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

2. The billions of neurons in the brain are accompanied by an almost equal number of other cells whose function is to support the neurons in a variety of ways. These cells are called
   a. effector cells.
   b. glial cells.
   c. vesiicles.
   d. myelins.

   ANS: B DIF: Moderate REF: Module 2.1 KEY: *
   MSC: TYPE: Fact

3. The individual nerve cells specialized to carry and process information are called
   a. neurotransmitters.
   b. synapses.
   c. ions.
   d. neurons.

   ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

4. Regarding neurons, which of the following statements is FALSE?
   a. Neurons carry information from the senses to the brain and also activate muscles and glands.
   b. Individual neurons link to one another in tiny clumps and long "chains" with vast networks of neurons being required to produce intelligence and consciousness.
   c. The axons are the tree-root like parts of neurons that are specially designed to receive the messages from other neurons.
   d. Glial cells accompany the neurons in the brain and support the neurons in a variety of ways.

   ANS: C DIF: Moderate REF: Module 2.1 KEY: *
   MSC: TYPE: Fact

5. Neurons are made up of dendrites, a soma, and
   a. axons.
   b. synapses.
   c. diatons.
   d. peptides.

   ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

6. Once information is received at the dendrites, it next flows into the
   a. soma.
   b. axon.
   c. myelin sheath.
   d. glial cell.

   ANS: A DIF: Easy REF: Module 2.1 KEY: *
   MSC: TYPE: Fact

7. The part of the neuron that specializes in receiving messages from other neurons is the
   a. axon.
   b. nucleus.
   c. teodendria.
   d. dendrite.

   ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

8. The cell body of a neuron is also called the
   a. dendrite.
   b. axon.
   c. myelin.
   d. soma.

   ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

9. The soma is the part of the nerve cell that
   a. transmits information to the next neuron.
   b. collects and combines incoming information.
   c. carries nerve impulses over large distances.
   d. forms branching connections at the end of each axon.

   ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

10. The part of the neuron which collects and combines information is called the
    a. axon.
    b. axon terminal.
    c. ion channels.
    d. soma.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

11. The part of the nerve cell that carries information away from the cell body to other neurons is the
    a. axon.
    b. dendrite.
    c. soma.
    d. synapse.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

12. The part of the neuron that sends information to other neurons "branches out" into smaller fibers, which end in bulb-shaped parts known as
    a. myelin sheaths.
    b. ion channels.
    c. dendritic arcs.
    d. axon terminals.

    ANS: D DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

13. Which bulb-shaped structures found at the end of neurons form connections with the dendrites and somas of other neurons and allow information to pass from neuron to neuron?
    a. myelin sheaths
    b. ion channels
    c. dendritic arcs
    d. axon terminals

    ANS: D DIF: Moderate REF: Module 2.1 KEY: *, www
    MSC: TYPE: Fact

14. Regarding axons, which of the following statements is FALSE?
    a. Some axons are only 0.1 millimeter long.
    b. Some axons stretch up to a meter in length thoughout the nervous system.
    c. Axons "branch out" into slightly larger fibers, which end in several bulb-shaped somas.
    d. The human brain contains about three million miles of axons.

    ANS: C DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

15. Which of the following is NOT a part of a neuron?
    a. axon
    b. axon terminal
    c. synapse
    d. soma

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

16. The electrically charged molecules that are involved in a nerve impulse are called
    a. axons.
    b. dendrites.
    c. ampules.
    d. ions.

    ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

17. Regarding ions, which of the following statements is TRUE?
    a. Ions can be found both inside and outside the nerve cell.
    b. Ions have a positive electric charge while neurons have a negative charge.
    c. Ions have neither a positive nor a negative electrical charge.
    d. Ions can be found only inside the neuron, creating in your brain an electronic charge of about minus 20 millivolts.

    ANS: A DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

18. The charge that exists across the nerve cell membrane is a result of differing
    a. amounts of DNA and RNA.
    b. types of neurotransmitters on either side of the nerve cell membrane.
    c. types of neurons inside and outside the nerve cell membrane.
    d. concentrations of ions on either side of the nerve cell membrane.

    ANS: D DIF: Difficult REF: Module 2.1 MSC: TYPE: Fact

19. When a neuron is inactive, there will be more _____ OUTSIDE the neuron.
    a. positive ions
    b. negative ions
    c. myelin sheaths
    d. neuropeptides

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

20. When a neuron is inactive, there will be more _____ INSIDE the neuron.
    a. positive ions
    b. negative ions
    c. myelin sheaths
    d. neuropeptides

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

21. The fact that the inside of human neurons measures about -70 millivolts compared to the outside of the cell allows each neuron to act like a(n)
    a. tiny battery.
    b. chemical reactor.
    c. ion channel.
    d. shock absorper.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

22. In the nervous system, the electrical charge of an inactive neuron is called its
    a. depolarized state.
    b. resting potential.
    c. action potential.
    d. ionic potential.

    ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

23. A resting potential occurs when a neuron
    a. reaches -50 millivolts.
    b. is inactive.
    c. reaches its threshold.
    d. reaches its trigger point for firing.

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

24. If the electrical charge of the neuron changes to about a minus 50 millivolts, the neuron will reach its _____ for firing.
    a. synaptic potential
    b. negative after-potential
    c. threshold
    d. fusion level

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

25. A neuron's threshold is
    a. another name for its synaptic potential.
    b. another name for its negative after-potential.
    c. when a neuron becomes inactive.
    d. its trigger point for firing.

    ANS: D DIF: Moderate REF: Module 1.2 KEY: *
    MSC: TYPE: Fact

26. The threshold for firing has been reached when the electrical charge of what millivolts occurs within a nerve cell?
    a. – 10
    b. – 50
    c. + 100
    d. + 10

    ANS: B DIF: Difficult REF: Module 2.1 MSC: TYPE: Fact

27. The fastest neurons can send impulses at about _____miles per hour.
    a. 200
    b. 425
    c. 150
    d. 45

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

28. The conduction of a nerve impulse down the axon is called a(n)
    a. ion potential.
    b. action potential.
    c. resting discharge.
    d. synapse.

    ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

29. When a neural impulse is traveling along an axon at about 200 miles per hour, we say that
    a. polarization has begun.
    b. an action potential is occurring.
    c. a negative after-potential has been completed.
    d. a synaptic potential is impossible.

    ANS: B DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

30. After an electrical charge of -50 millivolts meets the threshold for firing within a neuron, we say that a(n) _____ is occurring.
    a. volume gradient
    b. myelination
    c. action potential
    d. resting discharge

    ANS: C DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

31. The channels that transport sodium and potassium within the axon are called _____ channels.
    a. DNA and RNA
    b. membrane
    c. neurons
    d. ion

    ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

32. During an action potential, the axon's ion channels pop open to allow what ions to rush into the axon?
    a. sodium
    b. potassium
    c. chlorine
    d. iodine

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

33. During an action potential, which of the following occurs?
    a. Sodium ions are pumped out of the neuron into the synaptic cleft.
    b. The molecular gates open to allow sodium ions into a neuron.
    c. The electrical stimulation must dip below -70 millivolts and remain so during the action potential.
    d. Neurotransmitters enter the axon through gaps in the myelin sheath.

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

34. When the ion channels first open, they allow sodium ions to rush into the axon at which location?
    a. within the receptor sites of the dendrites
    b. near the axon terminals
    c. near the soma
    d. within the synaptic cleft

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

35. The "all or nothing event" refers to the fact that
    a. nerve cells are continually in an action potential.
    b. action potentials occur completely or not at all.
    c. synaptic transmissions occur completely or not at all.
    d. all the neurons in the brain fire or none of them fire.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

36. Which of the following statements best describes an action potential?
    a. The action potential is strongest when neurilemma is present.
    b. The action potential starts near the synapse.
    c. The action potential occurs when neurotransmitters enter the axon.
    d. The action potential is an all-or-nothing event.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

37. Electrically charged particles of which two elements are crucial in the transmission of the nerve impulse?
    a. iron and sodium
    b. iron and potassium
    c. sodium and nickel
    d. sodium and potassium

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

38. After a nerve impulse, a neuron is temporarily less likely to fire because
    a. the cell is still above its resting level.
    b. potassium ions flow out of the neuron while the ion channels are open.
    c. acetylcholine acts as an inhibitor and blocks a nerve impulse from occurring.
    d. a positive after-potential has occurred.

    ANS: B DIF: Difficult REF: Module 2.1 MSC: TYPE: Concept

39. Negative after-potential refers to
    a. a nerve cell's electrical charge reaching its threshold.
    b. a nerve cell reaching a negative trigger point.
    c. a nerve cell briefly dropping below its resting level.
    d. the axon's readiness for another wave of activity.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

40. A neuron is less willing to fire when it is in a(n)
    a. action potential.
    b. resting potential.
    c. negative after-potential.
    d. depolarized state.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

41. During a negative after-potential, there is an outward flow of which of the following from the axon?
    a. negative charges
    b. potassium ions
    c. neurotransmitters
    d. sodium ions

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

42. The whitish, fatty substance that surrounds the axon and aids conduction of a nerve impulse down the axon is called
    a. myelin.
    b. neurilemma.
    c. synaptic vesicles.
    d. neurotransmitters.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

43. Myelin covers which part(s) of the neuron?
    a. soma
    b. dendrite
    c. axon
    d. all of these parts

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

44. Small gaps in the myelin result in the nerve impulses jumping from gap to gap which cause these nerve impulses to move
    a. faster.
    b. slower.
    c. at a normal speed.
    d. at a declining rate of speed.

    ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

45. The small gaps in the myelin covering of a nerve act to
    a. decrease the speed of transmission of nerve impulses.
    b. increase the speed of transmission of nerve impulses.
    c. decrease or increase the transmission of nerve impulses, depending on the state of the firing neurons.
    d. stimulate the repair of damaged nerve cells.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

46. The process by which nerve impulses are conducted down an axon by jumping from gap to gap in the myelin layer is known as
    a. neuroplasticity.
    b. synaptic transmission.
    c. saltatory conduction.
    d. positive after-potential.

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *, www
    MSC: TYPE: Fact

47. Saltatory conduction refers to
    a. a drop in the electrical charge of the neuron below its resting potential.
    b. the capacity of our brains to change in response to experience.
    c. the simplest behavior, in which a stimulus provokes an automatic response.
    d. a nerve impulse jumping from gap to gap in the myelin layer.

    ANS: D DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

48. The word salutatory comes from the Latin word saltare, which means to
    a. slow or stop.
    b. repeat or return.
    c. hop or leap.
    d. salute or talk.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

49. The purpose of the myelin that surrounds the axon is to
    a. keep nerve cells continually active.
    b. help electrical currents cross the synapse completely.
    c. repair neurons within the peripheral nervous system.
    d. speed the transmission of an impulse down the axon.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

50. When a car suddenly brakes in front of you
    a. neurilemma repair the myelin layer so that you can stop.
    b. myelin slows your response time.
    c. small gaps in the myelin speed reaction time.
    d. nerve impulses move faster through the tunnel formed by the myelin.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

51. Multiple sclerosis is a disease in which the immune system attacks and destroys
    a. the nuclei of nerve cells.
    b. neurilemma.
    c. the receptor sites.
    d. myelin.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

52. Which of the following is a disease in which the immune system attack and destroys the myelin in a person's body, causing a person to experience numbness, weakness, or paralysis?
    a. rheumatoid arthritis
    b. multiple sclerosis
    c. Huntington's disease
    d. muscular dystrophy

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Facgt

53. Miriam has been suffering from numbness, weakness, and partial paralysis. Miriam's doctor told her that her immune system has attacked and destroyed the myelin in her body causing her to have
    a. rheumatoid arthritis.
    b. multiple sclerosis.
    c. Huntington's disease.
    d. muscular dysthrophy.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

54. The action potential is an all or nothing event that is primarily
    a. 25 percent electrical and 75 percent chemical.
    b. 50 percent electrical and 50 percent chemical.
    c. electrical.
    d. chemical.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

55. The passage of information within a single neuron would be described as
    a. chemical.
    b. synaptic.
    c. electrical.
    d. retroactive.

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Concept

56. The communication BETWEEN neurons would be described as
    a. chemical.
    b. electrical.
    c. retroactive.
    d. proactive.

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Concept

57. Communication between neurons would be considered a chemical change involving
    a. sodium ions.
    b. neurotransmitters.
    c. neurilemmas.
    d. potassium ions.

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Concept

58. Neurons “talk” to each other chemically when which of the following are released?
    a. neurilemmas
    b. neurotransmitters
    c. somas
    d. ion channels

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

59. The tiny gaps separating neurons from one another and across which information must be transmitted are known as
    a. synapses.
    b. synaptic vesicles.
    c. receptor sites.
    d. ion channels.

    ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

60. Neurotransmitters are released at the
    a. axon hillock.
    b. myelin sheath.
    c. axon terminals.
    d. telodendria.

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

61. When a nerve impulse reaches the end of the axon, the tiny sacs that store the neurotransmitters move to the surface and release the neurotransmitters. These tiny sacs that store the neurotransmitters are called
    a. myelin sheaths.
    b. synaptic vesicles.
    c. neurilemmas.
    d. ion channels.

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

62. Communication is carried out between neurons when neurotransmitters are released into the
    a. neurilemma tunnel.
    b. synaptic gap.
    c. dendrite furrow.
    d. ion channel.

    ANS: B DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

63. Tiny areas on the surfaces of neurons and other cells that are sensitive to neurotransmitters or hormones are called
    a. axon terminals.
    b. somatic retention areas.
    c. dendritic retention areas.
    d. receptor sites.

    ANS: D DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

64. Receptor sites for neurotransmitters are found in large numbers
    a. on the axon terminals.
    b. on dendrites and cell bodies.
    c. within the ion channels.
    d. on the myelin sheath and neurilemma.

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

65. Neurotransmitters bind to which of the following located on dendrites and cell bodies?
    a. synaptic vesicles
    b. neurilemmas
    c. receptor sites
    d. myelin sheaths

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

66. Nerve cell bodies and dendrites are not the only locations sensitive to neurotransmitters. Receptor sites can also be found on
    a. muscles and glands.
    b. skeletal joints.
    c. axon terminals.
    d. all vital organs.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

67. Which of the following best describes the means by which neurons communicate with each other?
    a. Sodium ions from one neuron flow into a second neuron; potassium ions flow out.
    b. Potassium ions from one neuron flow into a second neuron; sodium ions flow out.
    c. Neurotransmitters flow across the synapse and attach to receptor sites.
    d. Electrical charges cross the synapse.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

68. The chemicals that are released at an axon terminal and can either excite or inhibit other neurons are called
    a. synapses.
    b. synaptic vesicles.
    c. neurilemmas.
    d. neurotransmitters.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

69. What effect do neurotransmitters from one neuron have on the next neuron?
    a. They have no effect.
    b. They excite it.
    c. They inhibit it.
    d. They may excite or inhibit it.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

70. How many different transmitter chemicals are found in the brain?
    a. fewer than 10
    b. approximately 25
    c. approximately 50
    d. more than 100

    ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

71. Acetylcholine, norepinephrine, dopamine, and GABA are examples of
    a. neurotransmitters.
    b. negative after-potentials.
    c. synaptic ions.
    d. neurilemmas.

    ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

72. Which of the following is an excitatory neurotransmitter that participates in movement, autonomic function, learning and memory with a deficiency in this neurotransmitter playing a role in Alzheimer's disease?
    a. norepinephrine
    b. acetylcholine
    c. serotonin
    d. glutamate

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

73. Which of the following is an inhibitory neurotransmitter that plsys a role in mood, appetite, and sleep movement with a deficiency leading to depression?
    a. dopamine
    b. acetylcholine
    c. serotonin
    d. glutamate

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

74. Which of the following is an excitatory neurotransmitter that participates in motivation, reward, and the planning of behavior with a deficiency leading to Parkinson's disease and an excess leading to schizophrenia?
    a. dopamine
    b. acetylcholine
    c. serotonin
    d. glutamate

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *, www
    MSC: TYPE: Fact

75. Reduced feelings of pleasure as well as Parkinson's disease has been linked with a deficiency of which neurotransmitter?
    a. dopamine
    b. GABA
    c. serotonin
    d. glutamate

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

76. An excess of dopamine has been linked with the development of which of the following?
    a. multiple sclerosis
    b. schizophrenia
    c. Alzheimer's disease
    d. spatial neglect

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

77. Which of the following is an excitatory neurotransmitter that is involved with arousal and vigilance, and mood with an excess leading to anxiety problems?
    a. glutamate
    b. acetylcholine
    c. norepinephrine
    d. dopamine

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

78. Which of the following is an excitatory neurotransmitter that is involves with learning and memory with an excess of this neurotransmitter leading to neuron death and autism and a deficiency leading to tiredness?
    a. glutamate
    b. acetylcholine
    c. GABA
    d. dopamine

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

79. Which of the following neurotransmitters causes a major inhibitory effect in the central nervous system?
    a. glutamate
    b. acetylcholine
    c. GABA
    d. dopamine

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

80. Although other neurotransmitters are also present, the brain's reward or "pleasure" system has a predominance of which neurotransmitter?
    a. norepinephrine
    b. acetylcholine
    c. histamine
    d. dopamine

    ANS: D DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

81. Many of the mind-alterting drugs affect the brain by
    a. absorbing neural impulses.
    b. imitating, duplicating, or blocking neurotransmitters.
    c. changing the sodium balance in the synapse.
    d. duplicating the effect of potassium in the nuclei.

    ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Concept

82. Cocaine triggers an increase in which neurotransmitter, which causies a drug "high" in the reward system?
    a. serotonin
    b. acetylcholine
    c. dopamine
    d. histamine

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

83. Jeff's drug addiction to cocaine occurred because cocain overstimulated the reward system in his brain and disturbed the function of which neurotransmitter?
    a. serotonin
    b. acetylcholine
    c. dopamine
    d. histamine

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Application

84. Which neurotransmitter normally activates muscles?
    a. acetylcholine
    b. serotonin
    c. curare
    d. histamine

    ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

85. A person would not be able to walk nor a musician move his or her fingers to play an instrument without the neurotransmitter
    a. curare.
    b. serotonin.
    c. acetylcholine.
    d. histamine.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

86. When curare blocks the action of acetylcholine it
    a. prevents muscle activation, causing paralysis.
    b. stimulates muscle activity, causing convulsions.
    c. retards cell growth, causing paralysis.
    d. causes neurotransmitters to both inhibit and excite activity.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

87. The paralyzing effect of curare is caused by its ability to
    a. attach to receptor sites on muscles and block the action of acetylcholine.
    b. create an imbalance in the sodium content in the dendrite.
    c. produce an overproduction of acetylcholine in the neural soma.
    d. produce a disintegration at the synapse.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

88. Ricardo was given curare and suffered paralysis. By attaching to receptor sites on his muscles, curare competes with
    a. dopamine.
    b. acetylcholine.
    c. serotonin.
    d. enkephalins.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

89. Chemicals that regulate the activity of other neurons, but do not carry messages directly are called
    a. brain deregulators.
    b. neural inductors.
    c. neuropeptides.
    d. ion channgeling agents.

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

90. The neurotransmitters that regulate the activity of other neurons and affect memory, pain, emotion, pleasure, mood, hunger, sexual behavior, and other basic processes are called
    a. somatic ions.
    b. artificial opiates.
    c. placebos.
    d. neuropeptides.

    ANS: D DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

91. Enkephalins and endorphins are examples of
    a. brain deregulators.
    b. neural inductors.
    c. neuropeptides.
    d. ion channeling agents.

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Easy

92. The brain produces opiate-like neural regulators that help relieve stress and pain and are referred to as
    a. acetylcholine inhibitors.
    b. somatic ions.
    c. enkephalins.
    d. neurilemmas.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

93. When you touch a hot stove, neurotransmitters cause you to jerk your hand away, while the pain produced causes your brain to release
    a. enkephalins.
    b. histamines.
    c. acetylcholines.
    d. neurilemmas.

    ANS: A DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Application

94. Endorphins are released from the _____gland.
    a. adrenal
    b. pituitary
    c. pineal
    d. thyroid

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

95. Santana steps on a tack and jerks her foot back. This pain will
    a. raise her endorphin levels.
    b. lower her endorphin levels.
    c. cause depolarization of her pain receptors.
    d. cause a repolarization of her pain receptors.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

96. Needles inserted into the body during the acupuncture procedure may relieve pain because the pain
    a. results in the release of neuropeptides.
    b. blocks the functioning of pain-relieving neurons.
    c. paralyzes the central nervous system.
    d. suppresses the production of all neurotransmitters.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

97. Feelings of pleasure or euphoria similar to being “high” on morphine occur when which of the following are released in the brain?
    a. acetylcholines
    b. endorphins
    c. synaptic vesicles
    d. neurilemmas

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Concept

98. In an experiment to test the effects of a new pain-relieving drug, the control group was given a placebo, which initially reduced their pain because the placebo
    a. raised their endorphin levels.
    b. lowered their endorphin levels.
    c. activated the neurilemmas in their receptor sites.
    d. deactivated the neurilemmas in their receptor sites.

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Application

99. The "runner's high" and the euphoria sometimes associated with childbirth, painful initiation rites, and sports parachuting are due to the release of
    a. acetylcholine.
    b. endorphins.
    c. neurilemma.
    d. epinephrine.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

100. Ultimately, depression, schizophrenia, and drug addiction may be explained by the
    a. interaction between the thyroid and hippocampus.
    b. interaction between the pituitary and the parietal lobes.
    c. absence of placebos.
    d. regulatory activity of neuropeptides.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

101. A neuron reaches its trigger point when
    a. it receives more than 10 "exciting" messages.
    b. the number of "inhibiting" messages is half or less than the number of "exciting" messages.
    c. "exciting" messages arrive close in time and are not canceled by "inhibiting" messages.
    d. "inhibiting" messages arrive close in time and are not canceled by "exciting" messages.

    ANS: C DIF: Difficult REF: Module 2.1 MSC: TYPE: Concept

102. The power of the brain arises from the cooperation of large numbers of connected together into
    a. neural networks.
    b. synaptic vesicles.
    c. neurilemmas.
    d. neural nodes.

    ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

103. By "listening" to the neurons that synapse with it, a single neuron within a(n)_____ is able to combine that input into an output.
    a. ion channel
    b. neural network
    c. synapse channel
    d. reflex network

    ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

104. The capacity of our brains to change in response to experience is referred to as
    a. neuroplasticity.
    b. resiliency.
    c. saltatory conduction.
    d. neurogenesis.

    ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

105. In response to experience, new synapses form between neurons, and other connections grow stronger. These changes in the brain due to experience illustrate the brain's
    a. neuroplasticity.
    b. resiliency.
    c. saltatory conduction.
    d. neurogenesis.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

106. Rats that are raised in a complex environment have more synapses and longer dendrites in their brains than rats raised in a simpler environment. These differences in the rat's brain due to environmental experiences illustrate the brain's
    a. saltatory conduction.
    b. resiliency.
    c. neuroplasticity.
    d. neurogenesis.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

107. In one study, people suffering from spider phobias were treated with cognitive behavior therapy. After therapy, these individuals were able to touch spiders, while brain images of the areas involved in the phobia revealed
    a. reduced activity.
    b. increased activity.
    c. reduced endorphin levels.
    d. increased endorphin levels.

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

108. In one study, patients who had language difficulties because of damage to the left sides of their brains were given language comprehension training. The training improved the patients' language comprehension with their brain images revealing
    a. increased activity throughout both sides of the brain, including areas directly adjacent to the damaged areas.
    b. no change in brain activity due to the language comprehension training.
    c. neurogenesis of brain cells in the damaged areas of the left sides of their brains.
    d. more activity in the undamaged right sides of their brains to compensate for their damaged left sides.

    ANS: D DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

109. Everytime you learn something, you are reshaping your living brain, a process known as
    a. brain osmosis.
    b. synaptic malleability.
    c. self-directed neuroplasticity.
    d. self-directed neural induction.

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

110. The two main divisions of the human nervous system are the peripheral nervous system and the _____ nervous system.
a. central
b. autonomic
c. sympathetic
d. somatic

ANS: A DIF: Easy REF: Module 2.1 KEY: *
MSC: TYPE: Fact

111. The central nervous system is composed of the
a. brain and spinal cord.
b. sympathetic and parasympathetic systems.
c. autonomic and somatic systems.
d. brain and somatic system.

ANS: A DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

112. In a car accident, a person sustained major trauma to his brain and the spinal cord region of his neck. Damage, in this case, was mainly to areas of the _____ nervous system.
a. autonomic
b. somatic
c. central
d. sympathetic

ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

113. Messages flow from the brain to the spinal cord and then through the _____ nervous system.
a. central
b. peripheral
c. parietal
d. temporal

ANS: B DIF: Moderate REF: Module 2.1 KEY: *
MSC: TYPE: Fact

114. The peripheral nervous system carries messages to and from the _____ nervous system.
a. central
b. occipital
c. parietal
d. temporal

ANS: A DIF: Moderate REF: Module 2.1 KEY: *
MSC: TYPE: Fact

115. An individual nerve cell is known as a
a. nerve.
b. neuron.
c. synaptic vesicle.
d. neurotransmitter.

ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

116. Which of the following can be seen without magnification?
    a. a neuron
    b. a nerve
    c. both a nerve and a neuron
    d. neither a nerve nor a neuron

    ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

117. Neurons are tiny cells that
    a. cannot be seen without a microscope.
    b. are made up of nerves.
    c. are scientifically classified as neurilemmas.
    d. are characterized by all of these.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

118. Large bundles of neuron axons that are visible to the unaided eye are called
    a. saltatory connections.
    b. neurilemmas.
    c. nerves.
    d. neurotransmitters.

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

119. Most nerve cell fibers outside the brain and spinal cord are wrapped by a thin layer of cells that aid in the repair of neurons. This thin layer of cells is called
    a. myelin.
    b. neurilemma.
    c. acetylcholine.
    d. dopamine.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

120. The main function of the neurilemma is to
    a. form a tunnel that damaged fibers can follow as they repair themselves.
    b. affect the speed of nerve impulses.
    c. block the reception of acetylcholine.
    d. aid a nerve's receptivity to neurotransmitters by increasing the number of receptor sites available.

    ANS: A DIF: Difficult REF: Module 2.1 MSC: TYPE: Fact

121. Neurilemma is wrapped around most axons in all nervous systems EXCEPT for the
    a. sympathetic nervous system.
    b. parasympathetic nervous system.
    c. somatic nervous system.
    d. central nervous system.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

122. The fact that some peripheral nerves can regenerate after being damaged is made possible by the presence of
    a. neurilemma.
    b. myelin.
    c. acetylcholine.
    d. none of these, since peripheral nerves cannot regenerate.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

123. Which of the following cells can repair itself if damaged?
    a. nerve cells in the central nervous system that are wrapped in myelin
    b. any nerve cell in the brain
    c. nerve cells in the peripheral nervous system that are wrapped in neurilemma
    d. any nerve cell in the spinal cord

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

124. Regrowth of a damaged nerve cell is most likely when
    a. damage occurs within the brain.
    b. the cell body is destroyed.
    c. damage occurs in the spinal cord.
    d. an accidentally severed toe is sewn back on.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

125. The peripheral nervous system is composed of the
    a. brain and spinal cord.
    b. central and sympathetic systems.
    c. somatic and autonomic systems.
    d. spinal cord and 12 thoracic nerves.

    ANS: C DIF: Difficult REF: Module 2.1 MSC: TYPE: Fact

126. Which nervous system controls the voluntary function of the limbs and the sense organs?
    a. sympathetic
    b. autonomic
    c. parasympathetic
    d. somatic

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

127. During a lecture when students receive information through their eyes from the notes on the screen and information through their ears as the instructor lectures, the information will first travel through neurons within which nervous system?
    a. sympathetic
    b. autonomic
    c. somatic
    d. parasympathetic

    ANS: C DIF: Difficult REF: Module 2.1 MSC: TYPE: Application

128. Aaron flexes his muscles as he shoots a basketball into the basket. His voluntary use of his muscles is controlled by which nervous system?
    a. sympathetic
    b. autonomic
    c. somatic
    d. parasympathetic

    ANS: C DIF: Moderate REF: Module 2.1 KEY: www
    MSC: TYPE: Application

129. When you are playing a video game, your hand and eye movements are under the influence of the _____ nervous system.
    a. sympathetic
    b. parasympathetic
    c. autonomic
    d. somatic

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

130. The somatic system carries messages to and from the
    a. internal organs and glands.
    b. parasympathetic system.
    c. sense organs and skeletal muscles.
    d. sympathetic nervous system.

    ANS: C DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

131. The somatic system governs
    a. muscle movements.
    b. involuntary activities.
    c. glandular secretions.
    d. heart rate and breathing.

    ANS: A DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

132. The autonomic system carries messages to and from the
    a. sense organs.
    b. internal organs and glands.
    c. skeletal muscles.
    d. somatic system.

    ANS: B DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

133. The autonomic system is
    a. self-governing.
    b. in control of the sense organs.
    c. responsible for muscle movement.
    d. mainly in control of voluntary actions.

    ANS: A DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

134. The involuntary physical changes that occur in the body, such as increases and decreases in heart rate, blood pressure, perspiration, and glandular secretions are controlled by the
    a. occipital lobe.
    b. parietal lobe.
    c. somatic system.
    d. autonomic system.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

135. Which of the following functions is NOT controlled by the autonomic nervous system?
    a. utilization of the sense organs
    b. heart rate and respiration
    c. secretion of hormones
    d. digestion

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

136. Immediate emotional responses to a traumatic event are most directly under the control of the
    a. somatic nervous system.
    b. central nervous system.
    c. autonomic nervous system.
    d. corpus callosum.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

137. When you see an attractive person sit down next to you on the bus, the mad pounding of your heart is under the influence of the
    a. central nervous system.
    b. diathesis nervous system.
    c. autonomic nervous system.
    d. somatic nervous system.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

138. The autonomic nervous system contains two branches called the
    a. sympathetic and parasympathetic systems.
    b. somatic and spinal systems.
    c. spinal nerves and cranial nerves.
    d. parasympathetic and spinal systems.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

139. The part of the nervous system that is known as the “fight or flight” system because it arouses the body to meet emergencies and respond to emotional events is the _____branch.
    a. pineal
    b. endocrine
    c. sympathetic
    d. parasympathetic

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

140. The part of the nervous system that quiets the body after arousal and helps maintain vital functions (like breathing) at moderate levels is the _____ branch.
    a. sympathetic
    b. parasympathetic
    c. central
    d. peripheral

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

141. When the sympathetic branch is activated,
    a. the pupils of one's eyes constrict.
    b. one's digestion is stimulated.
    c. there is a release of sugar from the liver.
    d. one's blood vessels constricts.

    ANS: C DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

142. When the parasympathetic branch is controlling one's body,
    a. the pupils of one's eyes dilate.
    b. one's digestion is inhibited.
    c. one's bladder relaxes.
    d. tears and salivation are stimulated.

    ANS: D DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

143. You are in the forest and see a large, snarling, drooling grizzly bear running directly toward you. The adrenaline rush you feel is controlled by the
    a. sympathetic nervous system.
    b. parasympathetic nervous system.
    c. central nervous system.
    d. neurotransmitter dopamine.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

144. After successfully running from the large, snarling, drooling grizzly bear that was running directly toward you, you pause to catch your breath and collect your wits. The physical symptoms you now experience are controlled by the
    a. sympathetic nervous system.
    b. parasympathetic nervous system.
    c. central nervous system.
    d. neurotransmitter acetylcholine.

    ANS: B DIF: Difficult REF: Module 2.1 MSC: TYPE: Application

145. After rushing to catch the bus, when you find a seat and begin to relax, the return to your normal heart rate is under the influence of the
   a. central nervous system.
   b. parasympathetic branch.
   c. sympathetic branch.
   d. somatic nervous system.

   ANS: B DIF: Difficult REF: Module 2.1 MSC: TYPE: Application

146. Your instructor announces a "pop" test. You have not read the chapter yet. Your heart and breathing rate increases, and your mouth becomes dry. Which nervous system was responsible for this reaction?
   a. sympathetic
   b. parasympathetic
   c. somatic
   d. central

   ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

147. Your instructor has just decided not to give the pop test that was announced at the beginning of class. The class breathes a collective "sigh of relief." This relief is best explained by which nervous system?
   a. somatic
   b. central
   c. parasympathetic
   d. sympathetic

   ANS: C DIF: Difficult REF: Module 2.1 MSC: TYPE: Application

148. You are watching a horror movie. The music changes to the familiar tune you recognize as a prelude to danger. You tense up, your heart rate increases, your breathing becomes shallow, your mouth is dry. Which nervous system has been activated?
   a. somatic
   b. central
   c. parasympathetic
   d. sympathetic

   ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

149. The white matter in the spinal cord consists of
   a. bundles of axons covered with myelin.
   b. spinal nerves covered with neurilemma.
   c. spongy tissue made up mostly of cell bodies.
   d. dendrites covered with myelin.

   ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

150. Axons leaving the spinal cord
   a. form the cranial nerves.
   b. carry sensory and motor messages.
   c. form a total of 22 pairs of nerves.
   d. are characterized by all of these.

   ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

151. Nerves that leave the brain directly are called
    a. spinal nerves.
    b. cranial nerves.
    c. sympathetic nerves.
    d. peripheral nerves.

    ANS: B DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

152. How many pairs of spinal nerves do humans have?
    a. 31
    b. 22
    c. 12
    d. 6

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

153. How many pairs of cranial nerves do humans have?
    a. 31
    b. 22
    c. 12
    d. 8

    ANS: C DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

154. The simplest behavior sequence, organized in the spinal cord, is called the
    a. reflex arc.
    b. autonomic reflex.
    c. somatic reflex.
    d. central synapse.

    ANS: A DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

155. The behavior sequence resulting from the actions of a sensory neuron, a connector neuron, and an effector cell is a(n)
    a. autonomic chain.
    b. cranial arc.
    c. effector reflex.
    d. reflex arc.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

156. The reflex arc occurs when a stimulus provokes a(n)
    a. automatic response within the spinal cord without brain involvement.
    b. automatic response from the brain.
    c. somatic response from the brain.
    d. automatic response from a cranial nerve.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

157. A reflex arc involves a sensory neuron, a motor neuron, and a(n) _____ neuron.
    a. cranial
    b. connector
    c. effector
    d. inductor

    ANS: B DIF: Difficult REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

158. A barefoot child steps on a bee, then jerks his or her foot back in response to the sting. This response has likely involved all parts of the nervous system EXCEPT
    a. the brain.
    b. the spinal cord.
    c. motor neurons.
    d. connector neurons.

    ANS: A DIF: Difficult REF: Module 2.1 MSC: TYPE: Application

159. A nerve cell carrying information from your eyes, ears, fingers, etc. toward the CNS is called a(n)
    a. motor neuron.
    b. effector cell.
    c. connector neuron.
    d. sensory neuron.

    ANS: D DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

160. A nerve cell carrying information from your brain to muscles and glands is called a(n)
    a. motor neuron.
    b. effector cell.
    c. connector neuron.
    d. sensory neuron.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

161. Muscle fibers can contract because they are made up of
    a. motor neurons.
    b. effector cells.
    c. connector neurons.
    d. sensory neurons.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

162. An advantage of having neural reflexes is that it
    a. allows our brain to deal with more important decision-making.
    b. takes place only in the peripheral nervous system.
    c. occurs regularly, even though its response time is slow.
    d. reduces complex stimuli into an all-or-none type of event.

    ANS: A DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

163. Horror movies and science fiction stories are often based on the premise that one person's brain has been surgically removed and implanted in the body of another person. This would actually be impossible because
    a. damage to the brain is almost always fatal.
    b. the brain cannot function if the corpus callosum is cut.
    c. severe damage to neurons in the CNS is usually considered permanent.
    d. the blood brain barriers would not protect against infection.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

164. Regarding the repair of the central nervous system, which of the following statements is FALSE?
    a. Although animal studies have been conducted, no human trials involving the repair of damaged spinal cords have been undertaken yet.
    b. Scientists have partially repaired cut spinal cords in rats.
    c. Currently, a serious injury to the brain or spinal cord is usually permanent.
    d. Stem cells have been injected into the gap in the spinal cord to form a cellular bridge to repair the damaged cord.

    ANS: A DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

165. Transplants or grafts of nerve tissue
    a. have not been attempted in humans because of ethical restrictions.
    b. have been attempted but without any success in any animal so far.
    c. create animals that are dangerously aggressive.
    d. have been able to partially repair cut spinal cords in rats.

    ANS: D DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Concept

166. Immature cells that can mature into a variety of specialized cells, such as neurons are referred to as
    a. somas.
    b. stem cells.
    c. glial cells.
    d. neurilemmas.

    ANS: B DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

167. Regarding protection of the central nervous system (CNS), which of the following statements is FALSE?
    a. Wearing a seat belt in a moving automobile has prevented many head injuries.
    b. Individuals have permanently damaged their CNS by diving into the shallow end of a swimming pool.
    c. Due to the grueling nature of contact sports, protective gear has not been shown to significantly prevent head injuries in football and other sports.
    d. Wearning a helmet when riding a bicycle or motorcycle has been shown to protect the CNS.

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

168. The production of new brain cells is known as
    a. neural induction.
    b. depolarization.
    c. neural resiliency.
    d. neurogenesis.

    ANS: D DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

169. Each day thousands of new cells originate deep within the brain and then move to the surface to link up with other neurons to become part of the brain's circuitry through a process known as
    a. neural induction.
    b. depolarization.
    c. neurogenesis.
    d. neural resiliency.

    ANS: C DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

170. Learning, memory, and our ablity to adapt to changing circumstances are most likely due to the fact that new brain cells form each day through
    a. neural resiliency.
    b. neurogenesis.
    c. neural induction.
    d. depolarization.

    ANS: B DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Concept

171. When an artery in a person's brain becomes blocked or bursts open, we say that the person has experienced
    a. a stroke.
    b. neural induction.
    c. neural congestion.
    d. spatial neglect.

    ANS: A DIF: Easy REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

172. Regarding brain cell regeneration and repair, which of the following statements is FALSE?
    a. Doctors are testing a new method to treat strokes that involves injecting millions of immature nerve cells into the damaged areas of the brain.
    b. Doctors are testing a method in which drugs that speed up neurogenesis are injected into the damaged areas of the brain.
    c. A healthy 75-year-old brain has about 50 percent of the brain cells of a healthy 25-year-old brain.
    d. Although the brain loses cells daily, it simultaneously grows new neurons to replace them.

    ANS: C DIF: Easy REF: Module 2.1 MSC: TYPE: Concept

173. Bobby suffered a stroke that damaged his brain, causing partial paralysis in his left arm. To increase the rate of neurogenesis in the damaged part of his brain and speed his recovery, Bobby's good right arm is immobilized, which forces his impaired left arm to become more active. This approach is known as
    a. ablation.
    b. constraint-induced movement.
    c. localization of function.
    d. synaptic potential immobilization.

    ANS: B DIF: Moderate REF: Module 2.1 MSC: TYPE: Application

TRUE/FALSE

1. The part of the neuron that specializes in receiving messages from other neurons is the axon.

    ANS: F DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

2. During an action potential, the ion channels pop open to allow sodium ions to rush into the axon.

    ANS: T DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

3. The whitish, fatty substance that surrounds the axon and aids conduction of a nerve impulse down the axon is called neurilemma.

    ANS: F DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

4. The paralyzing effect of curare is caused by its ability to block the action of acetylcholine at neuron-muscle synapses.

    ANS: T DIF: Moderate REF: Module 2.1 MSC: TYPE: Concept

5. Studies in which patients underwent cognitive behavioral therapy for phobias produced improvement in their behaviors and also changed the patient's brain activity.

    ANS: T DIF: Moderate REF: Module 2.1 KEY: *
    MSC: TYPE: Fact

6. The central nervous system is composed of the autonomic and somatic systems.

    ANS: F DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

7. Neurons cannot be seen without the aid of a microscope.

    ANS: T DIF: Easy REF: Module 2.1 MSC: TYPE: Fact

8. When the sympathetic nervous system is activated, one's salivation, digestion, and production of tears are inhibited

    ANS: T DIF: Difficult REF: Module 2.1 MSC: TYPE: Concept

9. A nerve cell carrying information from your brain to muscles and glands is called a sensory neuron.

   ANS: F DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

10. A healthy 75-year-old brain has just as many neurons as it did when it was a healthy 25-year-old brain.

    ANS: T DIF: Moderate REF: Module 2.1 MSC: TYPE: Fact

COMPLETION

1. The cell body of a neuron is also called the _____.

   ANS: soma

   DIF: Easy REF: Module 2.1 KEY: * MSC: TYPE: Fact

2. The process by which nerve impulses conducted down the axons of neurons coated with myelin jump from gap to gap in the myelin layer is known as _____conduction.

   ANS: saltatory

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Fact

3. An excess of dopamine has been linked to the development of the psychotic mental disorder known as _____.

   ANS: schizophrenia

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Fact

4. Brain chemicals, such as enkephalins and endorphins, that regulate the activity of neurons are known as _____.

   ANS: neuropeptides

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Fact

5. Most nerve cell fibers outside the brain and spinal cord are wrapped by a thin layer of cells that form a “tunnel” that damaged fibers can follow as they repair themselves. This thin layer of cells is known as _____.

   ANS: neurilemma

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Fact

6. When you give directions and point down the street, the part of the peripheral nervous system called the _____ nervous system controlled this voluntary movement of your finger.

   ANS: somatic

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Application

7. The branch of the nervous system that is known as the "fight-or-flight" system because of its importance in responding to emotional events is the _____ nervous system.

   ANS: sympathetic

   DIF: Easy REF: Module 2.1 KEY: * MSC: TYPE: Fact

8. A nerve cell carrying information from your eyes, ears, fingers, etc. toward the central nervous system is called a(n) _____ neuron.

   ANS: sensory

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Fact

9. Each day thousands of new cells originate deep within the brain and then move to the surface to link up with other neurons to become part of the brain's circuitry through a process known as _____.

   ANS: neurogenesis

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Fact

ESSAY

1. Explain how saltatory conduction helps speed the conduction of an action potential.

   ANS:
   Answer will include that the axons of some neurons are coated with a fatty layer called myelin. Small gaps in the myelin help nerve impulses move faster. Instead of passing down the entire length of the axon, the action potential leaps from gap to gap, a process called saltatory conduction. (The Latin word saltare means to hop or leap.) Without the added speed of saltatory action potentials, it would be impossible to brake in time to avoid many automobile accidents.

   DIF: Difficult REF: Module 2.1 KEY: * MSC: TYPE: Concept

2. Select three of the six neurotransmitters listed below, and describe the functions of these neurotransmitters, whether the neurotranmitter is an excitatory or inhibitory neurotransmitter, and what effect(s) would occur from having a deficiency and/or excess of each chemical.

   acetylcholine, serotonin, dopamine, norepinephrine, GABA, glutamate

   ANS:
   Answer will include that acetylcholine is an excitatory neurotransmitter that participates in movement, autonomic function, learning and memory with a deficiency of acetylcholine being linked with the development of Alzheimer's Disease. Serotonin is an inhibitory neurotransmitter that participates in mood, appetite, and sleep with a deficiency leading to anxiety and/or depression. Dopamine is an excitatory neurotransmitter that participates in motivation, reward, and planning of behavior. A deficiency of dopamine may lead to Parkinson's disease or to reduced feelings of pleasure, while an excess of dopamine may lead to schizophrenia. Norepinephrine is considered by both an excitatory neurotransmitter and hormone. It is involved in arousal and vigilance, and mood with an excess leading to anxiety. GABA has a major inhibitory effect in the central nervous system and participates in moods with a deficiency in GABA leading to anxiety. Glutamate has a major excitatory effect in the central nervous system and is involved in learning and memory. An excess of glutamate may lead to neuron death and autism, while a deficiency may lead to tiredness.

   DIF: Moderate REF: Module 2.1 KEY: * MSC: TYPE: Concept

3. You have just touched a hot stove. Describe the sequence of events that occurred within your nervous system from the point you touched the hot stove with your hand to the point you jerked your hand away from the stove. Your answer should include the name of the autonomic response, the types of neurons involved at each step in the sequence, and why this action would be considered a "no-brainer."

   ANS:
   Answer will include that the simplest behavior pattern is a reflex arc, which occurs when a stimulus, such as a touching a hot stove, provokes an automatic response. Such reflexes occur within the spinal cord, without any help from the brain. Pain is detected in your finger by a sensory neuron (a nerve cell that carries messages from the senses toward the central nervous system). Instantly, the sensory neuron fires off a message to your spinal cord. Inside the spinal cord, the sensory neuron synapses with a connector neruon (a nerve cell that links two others). The connector neuron activates a motor neuron (a cell that carries commands from the CNS to muscles and glands). The muscle fibers are made up of effector cells (cells capable of producing a response). The muscle cells contract and cause your finger to withdraw. No brain activity is required for a reflex arc to occur. Your body just reacts automatically to protect itself.

   DIF: Moderate REF: Module 2.1 KEY: www MSC: TYPE: Application

4. Explain how the discovery of neurogenesis has changed our view of the aging of the brain as well as the feasibility of using several new techniques for repairing the brain.

   ANS:
   Answer will include that until only a few years ago, it was widely believed that we are born with all the brain cells we will ever have. This led to the depressing idea that we all slowly go downhill, as the brain loses thousands of neurons every day. However, we now know that a healthy 75-year-old brain has just as many neurons as it did when it was a 25-year-old brain. Although it is true that the brain loses cells daily, it simultaneously grows new neurons to replace them. This process is called neurogenesis. Each day, thousands of new cells originate deep within the brain, move to the surface, and link up with other neurons to become part of the brain's circuitry. The discovery of neurogenesis in adult brains has raised new hopes that some types of brain damage can be repaired. A new treatment for strokes include attempts to inject millions of immature nerve cells into damaged areas of the brain. If the technique is sucessful, the new cells will link up with existing neurons and repair some of the stroke damage. Another approach is constraint-induced movement therapy, in which the arm not affected by the stroke is immobilized, forcing the impaired arm to become more active to increase the rate of neurogenesis in the damaged part of the brain and speed recover. Drugs have also been injected into the damaged area to speed up neurogenesis. Such techniques are beginning to offer hope to people suffering from strokes, blindness, and Parkinson's disease.

   DIF: Difficult REF: Module 2.1 MSC: TYPE: Concept

Question Grid by Type

Module 2.1: Neurons and the Nervous System	Question Type	Fact	Concept	Application

Neurons—Building a "Bio-computer"	Multiple Choice	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 54, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 82, 84, 89, 90, 91, 92, 94, 102, 103, 104, 107, 108, 109	21, 38, 55, 56, 57, 58, 67, 81, 86, 87, 96, 97, 99, 100, 101, 105, 106	50, 53, 83, 85, 88, 93, 95, 98
	True/False	1, 2, 3, 5	4	
	Completion	1, 2, 3, 4		
	Essay		1, 2	

The Nervous System—Wired for Action	Multiple Choice	110, 111, 113, 114, 115, 116, 118, 119, 120, 121, 122, 123, 125, 126, 130, 131, 132, 133, 134, 135, 136, 138, 139, 140, 141, 142, 149, 150, 151, 152, 153, 154, 155, 156, 157, 159, 160, 161, 164, 166, 167, 168, 169, 171	117, 162, 163, 165, 170, 172	112, 124, 137, 128, 129, 137, 143, 144, 145, 146, 147, 148, 158, 173
	True/False	6, 7, 9, 10	8	
	Completion	5, 7, 8, 9		6
	Essay		4	3

Chapter 2: Brain and Behavior
Module 2.2

MULTIPLE CHOICE

1. The study of how biological processes, the brain, and the nervous system relate to behavior is called
   a. neuro-induction.
   b. biopsychology.
   c. physiological behaviorism.
   d. ablation.

   ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Fact

2. Jessie is a psychologist who specializes in how a person's biological prcesses, brain, and nervous system are related to behavior. Jessie would be referred to as a(n)
   a. neurogenic psychologist.
   b. biopsychologist.
   c. physiological behaviorist.
   d. cranial behaviorist.

   ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Application

3. In his research, Dr. Hebert is trying to learn which parts of the brain control particular mental or behavioral functions, such as being able to recognize faces or move your hands. Dr. Hebert is trying to learn where functions are _____ in the brain.
   a. localized
   b. neurally inducted
   c. corticalized
   d. polarized

   ANS: A DIF: Moderate REF: Module 2.1 KEY: *
   MSC: TYPE: Application

4. Anatomists learned that the brain is made up of many distinct areas or "parts" by cutting apart autopsied human and animal brains and then examining them under a microscope. This procedure they used is known as
   a. lateralization.
   b. neural induction.
   c. corticalization.
   d. dissection.

   ANS: D DIF: Easy REF: Module 2.2 KEY: *
   MSC: TYPE: Fact

5. Which of the following brain tools can be used to map location, shape, and size of brain structures in living brains as well as any abnormal structures, such as tumors, that may be present?
   a. CT scan and MRI scan
   b. PET scan and EEG
   c. ESB
   d. deep lesioning

   ANS: A DIF: Moderate REF: Module 2.2 KEY: *
   MSC: TYPE: Fact

6. CT scans and MRI scans are considered _____ imaging techniques.
   a. functional
   b. structural
   c. subcortical
   d. hemispheric

   ANS: B DIF: Moderate REF: Module 2.2 KEY: *
   MSC: TYPE: Fact

7. Using which brain tool is X-ray information collected by a computer from a number of different angles and then formed into an image of the brain that can reveal the effects of strokes, injuries, tumors, and other brain disorders?
   a. EEG
   b. CT scan
   c. MRI scan
   d. PET

   ANS: B DIF: Easy REF: Module 2.2 KEY: www
   MSC: TYPE: Fact

8. A specialized, computer-enhanced type of X-ray was used to show the area where a tumor was located within a patient's brain. This type of X-ray is known as a(n)
   a. CT scan.
   b. EEG scan.
   c. PET scan.
   d. functional MRI.

   ANS: A DIF: Easy REF: Module 2.2 MSC: TYPE: Application

9. During practice a football player experiences symptoms commonly associated with having a stroke. The coaches rush him to the hospital so that the doctors can view the structure of this player's brain using a specialized X-ray technique known as a(n)
   a. ESB.
   b. CT scanning.
   c. PET.
   d. ablation.

   ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Application

10. The technique that uses a magnetic field to develop an image of the brain is called the
    a. ESB.
    b. ablation technique.
    c. MRI scan.
    d. EEG.

    ANS: C DIF: Easy REF: Module 2.2 MSC: TYPE: Fact

11. The MRI scan obtains an image of the brain by using
    a. electrode patches placed on the skull.
    b. magnetic fields.
    c. X-rays.
    d. radioactive glucose.

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Fact

12. Clarence was in a car accident, and the doctor suspects that he may have suffered damage to his brain. He is put within a chamber in which sound waves are utilized to give the doctors a three-dimensional picture of Clarence's brain. Which technique is being utilized?
    a. EEG
    b. MRI
    c. PET
    d. CT

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Application

13. Juan's physician has told him that he wants him to take a test that will give a three-dimensional representation of Juan's brain. This procedure will require Juan to be placed in a strong magnetic field. The test being discussed is the
    a. EEG.
    b. CT scan.
    c. MRI scan.
    d. PET scan.

    ANS: C DIF: Easy REF: Module 2.2 MSC: TYPE: Application

14. If damage to a particular part of the brain consistently leads to a particular loss of function, then we say that the function is _____ in that structure.
    a. localized
    b. generalized
    c. generalized
    d. deintegrated

    ANS: A DIF: Moderate REF: Module 2.2 MSC: TYPE: Concept

15. A psychiatrist does a lengthy and thorough examination of a patient in a hospital. This patient was the victim of a car accident, in which a pen that was lying on the dashboard actually pierced her skull and her brain. The psychiatrist performs physical examinations, interviews with the patient and family members, and closely observes her behavior. This technique is known as
    a. a clinical case study.
    b. an ablation.
    c. MRI scan.
    d. deep lesioning.

    ANS: A DIF: Easy REF: Module 2.2 MSC: TYPE: Application

16. After Phineas Gage's accident in which a metal rod entered his brain, the doctors kept notes on his behavior, used tests to measure various responses, and interviewed Phineas and those who knew him. His brain injury was studied using a(n)
    a. ablation.
    b. clinical case study.
    c. ESB.
    d. fMRI.

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Application

17. At age 33, Kate Adamson had a stroke that caused catastrophic damage to her brainstem, which left her with locked-in syndrome. Through an in-depth study of Kate's behavior, the doctors were able to determine that the brain stem plays a role in the control of vital life functions, such as movement and breathing. Thus, Kate's locked-in syndrome was studied by using
    a. ablation.
    b. a clinical case study.
    c. ESB.
    d. deep lesioning.

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Application

18. At age 33, Kate Adamson had a stroke that caused catastrophic damage to her brainstem. She was totally paralyzed and barely able to breathe but was still fully awake and aware. Kate Adamson was experiencing what is known as
    a. Broca's aphasia.
    b. spatial neglect.
    c. locked-in syndrome.
    d. Parkinson's disease.

    ANS: C DIF: Easy REF: Module 2.2 KEY: *
    MSC: TYPE: Application

19. The use of an electrode to stimulate small areas of the brain beneath the surface is called
    a. ESB.
    b. deep lesioning.
    c. surface lesioning.
    d. electroencephalography.

    ANS: A DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

20. A doctor activates the surface of the brain by touching it with a small electrified wire and the patient tells the doctor what effect the stimulation had. Which of the following is TRUE regarding this procedure?
    a. This procedure is impossible because patients cannot be awake during brain procedures.
    b. The doctor is performing an ablation.
    c. The doctor is using an electrode to "turn on" brain structures.
    d. The doctor is using EEG to stimulate brain structures.

    ANS: C DIF: Moderate REF: Module 2.2 MSC: TYPE: Application

21. Regarding the use of ESB, which of the following statements is FALSE?
    a. By activating target areas using ESB, researchers are creating a brain map of sensory, motor, and emotional areas within the brain.
    b. ESB has been used to instantly call forth euphoria, aggession, or tears in a person.
    c. Experimentally, ESB has been used to control a person's actions, like a robot.
    d. ESB has been used to instantly call forth eating, sleeping, or speech in a person.

    ANS: C DIF: Easy REF: Module 2.2 MSC: TYPE: Fact

22. Scientists implanted an electrode into a specific area of a rat's brain. When the electrode was activated, which in turn activated the target area, the rat aggressively attacked a cat within the same cage. The technique being utilized by the scientists is known as
    a. ESB.
    b. ablation.
    c. deep lesioning.
    d. PET.

    ANS: A DIF: Moderate REF: Module 2.2 MSC: TYPE: Application

23. Which of the following involves surgical removal of parts of the brain?
    a. ESB
    b. ablation
    c. MRI scan
    d. electroencephalography

    ANS: B DIF: Moderate REF: Module 2.2 MSC: TYPE: Concept

24. Pierre Flourens removed a tumor from the back area of a man's brain. After removal of this portion of the brain, the man had visual problems. This surgical removal of brain tissue is called
    a. deep lesioning.
    b. ablation.
    c. ESB.
    d. fMRI.

    ANS: B DIF: Moderate REF: Module 2.2 MSC: TYPE: Application

25. The use of an electrode to destroy small areas of the brain beneath the surface is called
    a. PET.
    b. neural induction.
    c. deep lesioning.
    d. electroencephalography.

    ANS: C DIF: Moderate REF: Module 2.2 KEY: www
    MSC: TYPE: Fact

26. Both deep lesioning and surgical _____ remove brain tissue.
    a. MRI
    b. PET
    c. electroencephalography
    d. ablation

    ANS: D DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

27. Scientists destroyed a tiny area of a cat's limbic system by inserting a tiny electrode into this target area and then passing an electric current through the electrode. The technique used is known as
    a. ESB.
    b. neural induction.
    c. deep lesioning.
    d. fMRI.

    ANS: C DIF: Moderate REF: Module 2.2 MSC: TYPE: Application

28. In order to detect the electrical activity of a single neuron, a scientist would most likely use
    a. ESB.
    b. a microelectrode.
    c. PET.
    d. fMRI.

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Concept

29. An extremely thin glass tube filled with a salty fluid with its tip being small enough to detect the electrical activity of a single neuron would be referred to as a
    a. pixel.
    b. microelectrode.
    c. PET scan.
    d. fMRI.

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Concept

30. PET scans and EEGs are considered _____ imaging techniques.
    a. structural
    b. functional
    c. hemispheric
    d. subcortical

    ANS: B DIF: Moderate REF: Module 2.2 KEY: *
    MSC: TYPE: Fact

31. The functions of the brain can be mapped using all of these techniques EXCEPT for the
    a. EEG.
    b. ESB.
    c. PET scan.
    d. CT scan.

    ANS: D DIF: Easy REF: Module 2.2 KEY: *
    MSC: TYPE: Fact

32. Three of these techniques allow scientists to observe the activity of parts of the brain without doing any damage at all. Which technique would cause some degree of damage to the living brain?
    a. EEG
    b. fMRI
    c. PET scan
    d. ablation

    ANS: D DIF: Easy REF: Module 2.2 MSC: TYPE: Fact

33. An EEG records
    a. the number of neurons in the brain.
    b. electrical impulses from the brain.
    c. chemical activity in the cranial nerves.
    d. the amount of glucose being utilized by the brain.

    ANS: B DIF: Easy REF: Module 2.2 MSC: TYPE: Fact

34. Dave has just had some medical tests conducted. One of the tests recorded Dave's brain waves on a moving sheet of paper. Dave was probably given the
    a. EEG.
    b. CT scan.
    c. MRI scan.
    d. PET scan.

    ANS: A DIF: Easy REF: Module 2.2 MSC: TYPE: Application

35. Greg is participating in a sleep lab experiment. Electrodes are affixed to his scalp to measure the beta, alpha, theta, and delta waves Greg exhibits as he goes through the various stages of sleep. What technique is being utilized?
    a. EEG
    b. MRI
    c. PET
    d. CT

    ANS: A DIF: Moderate REF: Module 2.2 MSC: TYPE: Application

36. Martina is experiencing what appears to be a seizure. To verify whether Martina has epilepsy, her doctor affixes small disk-shaped metal plates to Martina's scalp in order to obtain a recording of her brain waves. What technique is being utilized?
    a. EEG
    b. MRI
    c. PET
    d. CT

    ANS: A DIF: Moderate REF: Module 2.2 KEY: *
    MSC: TYPE: Application

37. Brain wave activity during sleep, daydreaming, hypnosis, and other mental states is likely to be studied using a(n)
    a. CT scan.
    b. MRI scan.
    c. electroencephalograph.
    d. implanted microelectrode.

    ANS: C DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

38. A new, improved brain imaging technique for measuring glucose metabolism of the brain is called the
    a. MANSCAN.
    b. PET scan.
    c. MRI.
    d. CT scan.

    ANS: B DIF: Difficult REF: Module 2.2 MSC: TYPE: Fact

39. Which technique provides detailed images of activity both near the surface and below the surface of the brain by detecting the sub-atomic particles emitted by radioactive glucose as it is consumed by the brain?
    a. MANSCAN
    b. PET scan
    c. MRI
    d. CT scan

    ANS: B DIF: Difficult REF: Module 2.2 KEY: *
    MSC: TYPE: Fact

40. A PET scan records the amount of radioactive _____ used by brain cells.
    a. potassium
    b. iodine
    c. glucose
    d. sodium

    ANS: C DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

41. Anthony was a subject in a study in which the glucose in his brain was marked with a radioactive substance. Then the detectors identified Anthony's active brain areas. Anthony participated in a study that employed a(n)
    a. EEG.
    b. MRI.
    c. PPR.
    d. PET.

    ANS: D DIF: Moderate REF: Module 2.2 MSC: TYPE: Application

42. A PET scan detects _____ emitted by brain cells.
    a. potassium
    b. radioactive iodine
    c. electrons
    d. positrons

    ANS: D DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

43. According to Haier's PET scan research, persons who do well on difficult reasoning tests have brains that
    a. are the most active and consume the most glucose.
    b. consume the least glucose.
    c. have the largest corpus callosums.
    d. are the easiest to study using EEGs.

    ANS: B DIF: Difficult REF: Module 2.2 MSC: TYPE: Fact

44. Haier believes his research shows that the higher intellectual performances in humans is related to
    a. greater brain efficiency.
    b. having a larger corpus callosum.
    c. having a "hard-working" brain.
    d. all of these.

    ANS: A DIF: Difficult REF: Module 2.2 MSC: TYPE: Fact

45. Research using PET scans of human brains indicates that
    a. the size of the midbrain connections is most important feature for intelligence.
    b. higher scoring test takers used more glucose.
    c. lower scoring test takers used more glucose.
    d. brain activity is not related to problem-solving, but is related to one's emotional levels.

    ANS: C DIF: Difficult REF: Module 2.2 MSC: TYPE: Fact

46. Research using PET scans of human brains indicates that
    a. most people use only ten percent of their brain capacity.
    b. higher scoring test takers used more glucose during problem-solving.
    c. all parts of the brain are active during waking hours.
    d. all of these statements are true.

    ANS: C DIF: Difficult REF: Module 2.2 MSC: TYPE: Concept

47. Which of the following gives both a three-dimensional structural view of the brain as well as making brain activity visible?
    a. CT scan
    b. MRI scan
    c. EEG
    d. fMRI

    ANS: D DIF: Difficult REF: Module 2.2 MSC: TYPE: Fact

48. Regarding the technology used to study the brain, which of the following statements is FALSE?
    a. Both CT scans and MRIs provide images of brain activity on the surface and below the surface of the brain.
    b. Experimentally, fMRI images have been used to tell if a person is lying.
    c. EEGs measure the waves of activity produced near the surface of the brain.
    d. The fMRI provides images of activity throughout the brain.

    ANS: A DIF: Moderate REF: Module 2.2 KEY: *
    MSC: TYPE: Fact

49. Psychiatrist Daniel Langleben and his colleagues have used a new brain technology to tell if a person is lying, with the front of the brain being more active when a person is lying than when telling the truth. This technology is the
    a. CT scan.
    b. MRI scan.
    c. EEG.
    d. fMRI.

    ANS: D DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

50. Psychiatrist Daniel Langleben and his colleagues have used fMRI technology to tell if a person is lying. When a person was lying, the
    a. front of the brain became more active.
    b. back of the brain became more active.
    c. the brainstem became less active.
    d. the entire brain became less active.

    ANS: A DIF: Moderate REF: Module 2.2 KEY: *
    MSC: TYPE: Fact

51. Eventually, fMRI may help us distinguish between lies and confabulations, which are
    a. true statements.
    b. half-truths.
    c. false claims believed to be true.
    d. false statements made with the intention to deceive.

    ANS: C DIF: Moderate REF: Module 2.2 KEY: *
    MSC: TYPE: Fact

TRUE/FALSE

1. Caleb fell out of his tree house and hit his head. To help rule out brain damage, the doctors at the hospital put Caleb within a chamber in which sound waves were utilized to give the doctors a three-dimensional picture of Caleb's brain. The doctors were using the technique known as a PET scan.

   ANS: F DIF: Moderate REF: Module 2.2 KEY: *
   MSC: TYPE: Application

2. Haier and associates found that the brains of people who perform well on mental tests consume less energy than those who perform poorly on these tests.

   ANS: T DIF: Difficult REF: Module 2.2 MSC: TYPE: Fact

3. A functional MRI gives both a three-dimensional structural view of the brain as well as making brain activity visible.

   ANS: T DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

COMPLETION

1. Dr. Montel is a psychologist who studies how the biological prcesses, brain, and nervous system are related to a person's behavior. Dr. Montel would be referred to as a(n) _____.

   ANS: biopsychologist

   DIF: Easy REF: Module 2.2 KEY: * MSC: TYPE: Application

2. Mrs. Armand has severed symptoms of what doctors believe may be a mild stroke. Doctors confirm this by placing her in a chamber in which sound waves will be utilized to obtain a three-dimensional picture of Mrs. Armand's brain, a technique referred to as a(n) _____.

   ANS:
   MRI
   magnetic resonance imaging

   DIF: Easy REF: Module 2.2 KEY: * MSC: TYPE: Application

3. Martina has what appears to be a seizure and her doctor expects she may have epilepsy. So, the doctor affixes electrodes to Martina's scalp in order to obtain a recording of her brain waves. The doctor is using a(n) _____.

ANS: EEG

DIF: Easy REF: Module 2.2 KEY: * MSC: TYPE: Application

4. The amount of radioactive glucose used by the brain cells is recorded by the brain scan technique known as a(n) _____.

   ANS:
   PET scan
   positron emission tomography scan
   PET

   DIF: Moderate REF: Module 2.2 KEY: * MSC: TYPE: Fact

5. Research by Daniel Langleben has shown that more activity will occur in the front of the brain when a person is lying than when telling the truth with the brain scan technique utilized in this research being the _____.

   ANS:
   fMRI
   functional MRI

   DIF: Moderate REF: Module 2.2 KEY: * MSC: TYPE: Fact

ESSAY

1. Describe Haier and his associates' experiment on brain efficiency, including a description of the brain technique they used.

   ANS:
   Answer will include that Haier used positron emission tomography, a PET scan, in his experiment. A PET scan detects positrons emitted by weakly radioactive glucose (sugar) as it is consumed by the brain. Since the brian runs on glucose, a PET scan shows which areas are using more energy. Higher energy use corresponds with higher acitivity. Using PET scans, Haier and his colleagues found that the brains of people who perform well on a difficult reasoning test consume less energy than those of poor performers. Haier believes this shows that intelligence is related to brain efficiency: Less efficient brains work harder and still accomplish less.

   DIF: Moderate REF: Module 2.2 MSC: TYPE: Fact

2. Describe how Daniel Langleben is using a brain scanning technique to detect lying.

ANS:
Answer will include that psychiatrist Daniel Langleben and his colleagues have used fMRI images to tell if a person is lying. In their brain scans, the front of the brain is more active when a person is lying, rather than telling the truth. This may occur because it takes extra effort to lie, and the resulting extra brain activity is detected with fMRI. Eventually, fMRI may help researchers to distinguish between lies, false statements made with the intention to deceive, and confabulations, which are false claims believed to be true.

DIF: Moderate REF: Module 2.2 KEY: *, www MSC: TYPE: Fact

Question Grid by Type

Module 2.2: Brain Research	Question Type	Fact	Concept	Application
Mapping Brain Structure—Pieces of the Puzzle	Multiple Choice	1, 4, 5, 6, 7, 10, 11	14	2, 3, 8, 9, 12, 13
	True/False			1
	Completion			1, 2
	Essay			
Mapping Brain Function—Figuring Out What the Parts Do	Multiple Choice	19, 21, 25, 26, 30, 31, 32, 33, 37, 38, 39, 40, 42, 43, 44, 45, 47, 48, 49, 50, 51	23, 28, 29, 46	15, 16, 17, 18, 20, 22, 24, 27, 34, 35, 36, 41,
	True/False	2, 3		
	Completion	4, 5		3
	Essay	1, 2		

Chapter 2: Brain and Behavior
Module 2.3

MULTIPLE CHOICE

1. Which area of the brain is responsible for the human intellectual superiority within the animal kingdom?
   a. hippocampus
   b. corpus callosum
   c. cerebellum
   d. cerebral cortex

   ANS: D DIF: Easy REF: Module 2.3 KEY: *
   MSC: TYPE: Concept

2. Which part of the brain consists of two large hemispheres, which are divided into smaller areas known as lobes?
   a. cerebellum
   b. cerebral cortex
   c. limbic system
   d. reticular formation

   ANS: B DIF: Easy REF: Module 2.3 KEY: *
   MSC: TYPE: Fact

3. Which of the following in humans looks like a giant, wrinkled walnut that consists of the two large hemispheres and covers the upper part of the brain?
   a. cerebellum
   b. cerebral cortex
   c. limbic system
   d. hippocampus

   ANS: B DIF: Easy REF: Module 2.3 KEY: *
   MSC: TYPE: Fact

4. The cerebral cortex is divided into two
   a. reticular formations.
   b. fissures.
   c. lobes.
   d. hemispheres.

   ANS: D DIF: Easy REF: Module 2.3 KEY: *
   MSC: TYPE: Fact

5. The cerebral cortex is divided into eight smaller areas known as
   a. reticular formations.
   b. amygdalas.
   c. lobes.
   d. hemispheres.

   ANS: C DIF: Easy REF: Module 2.3 KEY: *
   MSC: TYPE: Fact

6. Humans are superior to all other animals in
   a. intelligence.
   b. sensory sensitivity.
   c. speed and strength.
   d. all of these skills.

   ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

7. Which species of animals have the largest brains?
   a. amphibians
   b. reptiles
   c. birds
   d. mammals

   ANS: D DIF: Moderate REF: Module 2.3 KEY: *
   MSC: TYPE: Fact

8. Which is more important in gauging the intelligence of humans versus other animals?
   a. the overall size of the brain
   b. the thickness of the corpus callosum
   c. the ratio of brain weight to body weight
   d. the size of the cerebellum

   ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

9. Regarding brain size and abilities, which of the following statements is FALSE?
   a. A small positive correlation exists between intelligence and brain size.
   b. The overall size of the brain determines human intelligence.
   c. The cortex in lower animals is small and smooth.
   d. Animals surpass humans in almost every category os strength, speed, and sensory sensitivity.

   ANS: B DIF: Moderate REF: Module 2.3 KEY: *
   MSC: TYPE: Concept

10. The most obvious difference between the human brain and the brain of a fish would be in the
    a. hypothalamus.
    b. thalamus.
    c. cerebellum.
    d. cerebral cortex.

    ANS: D DIF: Easy REF: Module 2.3 MSC: TYPE: Application

11. The highest functioning and largest brain area found in humans.is the
    a. cerebral cortex.
    b. hypothalamus.
    c. limbic system.
    d. reticular activating system.

    ANS: A DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

12. The spongy tissue of the cerebral cortex that is made up mostly of cell bodies is called
    a. white matter.
    b. gray matter.
    c. the limbic system.
    d. the synaptic vesicle.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

13. The increased size and wrinkling of the cerebral cortex in higher animals is referred to as
    a. cerebralization.
    b. hemispherization.
    c. corticalization.
    d. reticulation.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

14. Human intelligence and the ability to acquire complex skills are basically a result of
    a. responsive sensory organs.
    b. greater upper-body strength
    c. brain corticalization.
    d. superior native instincts.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

15. Compared to the human brain, the cortex of lower animals
    a. is small and smooth.
    b. is twisted and folded.
    c. is extremely corticalized.
    d. contains 90 percent of the neurons in its CNS.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

16. Seventy percent of the neurons in the central nervous system of humans are located in the
    a. cerebral cortex.
    b. frontal lobe.
    c. spinal cord.
    d. medulla.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

17. The cerebral cortex in humans accounts for about what percent of all the neurons in the central nervous system?
    a. 10 percent
    b. 40 percent
    c. 70 percent
    d. 99 percent

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

18. "Half-globes" is the literal translation for which part of the brain?
    a. frontal lobes
    b. the two parts of the cerebellum
    c. hemispheres of the brain
    d. corpus callosum

    ANS: C DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

19. The two cerebral hemispheres are connected by a band of fibers called
    a. the corpus callosum.
    b. the lateral cortex.
    c. the cerebellum.
    d. association fibers.

    ANS: A DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

20. The corpus callosum is a thick band of fibers that connect
    a. the hindbrain to the midbrain.
    b. the motor cortex to the frontal lobe.
    c. hindbrain to the spinal cord.
    d. the two cerebral hemispheres.

    ANS: D DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

21. In humans, the right side of the brain mainly controls the
    a. right side of the body.
    b. left side of the body.
    c. lower half of the body.
    d. upper half of the body.

    ANS: B DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

22. John has some paralysis and loss of sensation in his right side after a motorcycle accident. It is likely that there is brain damage in the
    a. cerebellum.
    b. left hemisphere.
    c. corpus callosum.
    d. right hemisphere.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

23. When patients with right-hemisphere strokes ignore the left side of their visual space or refuse to acknowledge their paralyzed left arms, it is termed
    a. aphasia.
    b. amnesia.
    c. spatial neglect.
    d. agnosia.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: www
    MSC: TYPE: Concept

24. Ellie had a right hemisphere stroke. During her rehabilitation period, her family and the hospital staff noticed that she placed all articles on the right side of the dresser and did not notice an article if it were placed on the left side until it was brought to her attention. Even when eating, she tended to eat the food items on the right side of the plate before she even noticed food items on the left side. Ellie was exhibiting
    a. aphasia.
    b. agnosia.
    c. perceptual neglect.
    d. spatial neglect.

    ANS: D DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

25. A person exhibiting spatial neglect for their left visual field most likely has had damage to the
    a. right hemisphere.
    b. left hemisphere.
    c. corpus callosum.
    d. cerebellum.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

26. A person exhibiting spatial neglect will have difficulty
    a. making speech sounds.
    b. understanding speech.
    c. moving their right leg and arm.
    d. attending to the left side of their visual space.

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

27. Petra was told that an artery carrying blood to her brain became blocked, which caused some brain tissue to die. Petra experienced
    a. edema.
    b. an ESB.
    c. a stroke.
    d. neural induction.

    ANS: C DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

28. Jacob suspects he has had a stroke because he has difficulty controlling his right hand. This behavioral evidence of possible brain damage is
    a. a soft sign.
    b. spatial neglect.
    c. neurogenesis.
    d. virilism.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

29. Up early to feed his cat, Bryan Kolb could not see his hand, or anything else to his upper left side. He realized that he had most likely suffered a right hemisphere stroke because of this
    a. soft sign.
    b. confabulation.
    c. neurogenesis.
    d. aphasia.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

30. Which of the following are not direct tests of the brain, but are outward symptoms that help psychologists diagnose problems ranging from childhood learning disorder to full-blown psychosis?
    a. confabulations
    b. neurological soft signs
    c. neural inductions
    d. brain embolisms

    ANS: B DIF: Easy REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

31. Max, a seventy-year-old man has recently been exhibiting a somewhat awkward gait and poor eye-hand coordination as well as slight changes in his personality. His family encourages him to see a doctor, who determines that Max had had a slight stroke. His family's encouragement to see a doctor occurred because Max was showing
    a. neural inductions.
    b. full-blown psychosis.
    c. confabulations.
    d. neurological soft signs.

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Application

32. The right side of the brain is especially adapted for handling perceptual skills, such as drawing a picture or recognizing melodies, while the left side of the brain is especially adapted for the production and understanding of speech. This is known as
    a. corticalization.
    b. spatial lateralization.
    c. hemispheric specialization.
    d. peripheral localization.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

33. Which of the following scientists won a Nobel Prize for his discovery that the right and left brain hemispheres perform differently on tests of language, perception, music, and other capabilities?
    a. Richard J. Haier
    b. Roger Sperry
    c. Paul Broca
    d. John Dewey

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

34. The surgical procedure of cutting the corpus callosum is done in cases of
    a. communication problems.
    b. severe epilepsy.
    c. injury or stroke.
    d. split personality.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

35. Velishea has severe epileptic seizures that cannot be controlled by medication. Therefore, her doctor suggests that a surgery might help. The surgery would involve
    a. cutting the corpus callosum.
    b. removing the hippocampus.
    c. stimulating the brain's pleasure centers.
    d. severing the connection between the prefrontal lobe and the hypothalamus.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

36. In order to perform a split-brain operation, which of the following must be severed?
    a. pons
    b. cerebellum
    c. corpus callosum
    d. cerebral cortex

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

37. After a "split-brain" operation, the majority of people
    a. show severe impairment of language ability.
    b. show constant competition between the two hemispheres.
    c. function relatively normally, unless carefully tested.
    d. show a change in hand dominance.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

38. The most likely consequence of a split-brain operation is a patient
    a. whose actions are in continual conflict.
    b. with sharply diminished intellectual capacity.
    c. who acts normally in most situations.
    d. with a schizophrenic personality.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

39. An important outcome of Sperry's split-brain experiments was
    a. an undestanding of hemispheric specialization.
    b. a procedure for treating schizophrenia.
    c. insight into the relstionship between the central and peripheral nervous systems.
    d. a technique for training enhanced creativity.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

40. We flash a picture of a tree to the right brain of a split-brain patient and a picture of a dog to his left brain. If we ask the split-brain patient to draw what he saw using his left hand (out of sight), he will
    a. draw a dog.
    b. draw a tree.
    c. draw both a dog and a tree.
    d. be unable to draw either picture.

    ANS: B DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

41. If a split-brain subject were given a key (hidden from sight) to feel with his left hand, he
    a. could easily name what he had touched.
    b. would be unable to describe the object.
    c. would be able to point to the key with his right hand.
    d. would have to wait for the information transfer to take place before describing it.

    ANS: B DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

42. A circle is flashed to the left brain of a split-brain patient and he is asked what he saw. The split-brain patient will be
    a. able to easily name what he saw.
    b. unable to verbally describe the geometric shape.
    c. able to point to the circle with his left hand.
    d. unable to draw the circle with his right hand.

    ANS: A DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Application

43. If a triangle is flashed to a split brain patient's right brain, he will be able to
    a. easily name what he saw.
    b. identify the triangle by touch with his right hand.
    c. point to the triangle with his left hand.
    d. point and draw the triangle with both of his hands.

    ANS: C DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Application

44. In most people, the left hemisphere of the brain is in charge of
    a. language.
    b. art.
    c. pattern recognition.
    d. music.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

45. Judging time and rhythm and coordinating the order of complex movements, such as those needed for speech, are special skills of the
    a. right hemisphere.
    b. left hemisphere.
    c. corpus callosum.
    d. limbic system.

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

46. In most people, the right hemisphere of the brain is in charge of
    a. language.
    b. logic.
    c. art.
    d. mathematics.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

47. Sean's skills in computational math and analytic thought are mainly a function of the
    a. right hemisphere.
    b. limbic system.
    c. left hemisphere.
    d. midbrain.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *, www
    MSC: TYPE: Application

48. Perceptual skills involved in putting puzzles together or recognizing musical melodies are special skills of the
    a. right hemisphere.
    b. left hemisphere.
    c. midbrain.
    d. corpus callosum.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

49. A patient who has suffered brain damage to the left hemisphere is likely to experience diminished capacity for
    a. naming objects.
    b. recognizing faces.
    c. composing melodies.
    d. expressing emotions.

    ANS: A DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

50. The right hemisphere in humans
    a. is the major or dominant one in most right-handed persons.
    b. controls psychomotor activity on the right side of the body.
    c. governs the ability to use language, do math, and engage in analytical acts.
    d. is involved in recognizing faces and the expression of emotions.

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

51. For most people, an injury to which of the following brain areas would result in impairment of speaking, reading, or writing abilities?
    a. right cerebral hemisphere
    b. cerebellum
    c. limbic system
    d. left cerebral hemisphere

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

52. Successfully negotiating a maze, sculpting pottery, or painting a water color picture would be functions of the
    a. corpus callosum.
    b. left hemisphere.
    c. right hemisphere.
    d. temporal lobe.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

53. Harriet has lost the ability to recognize faces, and she's also lost her ability to detect the emotions that other people are feeling.You would expect to find damage to her
    a. left hemisphere.
    b. right hemisphere.
    c. midbrain.
    d. cerebellum.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

54. Sue has recovered from extensive injury to her left cerebral hemisphere and has continued her career with little sign of impairment. Her occupation is most likely which of the following?
    a. graphic artist
    b. accountant
    c. English teacher
    d. sports writer for a newspaper

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

55. Which of the following brain areas was most likely damaged if a person loses his or her ability to understand jokes, irony, sarcasm, and the overall context in which something is said?
    a. left hemisphere
    b. right hemisphere
    c. amygdala
    d. corpus callosum

    ANS: B DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

56. After having a stroke, Rich can speak and understand what has been said to him but he now has great difficulty understanding the context in which something is said. He is also unable to understand sarcasm and jokes. Rich has most likely suffered a stroke to
    a. the left hemisphere.
    b. the right hemisphere.
    c. Broca's area.
    d. Wernicke's area.

    ANS: B DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

57. LaMonte excels in algebra, solving each problem one step at a time. Brittany can easily visualize three-dimensional geometry problems. Which of the following is TRUE?
    a. LaMonte's preferred activity is centered in the left hemisphere, Brittany's in the right.
    b. LaMonte's preferred activity is centered in the right hemisphere, Brittany's in the left.
    c. Both are mathematical activities of the left brain.
    d. Both are holistic activities of the right brain.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

58. Which of the following best describes how the right hemisphere deals with information?
    a. processes information sequentially
    b. focuses on small details
    c. explores the overall pattern and general connections
    d. coordinates the order and sequencing of complex movements

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

59. Which of the following best describes how the left hemisphere deals with information?
    a. processes information simultaneously
    b. focuses on small details
    c. explores the overall pattern and general connections
    d. must use non-verbal responses

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

60. The left hemisphere processes information
    a. simultaneously.
    b. sequentially.
    c. holistically.
    d. through general connections.

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

61. The right hemisphere processes information
    a. simultaneously.
    b. sequentially.
    c. by specific details.
    d. analytically.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

62. Which part of the brain is most effective at breaking information into parts and processing this information in order, one item after the next?
    a. cerebellum
    b. right hemisphere
    c. left hemisphere
    d. corpus callosum

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

63. Which part of the brain views the world from a wide-angle view and is particularly effective in assembling pieces of the world into a coherent picture by seeing overall patterns and general connections?
    a. cerebellum
    b. right hemisphere
    c. left hemisphere
    d. corpus callosum

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

64. The most accurate conclusion that can be drawn from research on the brain is that
    a. normal people can be taught to use one hemisphere at a time.
    b. most people use the right hemisphere more often than the left hemisphere.
    c. only creative people can use both hemispheres equally.
    d. the activities of both hemispheres of the brain combine to produce most behaviors.

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

65. Regarding the functioning of the left and right hemispheres of the brain, which of the following statements is FALSE?
    a. People normally use both sides of the brain at all times.
    b. Some tasks may make more use of one hemisphere or the other.
    c. A smart brain is one that sees the details first and then later works it into an overall pattern.
    d. Each hemisphere does the parts of the activity it does best and then shares the information with the other side.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

66. Which of the following are defined by large fissures on the surface of the cortex or are regarded as separate areas because of their function?
    a. the limbic systems
    b. the lobes
    c. the ventromedial chisms
    d. the saltatory connections

    ANS: B DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

67. Which lobes of the brain are associated with higher mental abilities and play a role in one's sense of self?
    a. frontal
    b. occipital
    c. parietal
    d. temporal

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

68. An arch of tissue called the primary motor area directs the body's muscles and is located at the rear of the which lobes of the brain?
    a. frontal
    b. occipital
    c. parietal
    d. temporal

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

69. A researcher wishes to place electrodes in the brain so that existing motor activity can be used to control an artificial hand designed for amputees. The researcher should place the electrodes in the
    a. temporal lobe.
    b. dendrites.
    c. frontal lobe.
    d. occipital lobe.

    ANS: C DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

70. One's sense of self, motor function, and reasoning and planning ability are centered within which lobes of the brain?
    a. parietal lobes
    b. occipital lobes
    c. temporal lobes
    d. frontal lobes

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

71. Voluntary muscle movement originates in the primary motor cortex, which is located on the _____lobe.
    a. parietal
    b. occipital
    c. frontal
    d. temporal

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

72. Which of the following parts of the body would have the largest area represented on the motor area with regards to dexterity?
    a. shoulders
    b. feet
    c. torso
    d. hand

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

73. Regarding dexterity, there is a greater portion of motor cortex devoted to the
    a. hands and fingers.
    b. feet and toes.
    c. legs.
    d. arms.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

74. The map of motor cortex reflects the _____ of the various body areas.
    a. size
    b. sensitivity
    c. origin
    d. dexterity

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

75. Due to neuroplasticity, violin, viola, and cello players have a larger proportion of their _____ devoted to their hands.
    a. association cortex
    b. primary motor cortex
    c. reticular formation
    d. limbic system

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

76. Which of the following are active when we perform an action or merely observe one and are found in the motor cortex?
    a. pons
    b. mirror neurons
    c. neurogenetic nodes
    d. neurilemmas

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

77. The action of which of the following may explain how we can intuitively understand the behavior of others and may also underlie our ability to learn new skills by imitating others?
    a. pons
    b. neurogentic nodes
    c. mirror neurons
    d. neurilemmas

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

78. While Italian researchers were recording the activity of a single neuron in the motor cortex of a monkey, they noticed that this neuron responded the same way where the monkey was actually performing the motor task or just observing a researcher performing the task. This observation led to the discovery of
    a. amygdalas.
    b. effector cells.
    c. mirror neurons.
    d. neurilemmas.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

79. Neuroscientists speculate that newborn humans (and monkeys) are able to imitate other because networks of specific types of neuron are activated when an infant watches someone perform an action with this same network being used to perform that action. These specific types of neurons are called _____ neurons.
    a. effector
    b. sensory
    c. reflector
    d. mirror

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

80. The activation of mirror neurons may play a role in a person's ability to identify with another person's experiences and feelings, a skill known as human
    a. empathy.
    b. evaluation.
    c. intuition.
    d. reflection.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

81. A malfunction of the mirror neurons has been implicated in an early childhood condition in which the child shows impaired social interaction and communication as well as restricted and repetitive behavior, such as head banging. This condition is known as
    a. Tourette's syndrome.
    b. Down syndrome.
    c. autism spectrum disorders.
    d. acromegaly.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

82. According to the "broken mirrors" hypothesis, which of the following disorders that involves impaired social interaction and communication may arise in infants whose mirror neuron system has been damaged by genetic defects or environmental risk factors?
    a. autism
    b. agnosia
    c. virilism
    d. acromegaly

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *, www
    MSC: TYPE: Concept

83. According to one theory, autism may arise in some infants because genetic abnormalities or environmental risk factors damage the _____ system.
    a. limbic
    b. reticular activating
    c. mirror neuron
    d. endocrine

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

84. Areas of the brain that are NOT primarily sensory or motor in function are called the
    a. somatosensory areas.
    b. association cortex.
    c. temporal lobes.
    d. incidental lobes.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

85. The areas of the cerebral cortex that directly control the body or receive information from the senses are called _____ motor or sensory areas.
    a. primary
    b. association
    c. perceptual
    d. sematic

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

86. The areas of the cerebral cortex that combine and process information are called _____ areas.
    a. primary
    b. association
    c. perceptual
    d. semantic

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

87. Which area of the cortex combines and processes information from the senses and contributes to higher mental abilities, such as language?
    a. motor cortex
    b. somatosensory cortex
    c. aphasic cortex
    d. association cortex

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

88. A person with damage to the association areas in the left hemisphere would most likely suffer
    a. paralysis.
    b. deafness.
    c. aphasia.
    d. insensitivity to pain and temperature.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

89. A person who has aphasia would have an impaired
    a. ability to walk.
    b. sense of smell.
    c. ability to see.
    d. ability to use language.

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

90. Aphasia would be described as a(n)
    a. inability to recognize objects in one's left visual field.
    b. loss of tactile sensation due to brain damage.
    c. language disturbance resulting from brain damage.
    d. blind spot due to damage in the occipital lobe.

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

91. Aphasia would be the likely result of damage to
    a. the primary motor cortex of the frontal lobes.
    b. Broca's area or Wernicke's area.
    c. the primary visual areas of the occipital lobes.
    d. the cerebellum.

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

92. Following different accidents, Margo is unable to speak but can comprehend language, while Jeff is unable to comprehend the language he hears but can still produce speech sounds. Both are suffering from
    a. agnosia.
    b. aphasia.
    c. spatial neglect.
    d. damage to the primary somatosensory area.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

93. The center for the production of speech in 95 percent of all people is located in the _____ association area.
    a. left frontal
    b. right frontal
    c. left temporal
    d. right temporal

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

94. Paul Broca's patient "Tan" lost his ability to speak because an area in the left _____ association area of his brain had deteriorated.
    a. occipital
    b. frontal
    c. temporal
    d. parietal

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

95. Damage to which of the following causes motor or expressive aphasia?
    a. Wernicke's area
    b. Broca's area
    c. the corpus callosum
    d. the somatosensory cortex

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

96. Damage to Broca's area causes
    a. motor aphasia.
    b. receptive aphasia.
    c. mindblindness.
    d. facial agnosia.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

97. Which of the following is most closely associated with grammar and the correct pronunciation of words?
    a. the amygdala
    b. Broca's area
    c. Wernicke's area
    d. agnosia

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

98. Damage to Broca's area causes great difficulty in
    a. speaking or writing.
    b. walking.
    c. understanding the meaning of words.
    d. feeling pain.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

99. Jose has lost his ability to speak following a stroke, although he is still able to understand words spoken to him. Damage was most likely to
    a. the occipital lobe.
    b. Broca's area.
    c. Wernicke's area.
    d. the limbic system.

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

100. When shown a picture of a spoon, Alfred says, "foon, hoon, poon." Alfred's mispronunciation would be classified as a(n)
    a. primary agnosia.
    b. receptive aphasia.
    c. expressive aphasia.
    d. fluent aphasia.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Application

101. After suffering a stroke, Emil often knows what he wants to say but cannot seem to fluently utter the words. When he does speak, his pronunciation and grammar are poor, and his speech is slow and labored. However, Emil has no difficulty in understanding the speech of others. Emil has
    a. agnosia.
    b. receptive aphasia.
    c. motor aphasia.
    d. virilism.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Application

102. Greg now says "bafe" for "bake" and "seep" for "soap" because a stroke damaged
    a. his amygdala.
    b. Wernicke's area.
    c. his hypothalamus.
    d. Broca's area.

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Application

103. Damage to the frontal lobe may affect all of the following EXCEPT
    a. movement of body parts.
    b. reasoning and planning ability.
    c. tactile sensation of body parts.
    d. personality.

    ANS: C DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

104. Which part of the brain is related to complex behaviors with damage dramatically changing one's personality and emotional life?
    a. prefrontal area
    b. primary somatosensory area
    c. corpus callosum
    d. primary auditory area

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

105. Which part of the brain generates our sense of self, including our awareness of our current emotional state?
    a. prefrontal cortex
    b. primary somatosensory area
    c. corpus callosum
    d. thalamus

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

106. After Phineas Gage experienced serious damage to the _____ lobe, he underwent dramatic personality changes.
    a. temporal
    b. occipital
    c. parietal
    d. frontal

    ANS: D DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

107. Which of the following changes would you expect to occur in someone whose frontal lobes were damaged in an accident?
    a. development of blind spots in the visual field
    b. reduced capacity to hear high frequency sounds
    c. reduced reasoning and planning abilities and changes in personality
    d. inability to sense hot and cold

    ANS: C DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

108. Because of his abuse of drugs, Michael gets "stuck" on mental tasks and repeats the same answers over and over, even when the answers are wrong. His abuse of drugs most likely caused damage to his _____ lobes.
    a. temporal
    b. occipital
    c. parietal
    d. frontal

    ANS: D DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

109. PET scans suggest that much of what we call intelligence is related to increased activity in the _____ lobes.
a. frontal
b. occipital
c. parietal
d. temporal

ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

110. Persons are able to read Braille with their fingers because more of the primary _____cortex is devoted to the fingers.
a. somatosensory
b. limbic
c. occipital
d. temporal

ANS: A DIF: Moderate REF: Module 2.3 KEY: *
MSC: TYPE: Concept

111. Bodily sensations such as touch, temperature, and pressure register in which brain area?
a. the occipital lobes
b. the parietal lobes
c. the temporal lobes
d. the frontal lobes

ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

112. The primary somatosensory area is located in the _____ lobes.
a. temporal
b. parietal
c. occipital
d. frontal

ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

113. Regarding sensitivity, more of the primary somatosensory cortex is devoted to the
a. lips.
b. shoulder.
c. feet.
d. legs.

ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

114. Which of the following parts of the body would have the largest area represented on the somatosensory area by sensitivity?
a. foot
b. torso
c. arm
d. hand

ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

115. The map of somatosensory cortex reflects the _____ of the various body areas.
    a. size
    b. sensitivity
    c. coordination
    d. dexterity

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

116. Which of the following is a major function of the somatosensory area of the cerebral cortex?
    a. primary area for receiving visual information
    b. analysis of body sensations
    c. location of motor control of the body
    d. primary area for receiving auditory information

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

117. The greater the sensitivity of a part of the body, the
    a. larger the area of somatosensory cortex associated with it.
    b. smaller the area of somatosensory cortex associated with it.
    c. smaller the area of motor cortex associated with it.
    d. larger the area of the cerebellum associated with it.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

118. You are sitting in a very uncomfortable desk that is overly small and has a slight crack in the plastic that pinches your back when you move. This sensation on your body from the uncomfortable chair is being processed in your _____ lobes.
    a. frontal
    b. occipital
    c. parietal
    d. temporal

    ANS: C DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

119. You are running the water for your bath and place your hand under the faucet to "feel" and adjust the temperature of the water. The temperature of the water registers in which brain area?
    a. occipital lobes
    b. temporal lobes
    c. frontal lobes
    d. parietal lobes

    ANS: D DIF: Difficult REF: Module 2.3 MSC: TYPE: Application

120. Persons with damage to the somatosensory area in the parietal lobes will
    a. show changes in language comprehension.
    b. show enhanced reasoning.
    c. lose the feeling of touch in specific areas of the body.
    d. show deficits in visual perception.

    ANS: C DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

121. Which of the following changes would you expect to occur in someone whose parietal lobes were damaged in an accident?
    a. development of blind spots in the visual field
    b. reduced capacity to hear sounds
    c. reduced reasoning and planning abilities and changes in personality
    d. inability to sense hot and cold

    ANS: D DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

122. The brain center for hearing is in the _____ lobes.
    a. frontal
    b. temporal
    c. occipital
    d. parietal

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

123. A researcher electrically stimulates a part of Raphael's brain and Raphael "hears" a series of sounds. This researcher most likely stimulated Raphael's _____ lobes.
    a. frontal
    b. parietal
    c. occipital
    d. temporal

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

124. Which of the following is a major function of the temporal lobe?
    a. primary area for receiving visual information
    b. analysis of body sensations
    c. location of motor control of the body
    d. primary area for receiving auditory information

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

125. Which of the following combinations is correct?
    a. frontal lobe-------somatosensory area
    b. occipital lobe----motor cortex
    c. temporal lobe----hearing
    d. parietal lobe-----vision

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

126. Which of the following changes would you expect to occur in someone whose temporal lobes were damaged in an accident?
    a. development of blank spots in the visual field
    b. reduced capacity to hear sounds
    c. reduced reasoning and planning abilities and changes in personality
    d. inability to sense hot and cold

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

127. Persons with temporal lobe damage may
   a. show changes in personality and emotions.
   b. lose the ability to comprehend language.
   c. show deficits in visual perception.
   d. lose fine motor control.

   ANS: B DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

128. Which of the following is most closely associated with understanding the meaning of words heard?
   a. the hypothalamus
   b. Broca's area
   c. Wernicke's area
   d. the reticular formation

   ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

129. Marjorie is still able to speak, although she has great difficulty understanding the meanings of the words spoken by others. Damage was most likely to
   a. the somatosensory area.
   b. Broca's area.
   c. Wernicke's area.
   d. the limbic system.

   ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

130. The association area for the understanding of language for 95 percent of all people is located in the _____association area.
   a. left temporal
   b. right frontal
   c. left frontal
   d. right temporal

   ANS: A DIF: Moderate REF: Module 2.3 KEY: *
   MSC: TYPE: Fact

131. Wernicke's area is located in the _____ lobe.
   a. right frontal
   b. right temporal
   c. left frontal
   d. left temporal

   ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

132. Receptive or fluent aphasia is caused by damage to
   a. the amygdala.
   b. Broca's area.
   c. the cerebellum.
   d. Wernicke's area.

   ANS: D DIF: Moderate REF: Module 2.3 KEY: *, www
   MSC: TYPE: Concept

133. Damage to Wernicke's area causes great difficulty in
    a. speaking and writing.
    b. walking.
    c. understanding the meaning of words.
    d. feeling pain.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

134. Damage to Wernicke's area would lead to
    a. motor aphasia.
    b. fluent aphasia.
    c. expressive aphasia.
    d. facial agnosia.

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

135. When Jess is asked to hand the speech pathologist a spoon, he hands her the cup. The stroke most likely damaged
    a. the amygdala.
    b. Broca's area.
    c. Wernicke's area.
    d. the hypothalamus.

    ANS: C DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Application

136. When asked to point to the picture of "what we drive," the stroke patient points to a boat rather than the car, illustrating that the stroke damaged
    a. the somatosensory cortex.
    b. Broca's area.
    c. Wernicke's area.
    d. the corpus callosum.

    ANS: C DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Application

137. When asked to point to the picture of a bed, Tim points to the picture of the table. The brain damage he experienced has resulted in _____ aphasia.
    a. receptive
    b. motor
    c. fluent
    d. Broca's

    ANS: A DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Application

138. The primary visual area of the brain is located in the _____ lobe.
    a. frontal
    b. parietal
    c. temporal
    d. occipital

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

139. Using an electrode, an experimenter produces flashes of colored light and simple visual experiences in a patient undergoing brain surgery. Most likely she has activated the _____ lobes.
    a. parietal
    b. frontal
    c. occipital
    d. temporal

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

140. Zelda is experiencing more and more blind spots in her vision as her inoperable brain tumor increases. The brain tumor would be in her _____ lobe.
    a. frontal
    b. occipital
    c. parietal
    d. temporal

    ANS: B DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

141. You are sitting on a stool when suddenly you lean back and fall off the stool, hitting the back of your head on the floor. You "see stars" as you try to sit back up. This sensation of "seeing stars" occurred because
    a. neurons in your occipital lobe were stimulated.
    b. your eyes were jarred to the extent stars were seen.
    c. neurons in your retina were stimulated.
    d. neurons in your hypothalamus were stimulated.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

142. An elderly acquaintance of yours has suffered from partial blindness since she had a stroke. Apparently the stroke damaged her
    a. occipital lobe.
    b. parietal lobe.
    c. temporal lobe.
    d. reticular formation.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

143. Regarding visual images, which of the following statements is TRUE?
    a. Visual images are accurately represented in miniature in the occipital lobes like a "little TVscreen" in your brain.
    b. Visual images create patterns of activity in nerve cells in the occipital lobes which we interpret as images.
    c. Visual images are the exact opposite in color and form as real world images.
    d. Visual images are processed primarily by the parietal lobes.

    ANS: B DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

144. Regarding agnosia, which of the following statements is TRUE?
    a. Agnosia is the inability to identify visually-presented objects.
    b. Agnosia involves damage to a speech center.
    c. Agnosia results from damage to the thalamus and midbrain.
    d. Agnosia is a thought disturbance related to a mental disorder.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

145. Visual agnosia may sometimes be helped by
    a. cues of touch.
    b. visual cues.
    c. waiting long enough to think through an answer.
    d. hypnosis.

    ANS: A DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

146. Another term for "mindblindness" is
    a. aphasia.
    b. spatial neglect.
    c. dyslexia.
    d. visual agnosia.

    ANS: D DIF: Moderate REF: Module 2.3 MSC: TYPE: Fact

147. Alice is shown a candle. She can see it, describe it, and even draw it; but she cannot name it. Alice is suffering from
    a. expressive aphasia.
    b. spatial neglect.
    c. dyslexia.
    d. visual agnosia.

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Application

148. A person with facial agnosia cannot
    a. speak in a coherent manner.
    b. recognize familiar faces.
    c. move their facial muscles.
    d. feel sensations their face.

    ANS: B DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

149. Areas devoted to recognizing faces lie on the underside of the _____lobes.
    a. frontal
    b. parietal
    c. occipital
    d. temporal

    ANS: C DIF: Easy REF: Module 2.3 MSC: TYPE: Fact

150. Juanita had a stroke and is in the hospital. When her family members visit her in the hospital, Juanita is unable to recognize any of their faces, until she hears their voices. Juanita most likely has damage to the underside of her _____ lobes.
    a. frontal
    b. parietal
    c. occipital
    d. temporal

    ANS: C DIF: Moderate REF: Module 2.3 MSC: TYPE: Application

151. The evolutionary specialization of the occipital lobe for facial recognition may be due to this skill being important in
    a. self-preservation from potential dangers.
    b. leadership among tribe members.
    c. sound localization through lip movement.
    d. socialization.

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

152. The importance of socialization may have played a large role in the evolutionary specialization of the occipital lobe for
    a. facial recognition.
    b. language.
    c. motor function.
    d. emotional expression.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

153. In studies of the differences in men's and women's brains, which of the following was NOT found?
    a. No physical differences between male and female brains have been found.
    b. When presented with a language task, both men and women showed increased activity in Broca's area
    c. During the language task, both the left and the right brains were activated in more than half the women tested.
    d. Men and women performed equally well on a task that involved sounding out words.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

154. After damage to Broca's area, many women tend to regain more of their lost language abilities than men because
    a. Broca's area in women is larger than men's, making it harder to damage it completely in women.
    b. women tend to have more gray matter than men do.
    c. some women can use the right side of their brain to compensate for the loss, while men cannot.
    d. men's white matter is more concentrated in the frontal lobes, while women's white matter is more concentrated in the temporal lobe.

    ANS: C DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

155. Many women typically recover from strokes that result in aphasia faster than men do because many women
    a. rarely have strokes in the left hemisphere
    b. use both sides of the brain for language.
    c. have a larger hippocampus than men.
    d. have a larger hypothalamus than men.

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

156. Mary and John are both in their 30s, while Frank is in his 60s. All three are listening to a speech pathologist pronounce words. Research shows that listening to these words may occur in both sides of the brain for
    a. Mary.
    b. both Mary and John.
    c. both John and Frank.
    d. all three persons.

    ANS: A DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Application

157. In a study of persons having similar IQs, it was found that
    a. men had more gray matter, while women had more white matter.
    b. men's gray and white matter were concentrated more in their frontal lobes.
    c. women's gray matter was equally split between the frontal and parietal lobes.
    d. women's white matter was concentrated in their temporal lobes.

    ANS: A DIF: Difficult REF: Module 2.3 MSC: TYPE: Fact

158. In a study of persons having similar IQs, women's gray and white matter was concentrated more in their _____lobes.
    a. parietal
    b. frontal
    c. temporal
    d. occipital

    ANS: B DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

159. In a study of persons having similar IQs, men's gray matter was split between their _____ lobes.
    a. temporal and occipital
    b. parietal and temporal
    c. occipital and frontal
    d. frontal and parietal

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

160. In a study of persons having similar IQs, men's white matter was concentrated mostly in the _____ lobes.
    a. fontal
    b. occipital
    c. parietal
    d. temporal

    ANS: D DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

TRUE/FALSE

1. Superior human intelligence is related ot the fact that humans have brains with larger cerebellums.

    ANS: F DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

2. Damage to the corpus callosum may cause a problem known as spatial neglect.

    ANS: F DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Fact

3. The right hemisphere utilizes simultaneous processing and tends to focus on the overall pattern when processing information.

    ANS: T DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

4. An arch of tissue at the rear of the temporal lobes, called the primary somatosensory cortex, direct the body's muscles.

    ANS: F DIF: Moderate REF: Module 2.3 KEY: *
    MSC: TYPE: Concept

5. If an individual refers to a "sofa" as a "table" or a "stool," this problem in comprehending the meaning of words is most likely due to damage to Broca's area.

    ANS: F DIF: Difficult REF: Module 2.3 KEY: *
    MSC: TYPE: Application

6. Visual images are accurately represented in miniature in the occipital lobes much like a "little TV screen" in the brain.

   ANS: F DIF: Difficult REF: Module 2.3 MSC: TYPE: Concept

COMPLETION

1. The increased size and wrinkling of the cerebral cortex in higher animals is referred to as _____.

   ANS: corticalization

   DIF: Moderate REF: Module 2.3 KEY: * MSC: TYPE: Fact

2. The right and left hemispheres are connected by a bridge of nerve tissue called the _____.

   ANS: corpus callosum

   DIF: Easy REF: Module 2.3 KEY: * MSC: TYPE: Fact

3. Perceptual skills involved in putting puzzles together or recognizing musical melodies are special skills of the _____ hemisphere.

   ANS: right

   DIF: Moderate REF: Module 2.3 KEY: * MSC: TYPE: Fact

4. A person with brain damage who mispronunces the word "cross" by saying "croth" would most likely have damage to _____area.

   ANS: Broca's

   DIF: Difficult REF: Module 2.3 KEY: * MSC: TYPE: Application

5. Clark was skateboarding and fell backwards hitting his head. He told his friends that he "saw stars" because he hit the _____ lobe of the brain when he fell.

   ANS: occipital

   DIF: Moderate REF: Module 2.3 KEY: * MSC: TYPE: Application

ESSAY

1. Why do split brain patients rarely have major problems in everyday functioning after surgery?

   ANS:
   Answer will include that conflicts between the two hemispheres is rare after the "split-brain" operation because both hemispheres have similar experiences so that if there is a conflict, one hemisphere will usually override the other. Unless under specialized testing in which objects are presented in separate visual fields or the person is required to use one hand or the other, the "split-brain" patient can avert any conflict by choosing to look at the object with both eyes and use whichever hand they want to in order to complete the real-life activity.

   DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

2. Discuss mirror neurons, including where they are located, how they were discovered, what their functions are in humans and primates, and how a particular childhood disorder may be caused by damage to these neurons.

   ANS:
   Answer will include that mirror neurons become active when we perform an action and when we merely observe someone else carrying out the same action. The motor cortex is one brain area that contains mirror neurons. Regarding the discovery of mirror neurons, Italian researchers had just recorded an increase in the activity of a single neuron in the motor cortex of a monkey as it reached for food. A few seconds later, one of the researchers happened to reach for a snack of his own. The same neuron again responded as if the monkey had reached for the food itself. Thus, the observation that a neuron involved in controlling a particular motor movement was also activated when the monkey merely observed that same motor movement in someone else led to the discovery of mirror neurons. Because they mirror actions performed by others, such neurons may explain how we can intuitively understand other people's behavior. They may also underlie our ability to learn new skills by imitation. Neuroscientists speculate that newborn humans (and monkeys) are able to imitate others because networks of mirror neurons are activated when an infant watches someone perform an action. Then the same mirror network can be used to perform that action. Similarly, human empathy (the ability to identify with another person's experiences and feelings) may arise from activation of mirror neurons. Mirror neurons may even partially explain autism spectrum disorders. In early childhood, children with autism begin to suffer from an impaired ability to interact and communicate with other people. Restricted and repetitive behavior such as head banging is also common. According to the broken mirrors hypothesis, autism may arise in infants whose mirror neuron system has been damaged by genetic defects or environmental risk factors. This explanation is attractive because autism's primary features of impaired communication and social interaction appear to be related to the role that mirror neurons play in reflecting the actions and words of others. To date, these are just hypotheses that await empirical confirmation. More importantly, such possibilities have not yet led to any new therapies for autism.

   DIF: Moderate REF: Module 2.3 KEY: *, www MSC: TYPE: Concept

3. Of the brain parts listed below, which two would you NOT want to damage and why?

   hippocampus, Wernicke's area, reticular formation, medulla, Broca's area

   ANS:
   Answer will include that one would not want to lose functioning of the medulla and reticular formation. The medulla is required to maintain heart rate and breathing, while the reticular formation controls reflexes involved in breathing, sneezing, coughing, and vomiting. Damage to the medulla and reticular formation would pose an immediate threat to survival. However, damage to the hippocampus would affect memory formation, while damage to Broca's and Wernicke's areas would affect language. Thus, damage to these other areas would be uncomfortable but would not be fatal.

   DIF: Moderate REF: Module 2.3 MSC: TYPE: Concept

Question Grid by Type

Module 2.3: Hemispheres and Lobes of the Cerebral Cortex	Question Type	Fact	Concept	Application
The Cerebral Cortex—My, What a Wrinkled Brain You Have!	Multiple Choice	2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 30, 33, 34, 36, 37, 38, 44, 46, 48, 50, 58, 59, 60, 61, 62, 63, 66, 67, 68, 70, 71, 72, 73, 74, 76, 78, 79, 80, 84, 85, 86, 87, 90, 91, 93, 95, 96, 97, 98, 104, 105, 109, 111, 112, 113, 114, 115, 116, 122, 124, 125, 128, 130, 131, 138, 144, 146, 148, 149, 153, 157, 158, 159, 160	1, 8, 9, 23, 32, 39, 45, 51, 55, 64, 65, 75, 77, 81, 82, 83, 88, 89, 103, 107, 110, 117, 120, 121, 123, 126, 127, 132, 133, 134, 143, 145, 151, 152, 154, 155	10, 24, 26, 28, 29, 31, 35, 40, 41, 42, 43, 47, 49, 52, 53, 54, 7, 56, 69, 92, 94, 99, 100, 101, 102, 106, 108, 118, 119, 129, 135, 136, 137, 139, 140, 141, 142, 147, 150, 156

	True/False	2,	1, 3, 4, 6	5
	Completion	1, 2, 3		4, 5
	Essay		1, 2	

Chapter 2: Brain and Behavior
Module 2.4

MULTIPLE CHOICE

1. The brainstem, midbrain, and parts of the forebrain are referred to as the
   a. reticular formation.
   b. subcortex.
   c. gray matter.
   d. cerebrum.

   ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

2. The three main areas of the subcortex are the
   a. brainstem, cerebellum, and corpus callosum
   b. forebrain, brainstem, and the upper parts of the hindbrain.
   c. brainstem, midbrain, and cerebral cortex.
   d. brainstem, midbrain, and the lower parts of the forebrain.

   ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

3. The subcortex areas include all of the following brain areas EXCEPT the
   a. hypothalamus.
   b. hippocampus.
   c. cerebral cortex.
   d. medulla.

   ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

4. Which of the following parts of the brain can be viewed as a link between the forebrain and the brainstem?
   a. corpus callosum
   b. midbrain
   c. hypothalamus
   d. limbic system

   ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

5. Which of the following structures is NOT part of the hindbrain?
   a. medulla
   b. pons

c. cerebellum
d. hypothalamus

ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

6. As the spinal cord joins the brain, it widens into the
a. brainstem.
b. cerebrum.
c. limbic system.
d. corpus callosum.

ANS: A DIF: Easy REF: Module 2.4 KEY: *
MSC: TYPE: Fact

7. The brainstem consists mainly of the
a. cerebellum and the cerebral cortex.
b. cerebrum and the medulla.
c. medulla and the cerebellum.
d. cerebral cortex and the medulla.

ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

8. The reflex control centers for vital life functions like heart rate and breathing are found in the
a. forebrain.
b. medulla.
c. hippocampus.
d. thalamus.

ANS: B DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

9. Severe damage to which of the following parts of the brain would most likely result in death?
a. amygdala
b. medulla
c. hippocampus
d. cerebellum

ANS: B DIF: Easy REF: Module 2.4 MSC: TYPE: Concept

10. A karate chop to an area at the top of the neck could stop a person’s heart and breathing by damaging the
a. hippocampus.
b. thalamus.
c. medulla.
d. amygdala.

ANS: C DIF: Easy REF: Module 2.4 MSC: TYPE: Application

11. The pons acts as a bridge between the medulla and other brain areas and influences
a. memory.
b. sleep and arousal.
c. motor behavior.
d. higher reasoning.

ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

12. Which of the following parts of the brain looks like a small bump on the brainstem and acts as a bridge between the medulla and other brain areas?
    a. pons
    b. hippocampus
    c. hypothalamus
    d. limbic system

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

13. Through his use of stimulants and hallucinogens, Martin caused damage to his pons. Now doctors have to inject him with medication that will help
    a. him store new memories.
    b. him to move his legs in a coordinating way.
    c. him to sleep.
    d. control his aggressiveness.

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

14. Muscle tone, body balance, and muscular coordination are regulated by the
    a. hypothalamus.
    b. cerebellum.
    c. hippocampus.
    d. limbic system.

    ANS: B DIF: Moderate REF: Module 2.4 KEY: www
    MSC: TYPE: Fact

15. Christina enviously watches her tennis rival practice. She admires Sarina's control of the racket and finely coordinated movement. Having just covered the section on the brain in her psychology class, Christina states that Sarina must have a highly developed
    a. hypothalamus.
    b. cerebellum.
    c. hippocampus.
    d. limbic system.

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Application

16. Damage to the cerebellum would most likely result in
    a. heart stoppage or respiratory failure.
    b. a loss of hearing ability.
    c. a loss of muscular coordination.
    d. a reduction in emotional response.

    ANS: C DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

17. Weeks after an automobile accident, a friend continues to have difficulty maintaining balance and coordinating her movements.You should suspect that damage may have occurred to the
    a. corpus callosum.
    b. thalamus.
    c. medulla.
    d. cerebellum.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

18. The cerebellum stores which type of memory?
    a. the names of persons and other personal information
    b. skill memories, such as riding a bicycle
    c. knowledge of information heard or spoken
    d. knowledge of information seen or read

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

19. Musicians, who practice special motor skills throughout their lives, have a larger than average
    a. pons.
    b. limbic system.
    c. cerebellum.
    d. thalamus.

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

20. The first symptom(s) of a crippling disease called spinocerebellar degeneration
    a. are hyperactivity and a lack of attention.
    b. are tremors, dizziness, and muscular weakness.
    c. is an inability to recognize faces and familiar surroundings by sight alone.
    d. is an inability to store new long-term memories.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

21. Jordan has developed a noticeable tremor and is experiencing dizziness and muscular weakness. Her doctor tells her that she has a crippling disease that will eventually progress to the point that she will have difficulty standing, walking, or feeding herself.
    a. spinocerebellar degeneration
    b. degenerative agnosia
    c. degenerative aphasia
    d. virilism

    ANS: A DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Application

22. The reticular formation (RF) is associated with
    a. hunger and thirst.
    b. attention and wakefulness.
    c. sex, rage, and emotion.
    d. pleasure and punishment.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

23. Which of the following is a network of fibers and cell bodies that lies inside the medulla and brainstem and is associated with attention, alertness, and some reflexes, such as sneezing and coughing?
    a. reticular formation
    b. amygdala
    c. hippocampus
    d. thalamus

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

24. Which of the following parts of the brain does not fully mature until adolescence, which may explain why children have such short attention spans?
    a. thalamus
    b. hypothalamus
    c. reticular formation
    d. amygdala

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

25. Regarding the reticular formation, which of the following statements is FALSE?
    a. Destruction of the reticular formation causes constant wakefulness.
    b. The reticular formation is found in the brainstem and medulla.
    c. The reticular formation is important in the control of attention and arousal.
    d. The reticular formation acts as a clearinghouse for incoming information, giving some messages priority while turning others aside.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

26. Which part of the hindbrain prioritizes incoming messages and modifies outgoing commands to the body, affecting muscle tone, posture, and movements of the eyes, face, head, body, and limbs, while also controlling reflexes involved in breathing, sneezing, coughing, and vomiting?
    a. reticular formation
    b. amygdala
    c. hippocampus
    d. thalamus

    ANS: A DIF: Difficult REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

27. Which brain area receives incoming messages from the sense organs and bombards the cortex with stimulation, keeping the brain active and alert?
    a. thalamus
    b. medulla
    c. reticular activating system (RAS)
    d. limbic system

    ANS: C DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

28. A sleepy driver rounds a bend and sees a deer standing in the road. The driver snaps to attention and applies the brakes, averting the accident, because his brain was aroused by the
    a. parasympathetic nervous system.
    b. reticular activating system (RAS).
    c. thalamus.
    d. pineal gland.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

29. You begin to doze off in class but suddenly come to awareness when your name is called. The part of the brain responsible for your sudden arousal is the
    a. sympathetic nervous system.
    b. reticular activating system (RAS).
    c. thalamus.
    d. pituitary gland.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

30. The thalamus and hypothalamus are considered parts of the
    a. forebrain.
    b. hindbrain.
    c. midbrain.
    d. brainstem.

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

31. Which of the following is a small, football-shaped structure in the forebrain that acts as a final switching station for most incoming sensory information on its way to the cortex?
    a. cerebellum
    b. reticular formation
    c. hippocampus
    d. thalamus

    ANS: D DIF: Difficult REF: Module 2.4 MSC: TYPE: Fact

32. Damage to the thalamus may affect any of the senses below EXCEPT
    a. vision.
    b. hearing.
    c. touch.
    d. smell.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

33. Because vision, hearing, taste, and touch all pass through this small, football-shaped structure, injury to even small areas of which brain part can cause deafness, blindness, or loss of any other sense, except smell?
    a. thalamus
    b. hypothalamus
    c. hippocampus
    d. amygdala

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

34. After a stroke, Jarmaine began having periodic trouble with his hearing, then he began experiencing visual problems, and sometimes even numbness in different parts of his body. Although Jarmaine can still smells his wife's cooking, he is unable to taste it. Which part of his brain is malfunctioning?
    a. hypothalamus
    b. reticular formation
    c. hippocampus
    d. thalamus

    ANS: D DIF: Difficult REF: Module 2.4 MSC: TYPE: Application

35. Which part of the forebrain is the size of a grape but is considered the master control center for emotion and many basic motives?
    a. thalamus
    b. hypothalamus
    c. corpus callosum
    d. cerebellum

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

36. Which of the following is NOT controlled by the hypothalamus?
    a. sex
    b. eating and drinking
    c. temperature control
    d. posture

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

37. Which part of the brain is responsible for hunger, thirst, sex, body temperature, and endocrine secretion?
    a. reticular formation
    b. pons
    c. hypothalamus
    d. hippocampus

    ANS: C DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

38. Which part of the forebrain is basically a "crossroads" that connects many areas of the brain and is the last place where many behaviors are organized or "decided on" before messages leave the brain?
    a. amygdala
    b. pons
    c. hypothalamus
    d. hippocampus

    ANS: C DIF: Difficult REF: Module 2.4 MSC: TYPE: Application

39. A medical student destroys part of a rat's brain so that it later develops a tremendous appetite and continues to eat long after it has acquired ample nutrition. What part of the brain has been damaged?
    a. thalamus
    b. hypothalamus
    c. hippocampus
    d. amygdala

    ANS: B DIF: Difficult REF: Module 2.4 MSC: TYPE: Application

40. The limbic system includes the
    a. medulla, hypothalamus, and thalamus.
    b. medulla, amygdala, and hippocampus.
    c. medulla, hypothalamus, amygdala, hippocampus, and parts of the thalamus.
    d. hypothalamus, amygdala, hippocampus, and parts of the thalamus.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

41. The hypothalamus, the hippocampus, the amygdala, and parts of the thalamus make up the _____ system.
    a. somatosensory
    b. endocrine
    c. limbic
    d. reticular activating

    ANS: C DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

42. The limbic system is responsible for
    a. the control of hunger, laughter, and sex.
    b. language function.
    c. heartbeat and breathing regulation.
    d. auditory processing.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

43. Which brain area was the earliest layer of the forebrain to develop during evolution and helps organize basic survival responses in lower animals, such as feeding, fleeing, fighting, and reproduction?
    a. occipital lobe
    b. limbic system
    c. brainstem
    d. somatosensory area

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

44. Which brain area within the forebrain has a major role in producing emotions and motivating behaviors, including rage, fear, sexual response, and laughter?
    a. somatosensory cortex
    b. endocrine system
    c. limbic system
    d. reticular activating system

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

45. A researcher places an electrode in a cat's limbic system, which he activates. The cat suddenly jumps up, runs to the corner, and prepares to attack. What part of the limbic system was stimulated?
    a. hippocampus
    b. thalamus
    c. hypothalamus
    d. amygdala

    ANS: D DIF: Difficult REF: Module 2.4 MSC: TYPE: Application

46. The fear response that enables us to respond to potentially dangerous stimuli before we are really aware of them is under the control of the
    a. hippocampus.
    b. amygdala.
    c. hypothalamus.
    d. thalamus.

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

47. Megan suffers from a phobia of kittens and cats. Even though she consciously understands that she does not have to be afraid of such small creatures, she still exhibits nervousness as she watches her daughter petting a neighbor's gentle cat. Which part of the limbic system causes this fear response that Megan does not understand?
    a. hippocampus
    b. thalamus
    c. hypothalamus
    d. amygdala

    ANS: D DIF: Difficult REF: Module 2.4 MSC: TYPE: Application

48. You are walking down a dark alley with several packages. Behind you, you hear a door open and close suddenly, and you immediately dive into the nearest trash container. The part of the brain mainly responsible for your reaction is the
    a. hippocampus.
    b. medulla.
    c. cerebrum.
    d. amygdala.

    ANS: D DIF: Difficult REF: Module 2.4 KEY: www
    MSC: TYPE: Application

49. Which part of the brain stores lasting verbal memories and helps us navigate through space?
    a. amygdala
    b. hypothalamus
    c. pons
    d. hippocampus

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

50. Memory-like or dream-like experiences are produced when the temporal lobes are stimulated because the _____ lies inside the temporal lobes.
    a. amygdala
    b. hippocampus
    c. thalamus
    d. pons

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

51. Regarding the hippocampus, which of the following statements is FALSE?
    a. It lies inside the temporal lobes.
    b. It is associated with forming lasting memories.
    c. It provides a quick pathway to the cortex for fear responses.
    d. It helps us navigate through space.

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

52. A detective is shot and suffers brain damage. He is unable to store new memories, so he must relearn information each day from photographs and notes as he tries to find thec riminal that shot him. The part of his brain that was most likely damaged was the
    a. hypothalamus.
    b. hippocampus.
    c. somatosensory cortex.
    d. amygdala.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

53. Although Marcie remembers all aspects of her life before she experienced brain damage in a terrible fall, she must reread each morning a summary of the details of her present life written in a diary because she is unable to adequately store new memories. The brain damage Marcie experienced was most likely to her
    a. amygdala.
    b. pons.
    c. hypothalamus.
    d. hippocampus.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

54. By using electrical stimulation, reward (or pleasure centers) and punishment (or "aversive" areas) can be shown to exist in the
    a. cerebellum.
    b. limbic system.
    c. occipital lobe.
    d. medulla.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

55. Many of the addictive drugs activate the same pleasure centers as are activated by food and sex. Many of the pleasure centers are located in the
    a. hypothalamus.
    b. medulla.
    c. cerebellum.
    d. corpus callosum.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

56. Listening to certain pieces of music can send shivers down your spine because it activates the _____ of your brain.
    a. reticular activing system
    b. limbic system
    c. corpus callosum
    d. midbrain

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

57. Regarding the limbic system, which of the following statements is TRUE?
    a. Many of the "pleasure pathways" in the limbic system are found within the pons.
    b. When punishment areas in the limbic system are activated, animals actually show pleasure rather than discomfort and work actively to keep the stimulation turned on.
    c. Commonly abused drugs, such as cocaine, nicotine, marijuana,and alcohol activate the same pleasure pathways as sex and food.
    d. The limbic system is made up of the medulla, cerebellum, pons, and reticular formation.

    ANS: C DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

58. Regarding the limbic system, which of the following statements is FALSE?
    a. Many of the "pleasure pathways" in the limbic system are found within the pons.
    b. When punishment areas in the limbic system are activated, animals show discomfort and will work hard to turn off the stimulation.
    c. Commonly abused drugs, such as cocaine, nicotine, marijuana,and alcohol activate the same pleasure pathways as sex and food.
    d. Music that would be described as "thrilling" can activate pleasure systems in your brain.

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

59. Which of the following is NOT considered a basic function of the brain?
    a. maintaining bodily functions
    b. directing muscles and glands
    c. creating the magic of consciousness
    d. reordering the genetic code during organogenesis

    ANS: D DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

60. Which of the following is NOT considered a basic function of the brain?
    a. maintaining vital bodily functions and controlling muscles
    b. regulating the percentage of nutrients taken in from the environment
    c. keeping track of the external world and responding to current needs
    d. creating consciousness and regulating itself

    ANS: B DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

61. Which of the following statements is FALSE regarding the brain?
    a. Brain circuitry cannot be significantly changed by outside experiences.
    b. Incoming information scatters all over the brain and converges again as it goes out through the spinal cord, to muscles and glands.
    c. Researchers have developed brain–computer interfaces that translate a patient's EEG recordings into commands that can be used to control a computer.
    d. The brain is a vast information-processing system.

    ANS: A DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

62. Researchers have developed a brain-computer interface that translates patient's which of the following into commands that can be used to control a computer and access the Internet?
    a. motor memories in the cerebellum
    b. galvanic skin temperature
    c. EEG recordings
    d. limbic system "pleasure-pain" reactions

    ANS: C DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

63. Hormones are poured into the bloodstream by glands of the _____ system.
    a. parasympathetic
    b. exocrine
    c. endocrine
    d. somatic

    ANS: C DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

64. Which system is made up of glands whose secretions pass directly into the bloodstream or lymph system?
    a. endocrine
    b. somatosensory
    c. limbic
    d. reticular activating

    ANS: A DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

65. A glandular secretion that affects body functions and behavior is known as
    a. a neurotransmitter.
    b. neurilemma.
    c. enkephalin.
    d. a hormone.

    ANS: D DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

66. Regarding the endocrine system, which of the following statements is FALSE?
    a. Like neurotransmitters, hormones active cells in the body and the cells must have receptor sites for the hormones.
    b. The glands of the endocrine system secrete chemicals directly into the bloodstream or lymph system.
    c. Androgens ("male hormones") are related to the sex drive in both males and females.
    d. Hormones secreted during times of high emotion tend to decrease memory formation.

    ANS: D DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

67. Regarding the action of hormones, which of the following statements is FALSE?
    a. Pregnancy and motherhood cause the release of hormones that lead to dramatic changes involved in maternal behavior.
    b. After watching violent movie scenes, men have lower levels of the male hormone testosterone.
    c. At least some of the emotional turmoil in adolescence is due to elevated hormone levels.
    d. For both men and women, watching a romantic film boosted a hormone that is linked to relaxation and reproduction.

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

68. . Regarding the action of hormones, which of the following statements is FALSE?
    a. The same hormones prevail when you are angry as when you are fearful.
    b. After watching violent movie scenes, men have higher levels of the male hormone testosterone.
    c. Hormones secreted during times of high emotion intensify memory formation.
    d. Disturbing personality patterns may be linked to hormonal irregularities.

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

69. The pea-sized structure hanging from the base of the brain that is important in regulating growth is called the _____ gland.
    a. pituitary
    b. pineal
    c. thyroid
    d. adrenal

    ANS: A DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

70. All of the following are problems associated with the pituitary gland, EXCEPT for
    a. acromegaly.
    b. virilism.
    c. dwarfism.
    d. giantism.

    ANS: B DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

71. People with hypopituitary dwarfism have
    a. normal-size bodies but smaller than average arms, hands, feet, and facial bones.
    b. perfectly proportioned bodies and limbs, but are small.
    c. smaller than average bodies but enlarged arms, hands, feet, and facial bones.
    d. unusually large heads in proportion to their limbs.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

72. If too little growth hormone is released from the pituitary gland, a person may develop
    a. giantism.
    b. dwarfism.
    c. virilism.
    d. acromegaly.

    ANS: B DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

73. If too much growth hormone is secreted at the beginning of the growth period, it can cause
    a. giantism.
    b. dwarfism.
    c. virilism.
    d. acromegaly.

    ANS: A DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

74. The condition in which too much growth hormone is secreted toward the end of the growth period is called
    a. delayed dwarfism.
    b. virilism.
    c. hypopituitary dwarfism.
    d. acromegaly.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

75. Arnold received too much growth hormone during puberty (late in the growth cycle). His hands, feet, and face show an overgrowth. He has the condition known as
    a. acromegaly.
    b. giantism.
    c. dwarfism.
    d. virilism.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

76. Enlarged hands, feet, and facial bones that create prominent facial features may be the result of
    a. acromegaly.
    b. giantism.
    c. dwarfism.
    d. hypopituitary dwarfism.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

77. In women, which gland controls milk output during breastfeeding?
    a. pineal
    b. pituitary
    c. thyroid
    d. adrenal

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

78. Which gland is considered the master gland and regulates the functioning of other glands?
    a. adrenal
    b. pineal
    c. thyroid
    d. pituitary

    ANS: D DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

79. A critical link between the chemical and neural information systems in humans is the link between the
    a. thalamus and thyroid gland.
    b. reticular formation and adrenal gland.
    c. cerebellum and sex glands.
    d. hypothalamus and pituitary gland.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

80. Which part of the brain is located directly above the pituitary gland and is able to affect all of the other glands in the body by influencing the pituitary gland?
    a. pons
    b. reticular formation
    c. hypothalamus
    d. midbrain

    ANS: C DIF: Moderate REF: Module 2.4 KEY: *, www
    MSC: TYPE: Fact

81. Which gland is associated with a well-developed light-sensitive organ, or "third eye" found in certain fishes, frogs, and lizards and was once considereed a useless remnant of evolution in humans?
    a. pineal
    b. thyroid
    c. adrenal
    d. pituitary

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

82. Melatonin is released by the _____ gland.
    a. pituitary
    b. pineal
    c. thyroid
    d. adrenal

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

83. Which gland is associated with body rhythms and sleep cycles and secretes the hormone melatonin?
    a. pituitary
    b. pineal
    c. thyroid
    d. adrenal

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

84. The pineal gland releases a hormone called
    a. endorphin.
    b. thyroxin.
    c. testosterone.
    d. melatonin.

    ANS: D DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

85. The hormone melatonin regulates
    a. growth.
    b. male and female sex drive.
    c. salt balance in the body.
    d. sleep cycles.

    ANS: D DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

86. Which hormone is released in response to daily variations in light with its levels rising in the bloodstream at dusk, peaking around midnight, and falling again as morning approaches?
    a. adrenaline
    b. thyroxin
    c. melatonin
    d. androgen

    ANS: C DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

87. Which of the following is the correct endocrine gland and hormone pairing?
    a. pineal gland-----melatonin
    b. pituitary----------epinephrine
    c. adrenal gland-----human growth hormone
    d. thyroid----------norepinephrine

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

88. Jasmine is experiencing jet lag after a long flight, that is, her body had difficulty adjusting to the time difference so that she felt sleepy when she should be awake and vice versa. Which gland and hormone are responsible for Jasmine's condition?
    a. thyroid gland------thyroxin
    b. adrenal gland-----epinephrine
    c. adrenal gland------norepinephrine
    d. pineal gland-------melatonin

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

89. Which gland located in the neck, regulates the rate at which energy is produced and expended in the body?
    a. pineal
    b. thyroid
    c. adrenal
    d. pituitary

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

90. Which gland by altering metabolism can have a sizable effect on personality with overactivity of this gland causing excitability and underactivity causing one to be lethargic?
    a. pineal
    b. pituitary
    c. adrenal
    d. thyroid

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

91. Which of the following is a correct match?
    a. pituitary----------adrenaline
    b. thyroid----------metabolism
    c. adrenal gland------dwarfism
    d. adrenal cortex-----growth hormone

    ANS: B DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

92. Overactivity of which gland leads to tenseness, nervousness, and excitability?
    a. thyroid
    b. thymus
    c. pineal
    d. pituitary

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

93. Underactivity of which gland causes inactivity, sleepiness, slowness, obesity, and depression?
    a. thyroid
    b. thymus
    c. pineal
    d. pituitary

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

94. Darlene experienced an increase in blood pressure, lost weight, and was extremely tense and irritable most of the time. Her doctor found that one of her endocrine glands was producing too much of its hormone. Darlene most likely has
    a. an overactive thyroid gland.
    b. an overactive pineal gland.
    c. adrenal gland virilism.
    d. complication of anabolic steroids.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

95. Terri shows inactivity, sleepiness, and slowness and has gained weight. A problem was found in her endocrine system. She would most likely have a(n)
    a. overactive thyroid gland.
    b. underactive thyroid gland.
    c. adrenal gland virilism.
    d. complication of anabolic steroids.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Application

96. Hypothyroidism in infancy leads to
    a. severe intellectual disability.
    b. acromegaly.
    c. virilism.
    d. spina bifida.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Concept

97. Which branch of the autonomic nervous system causes epinephrine and norepinephrine to be released by the adrenal glands?
    a. somatic
    b. sympathetic
    c. central
    d. parasympathetic

    ANS: B DIF: Easy REF: Moduel 2.4 MSC: TYPE: Fact

98. Which endocrine gland arouses the body, regulates salt balance, adjusts the body to stress, and affects sexual functioning?
    a. pineal
    b. thyroid
    c. adrenal
    d. parathyroids

    ANS: C DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

99. Which hormone tends to arouse the body and is associated with fear?
    a. melatonin
    b. epinephrine
    c. norepinephrine
    d. estrogen

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

100. Which hormone is also functions as a neurotransmitter in the brain, tends to arouse the body, and is linked with anger?
    a. norepinephrine
    b. epinephrine
    c. melatonin
    d. thyroxin

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

101. Which gland is located just under the back of the rib cage, atop the kidney?
    a. adrenal
    b. thyroid
    c. pineal
    d. parathyroid

    ANS: A DIF: Easy REF: Module 2.4 MSC: TYPE: Fact

102. Epinephrine and norepinephrine are produced by the
    a. adrenal medulla.
    b. adrenal cortex.
    c. thyroid gland.
    d. pineal gland.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

103. Which of the following is NOT a correct match?
    a. pineal gland--------melatonin
    b. pituitary gland-----growth hormone
    c. adrenal gland------epinephrine
    d. thyroid gland------corticoids

    ANS: D DIF: Easy REF: Module 2.4 KEY: www
    MSC: TYPE: Fact

104. The inner core of the adrenal glands that secretes epinephrine and norepinephrine is called the adrenal
    a. medulla.
    b. basal.
    c. cortex.
    d. dorsal.

    ANS: A DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

105. The adrenal medulla secretes
    a. corticoids.
    b. epinephrine and norepinephrine.
    c. melatonin.
    d. GLD.

    ANS: B DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

106. The outer portion of the adrenal glands that secretes corticoids is called the adrenal
    a. medulla.
    b. basal.
    c. cortex.
    d. dorsal.

    ANS: C DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

107. The adrenal cortex secretes
    a. corticoids.
    b. epinephrine and norepinephrine.
    c. melatonin.
    d. GLD.

    ANS: A DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

108. Hormones secreted by the adrenal cortex are associated with
    a. the body's response to fear.
    b. the rate of energy production and expenditure in the body.
    c. bodily growth rates.
    d. salt balance and serve as a secondary source of sex hormones.

    ANS: D DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

109. Which of the following regulates the salt balance in the body, helps the body adjust to stress, and serves as a secondary source of sex hormones?
    a. adrenaline
    b. thyroxin
    c. corticoids
    d. melatonin

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

110. Fernado has developed a powerful craving for the taste of salt. The doctor finds that he has a deficiency in
    a. thyroxin.
    b. epinephrine.
    c. corticoids.
    d. norepinephrine.

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

111. An oversecretion of the corticoids can cause a condition in which a woman may grow a beard or a man's voice may become so low it is difficult to understand. This condition is known as
    a. acromegaly.
    b. virilism.
    c. cretinism.
    d. agnosia.

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

112. Margaret has problems with virilism. Which gland or part of a gland is malfunctioning?
    a. pineal gland
    b. thyroid gland
    c. adrenal cortex
    d. adrenal medulla

    ANS: C DIF: Difficult REF: Module 2.4 MSC: TYPE: Application

113. An oversecretion of the corticoids early in one's life can cause
    a. acromegaly.
    b. agnosia.
    c. cretinism.
    d. premature puberty.

    ANS: D DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

114. Children who have premature puberty resulting in full sexual development have
    a. given birth to children as early as five years of age.
    b. an oversecretion of pituitary growth hormones.
    c. an undersecretion of corticoids.
    d. a thyroid disorder.

    ANS: A DIF: Easy REF: Module 2.4 MSC: TYPE: Concept

115. One of the principal androgens, or "male" hormones, is testosterone, which is supplied in small amounts by which gland?
    a. pineal
    b. pituitary
    c. adrenal
    d. thyroid

    ANS: C DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

116. The main source of testosterone in males is supplied by which gland?
    a. pineal
    b. pituitary
    c. adrenal
    d. testes

    ANS: D DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

117. Anabolic steroids are a synthetic version of which hormone?
    a. epinephrine
    b. norepinephrine
    c. testosterone
    d. melatonin

    ANS: C DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

118. Which of the following drugs are synthetic versions of testosterone and have been used by athletes who want to "bulk up" or promote muscle growth?
    a. anabolic steroids
    b. GHB
    c. serotonin
    d. dopamine

    ANS: A DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

119. Which of the following statements best describes how anabolic steroids affect young adolescents?
    a. Anabolic steroids elevate mood.
    b. Anabolic steroids increase the risk of heart attack and stroke.
    c. Anabolic steroids are often used to promote weight loss.
    d. Anabolic steroids have no adverse health effects.

    ANS: B DIF: Moderate REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

120. The side effects of anabolic steroids include
    a. a rise in pitch of the voice in women.
    b. women's hair becoming thicker, longer, and curlier.
    c. increased testicle size.
    d. breast enlargement in men.

    ANS: D DIF: Easy REF: Module 2.4 MSC: TYPE: Concept

121. Which of the following is NOT a side effect of anabolic steroids?
    a. voice deepening and baldness in women
    b. liver damage and stunted growth in young adolescents
    c. increased testicle size in men
    d. dangerous increases in hostility and aggression

    ANS: C DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Concept

122. Which of the following is a FALSE statement regarding anabolic steroid use?
    a. Anabolic steroids can result in sexual impotence and breast enlargement in men.
    b. Almost all of the major sports organizations have banned the use of anabolic steroids by athletes.
    c. Young adolescents who use anabolic steroids have an increased risk of heart attack and stroke, liver damage, and stunted growth.
    d. Anabolic steroids are a synthetic version of epinephrine.

    ANS: D DIF: Easy REF: Module 2.4 KEY: *
    MSC: TYPE: Fact

TRUE/FALSE

1. Musicians, who practice special motor skills throughout their lives, have larger than average cerebellums.

    ANS: T DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

2. The reticular formation (RF) is the master control center for hunger, thirst, and other basic motives.

    ANS: F DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

3. Damage to the thalamus will disrupt all of the senses except for the sense of smell.

    ANS: T DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

4. Experiments with animals have found pleasure centers that are located in the limbic system.

   ANS: T DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

5. As you are walking down a dark street, you hear a noise directly behind you, and you immediately dart off the sidewalk because of the activation of your amygdala.

   ANS: T DIF: Difficult REF: Module 2.4 KEY: *
   MSC: TYPE: Application

6. Hormones secreted during times of high emotion decrease memory formation.

   ANS: F DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

7. The critical link that allows the nervous system to control the endocrine system is the link between the pineal gland and the reticular formation.

   ANS: F DIF: Moderate REF: Module 2.4 KEY: *
   MSC: TYPE: Concept

8. The adrenal medulla secretes corticoids, while the adrenal cortex secretes epinephrine and norepinephrine.

   ANS: F DIF: Moderate REF: Module 2.4 MSC: TYPE: Fact

COMPLETION

1. The control of vital bodily functions, such as heart rate and breathing, is carried out primarily by the part of the hindbrain known as the _____.

   ANS: medulla

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Fact

2. The part of the hindbrain that is associated with attention, alertness, and some reflexes, such as sneezing and coughing is the _____.

   ANS: reticular formation

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Fact

3. The part of the forebrain that serves as a crossroads that connects many areas of the brain as well being the master control center for emotions and many basic motives is the _____.

   ANS: hypothalamus

   DIF: Difficult REF: Module 2.4 KEY: * MSC: TYPE: Fact

4. The hypothalamus, the hippocampus, the amygdala, and parts of the thalamus make up the _____ system.

   ANS: limbic

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Fact

5. When a person has enlarged hands, feet, and facial bones that create prominent facial features, this person most likely has a condition known as _____.

   ANS: acromegaly

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Application

6. Melatonin is released by the _____ gland.

   ANS: pineal

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Fact

7. The endocrine gland that is located in the neck and can have a sizable effect on personality by altering one's metabolism is the _____ gland.

   ANS: thyroid

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Fact

8. The endocrine glands that arouse the body, regulate salt balance, adjust the body to stress, and affect sexual functioning are the _____ glands.

   ANS: adrenal

   DIF: Moderate REF: Module 2.4 KEY: * MSC: TYPE: Concept

ESSAY

1. Using your knowledge of the limbic system, explain why people who suffer from phobias and disabling anxiety often feel afraid without knowing why.

   ANS:
   Answer will include that a part of the limbic system known as the amygdala provides a primitive, "quick pathway" to the cortex. Like lower animals, we can be startled and, as such, are able to react to dangerous stimuli before we fully know what is going on. In situations where true danger exists, such as in military combat, the amygdala's rapid response may aid survival. However, disorders of the brain's fear system can be very disruptive. An example is the war veteran who involuntarily dives into the bushes when he hears a car backfire. The amygdala's role in emotion may also explain why people who suffer from phobias and anxiety often feel afraid without knowing why.

   DIF: Moderate REF: Module 2.4 KEY: *, www MSC: TYPE: Concept

2. One of your college friends who is an athlete tells you that he is thinking about using steroids in order to "bulk up" his muscle growth and improve his athletic performance. After reading this chapter, what would you tell him?

   ANS:
   Answer will include that there is disagreement about whether steroids actually improve athletic performance, but it is widely accepted that they may cause serious side effects. Problems include voice deepening or baldness in women and shrinkage of the testicles, sexual impotence, or breast enlargement in men. Dangerous increases in hostility and aggression ("roid rage") have also been linked with steroid use. Young adolescents who use steroids have an increased risk of heart attack and stroke, liver damage, or stunted growth. Thus, almost all major sports organizations ban their use.

   DIF: Moderate REF: Module 2.4 KEY: www MSC: TYPE: Application

Question Grid by Type

Module 2.4: Subcortex and Endocrine System	Question Type	Fact	Concept	Application
The Subcortex—At the Core of the (Brain) Matter	Multiple Choice	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 14, 20, 22, 23, 25, 26, 27, 30, 31, 32, 33, 35, 37, 40, 41, 42, 43, 44, 49, 59, 60, 61, 62, 63	9, 16, 18, 19, 24, 36, 46, 50, 51, 54, 55, 56, 57, 58	10, 13, 15, 17, 21, 28, 29, 34, 38, 39, 45, 47, 48, 52, 53,
	True/False	1, 2, 3, 4		5
	Completion	1, 2, 3, 4		
	Essay			2

The Endocrine System—My Hormones Made Me Do It	Multiple Choice	64, 65, 69, 70, 72, 73, 74, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 89, 90, 91, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 113, 115, 116, 117, 118, 119, 122,	66, 67, 68, 71, 76, 92, 93, 96, 114, 120, 121,	75, 88, 94, 95, 112,
	True/False	6, 8	7	
	Completion	6, 7	8	5
	Essay		1	

Chapter 2: Brain and Behavior
Module 2.5

MULTIPLE CHOICE

1. The Latin word for "left" means
   a. unlucky.
   b. inferior.
   c. sinister.
   d. clumsy.

   ANS: C DIF: Moderate REF: Module 2.5 KEY: *
   MSC: TYPE: Concept

2. The Latin word for "right" is
   a. fortunatus.
   b. sanctimonia.
   c. dexter.
   d. amor.

   ANS: C DIF: Moderate REF: Module 2.5 KEY: *
   MSC: TYPE: Concept

3. Left-handed people, or "lefties," have often been characterized as
   a. clumsy and unlucky.
   b. creative and intelligent.

c. caring and sincere.
d. stable and lucky.

ANS: A DIF: Moderate REF: Module 2.5 KEY: *
MSC: TYPE: Concept

4. Right-handed people, or "righties," are more likely to be referred to as
a. skillful and just.
b. average and stable.
c. crafty and selfish.
d. unlucky and awkward.

ANS: A DIF: Moderate REF: Module 2.5 KEY: *
MSC: TYPE: Concept

5. A preference for using the right or left hand for most activities is referred to
a. brain lateralization.
b. hand lateralization.
c. handedness.
d. preferential dominance.

ANS: C DIF: Easy REF: Module 2.5 MSC: TYPE: Fact

6. If you are right-handed, which of the following statements is TRUE?
   a. Your right hand has more strength and dexterity than your left hand.
   b. You have more area on the left side of your brain devoted to controlling your right hand.
   c. You have more area on the right side of your brain devoted to controlling your right hand.
   d. You have a larger corpus callosum than if you were left-handed.

   ANS: B DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

7. Damon always picks up objects with his left hand, throws a ball with his left hand, and writes with his left hand. Thus, it can be concluded that
   a. Damon's left hand has more strength than his right hand.
   b. Damon has more area on the left side of his brain devoted to controlling his left hand.
   c. Damon has more area on the right side of his brain devoted to controlling his left hand.
   d. Damon has a larger corpus callosum than if he were right-handed.

   ANS: C DIF: Moderate REF: Module 2.5 MSC: TYPE: Application

8. To assess the degree to which one is right-handed or left-handed, you would most likely use the
   a. Ishihara Test of Hand Preference.
   b. Waterloo Handedness Questionnaire.
   c. 16 PF.
   d. MMPI-2.

   ANS: B DIF: Easy REF: Module 2.5 MSC: TYPE: Fact

9. Although handedness is a matter of degree, what percent of humans are right-handed?
   a. 70 percent
   b. 80 percent
   c. 90 percent
   d. 98 percent

   ANS: C DIF: Moderate REF: Module 2.5 KEY: *
   MSC: TYPE: Fact

10. Although handedness is a matter of degree, what percent of humans are left-handed?
    a. 30 percent
    b. 20 percent
    c. 10 percent
    d. two percent

    ANS: C DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

11. What percent of people are strongly right- or left-handed with the rest showing some inconsistency in hand preference?
    a. 60 percent
    b. 75 percent
    c. 88 percent
    d. 98 percent

    ANS: B DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

12. A combination of preference for using hand, foot, eye, and ear is referred to as
    a. sidedness.
    b. neuroplasticity.
    c. hemispherization.
    d. preferential lateralization.

    ANS: A DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

13. Lynn tends to almost always lean her head to the right when she is kissing her boyfriend Mike. When using a microscope at work, Lynn tends to use her right eye and even breathes better through her right nostril. Lynn's right preference illustrates
    a. sidedness.
    b. neuroplasticity.
    c. acquired hemispherization.
    d. preferential lateralization.

    ANS: A DIF: Moderate REF: Module 2.5 MSC: TYPE: Application

14. What is considered the single most important behavioral indicator of sidedness?
    a. eye preference
    b. ear preference
    c. leg movement
    d. handedness

    ANS: D DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

15. One's dominant hemisphere is considered the side of a person's brain that
    a. controls hand movement.
    b. controls eye movement.
    c. organizes and plans activities.
    d. produces language.

    ANS: D DIF: Difficult REF: Module 2.5 MSC: TYPE: Concept

16. The left hemisphere is dominant for language function in
    a. no one.
    b. about 97 percent of right-handers and 68 percent of left-handers.
    c. about 19 percent of left-handers and three percent of right-handers.
    d. all left-handed persons.

    ANS: B DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

17. The right hemisphere is dominant for language for
    a. no one.
    b. 97 percent of right-handed persons and 50 percent of left-handed persons.
    c. about 19 percent of left-handed persons and three percent of right-handed persons.
    d. all left-handed persons.

    ANS: C DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

18. Regarding speech and language processing by left-handers, which of the following statements is TRUE?
    a. All left-handers produce speech from the right hemisphere.
    b. All left-handers produce speech from the left hemisphere.
    c. Most left-handers use the right hemisphere for language processing.
    d. Some left-handers use both sides of the brain for language processing.

    ANS: D DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

19. In all, what percent of population uses the left hemisphere for language?
    a. 55 percent
    b. 72 percent
    c. 86 percent
    d. 94 percent

    ANS: D DIF: Moderate REF: Module 2.5 KEY: 8
    MSC: TYPE: Fact

20. Which of the following is most likely to indicate hemispheric dominance?
    a. writing with a hooked hand
    b. eye movement
    c. handedness
    d. where the hair parts most naturally

    ANS: A DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

21. Right-handed individuals who write with a straight hand and lefties who write with a hooked hand are usually
    a. more intelligent than those who do not use this hand position.
    b. less intelligent than those who do not use this hand position.
    c. left-brain dominant for language.
    d. right-brain dominant for language.

    ANS: C DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

22. Left-handed individuals who write with their hand below the writing line, and righties who use a hooked position in writing are usually
    a. more intelligent than those who do not use this hand position.
    b. less intelligent than those who do not use this hand position.
    c. left-brain dominant for language.
    d. right-brain dominant for language.

    ANS: D DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

23. If you gesture more with your left hand, you probably process
    a. in your right hemisphere.
    b. in your left hemisphere.
    c. more inefficiently than if you gestured with your right hand.
    d. in both hemispheres, since a majority of people do not have a dominant hemisphere for language processing.

    ANS: A DIF: Moderate REF: Module 2.5 KEY: www
    MSC: TYPE: Concept

24. Nic tends to gesture more with his right hand when he talks. Nic probably processes language
    a. in his right hemisphere.
    b. in his left hemisphere.
    c. more inefficiently than if he gestured with his left hand.
    d. in both hemispheres, since a majority of people do not have a dominant hemisphere for language processing.

    ANS: B DIF: Moderate REF: Module 2.5 MSC: TYPE: Application

25. The only sure way to check brain dominance is to
    a. observe people while they are sleeping.
    b. do medical tests that involve assessing one cerebral hemisphere at a time.
    c. use EEG recordings of the brain while a person talks and determine which hemisphere was more active during the activity.
    d. use karotyping and DNA analysis for lateralization.

    ANS: B DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

26. Clear hand preferences can be determined
    a. in fetal ultrasound images.
    b. by age six months.
    c. by age 18 months.
    d. by age 36 months.

    ANS: A DIF: Easy REF: Module 2.5 MSC: TYPE: Fact

27. Regarding hand preferences, which of the following statements is FALSE?
    a. Prenatal hand preferences persist for at least ten years after birth.
    b. Handedness appears to be influenced by a single gene on the Y chromosome.
    c. Forcing a left-handed child to use the right hand may create speech or reading problems.
    d. Two left-handed parents are more likely to have a left-handed child than two right-handed parents are.

    ANS: B DIF: Easy REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

28. Regarding handedness, which of the following statements is FALSE?
    a. Handedness is directly inherited from one's parents just like eye color or skin color.
    b. Handedness appears to be influenced by a single gene on the X (female) chromosome.
    c. Learning, birth traumas, and social pressure to use the right hand can affect which hand one ends up favoring.
    d. Two left-handed parents are more likely to have a left-handed child than two right-handed parents are.

    ANS: A DIF: Moderate REF: Module 2.5 MSC: TYPE: Fact

29. Handedness appears to be influenced by a single gene on the
    a. 15th pair of chromosomes.
    b. 21st pair of chromosomes.
    c. X chromosome.
    d. Y chromosome.

    ANS: C DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

30. Regarding the proportion of left-handed people, collectivist countries tend to have
    a. significantly more lefties than individualistic countries.
    b. slightly more lefties than individualistic countries.
    c. the same number of lefties as individualistic countries.
    d. fewer lefties than individualistic countries.

    ANS: D DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

31. Regarding the proportion of left-handed people, individualistic countries tend to have
    a. significantly more lefties than collectivist countries.
    b. the same number of lefties as collectivist countries.
    c. slightly fewer lefties than collectivist countries.
    d. significantly fewer lefties than collectivistic countries.

    ANS: A DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

32. Which country would have the highest number of left-handers?
    a. Japan
    b. India
    c. Canada
    d. China

    ANS: C DIF: Easy REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

33. Regarding handedness, which of the following statements is FALSE?
    a. A small minority of lefties owe their hand preference to birth traumas, such as prematurity, low birth weight, and breech birth.
    b. Left-handed persons have a significantly lower incidence of allergies and learning disorders than right-handed persons.
    c. People with inconsistent handedness may be at risk for more immune-related diseases than persons who are consistently left-handed.
    d. Collectivist cultures where left-handedness is viewed as especially negative have about half the proportion of left-handed persons as individualistic cultures.

    ANS: B DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

34. Regarding handedness, which of the following statements is FALSE?
    a. The finding that left-handed persons are more accident-prone may really be a result of having to live in a right-handed world.
    b. Left-handed locomotive engineers have higher accident rates with a possible cause being the locomotive controls being designed for right-handed persons.
    c. The shortage of very old lefties may reflect that more left-handed children were forced to become right-handed, so the lefties are masquerading as righties.
    d. Individualistic cultures have half as many left-handed persons as collectivist cultures.

    ANS: D DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

35. The supposed clumsiness of left-handed people is a consequence of their
    a. living in a right-handed world.
    b. lack of dexterity in the left hand.
    c. poor motor control.
    d. lack of brain dominance.

    ANS: A DIF: Easy REF: Module 2.5 MSC: TYPE: Fact

36. Regarding handedness, which of the following statements is FALSE?
    a. Left-handed persons are better at visualizing three-dimensional objects than right-handed persons.
    b. There are more left-handed architects, artistis, and chess players than would be expected in the population.
    c. The physical size and shape of the two cerebral hemispheres of right-handed persons is more alike than that of left-handed persons.
    d. Individuals who are moderately left-handed or ambidextrous seem to have better than average pitch memory.

    ANS: C DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

37. Regarding handedness, which of the following statements is TRUE?
    a. Right-handers have a clear advantage in the sport of fencing.
    b. More musicians are ambidextrous than would normally be expected.
    c. Left-handed persons have more difficulty recovering from brain injury and language loss.
    d. Right-handed persons are better at visualizing three-dimensional objects.

    ANS: B DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

38. Regarding handedness, which of the following statements is FALSE?
    a. Left-handers have an advantage in the sport of fencing, most likely because their movements are less familiar to opponents, who usually face right-handers.
    b. Left-handed persons typically experience more language loss after damage to the brain and recover more slowly than right-handed persons.
    c. Left-handed persons are more symmetrical in eye dominance, fingerprints, and foot size than right-handers.
    d. The physical size and shape of the two cerebral hemispheres are more alike in lefties than in righties.

    ANS: B DIF: Moderate REF: Module 2.5 KEY: *, www
    MSC: TYPE: Fact

39. Differences between the two sides of the body, especially differences in the abilities of the brain hemispheres is referred to as
    a. ablation.
    b. corticalization.
    c. lateralization.
    d. ambidextrous.

    ANS: C DIF: Easy REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

40. The specialization in the abilities of the brain hemispheres is known as
    a. ablation.
    b. corticalization.
    c. lateralization.
    d. ambidextrous.

    ANS: C DIF: Easy REF: Module 2.5 MSC: TYPE: Fact

41. Regarding handedness, which of the following statements is TRUE?
    a. Lefties are generally more lateralized than those who are right-handed.
    b. Lefties recover more quickly from brain injury than do righties.
    c. Right-handers seem to have better than average pitch memory, which is a basic musical skill.
    d. Right-handed persons are better at visualizing three-dimensional objects.

    ANS: B DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

42. In general, left-handed people _____ than right-handed people.
    a. are poorer at visualizing three-dimensional objects
    b. are less symmetrical in eye dominance, fingerprints, and shoe size
    c. recover more slowly from brain injury
    d. are less lateralized

    ANS: D DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

TRUE/FALSE

1. If you are right-handed, you have more area on the left side of your brain devoted to controlling your right hand.

    ANS: T DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

2. Clear hand preferences have been shown in fetal ultrasound images.

    ANS: T DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

3. Left-handed persons are more symmetrical in eye dominance, fingerprints, and foot size than right-handed persons.

    ANS: T DIF: Moderate REF: Module 2.5 KEY: *
    MSC: TYPE: Fact

COMPLETION

1. Gina was asked to throw a ball, to kick a ball, to look through a telescope, to listen to a phone, and to write her name. The examiner observed which hand, foot, eye and ear Gina used to perform these tasks. Gina was being assessed for _____.

   ANS: sidedness

   DIF: Moderate REF: Module 2.5 KEY: * MSC: TYPE: Application

2. One's dominant hemisphere is considered the side of a person's brain that produces _____.

   ANS: language

   DIF: Difficult REF: Module 2.5 KEY: * MSC: TYPE: Concept

3. Differences between the two sides of the body, especially differences in the abilities of the brain hemispheres is referred to as _____.

   ANS: lateralization

   DIF: Moderate REF: Module 2.5 KEY: * MSC: TYPE: Fact

ESSAY

1. Explain why a person who is left-handed may not be right-brain dominant for language processing, and describe some behavioral clues that may point to that person's brain dominance for language skills.

   ANS:
   Answer will include that about 97 percent of right-handers process speech in the left hemisphere and are left-brain dominant. A good 68 percent of left-handers produce speech from the left hemisphere, just as right-handed people do. About 19 percent of all lefties and three percent of righties use their right brain for language. Some left-handers (approximately 12 percent) use both sides of the brain for language processing. Right-handed individuals who write with a straight hand, and lefties who write with a hooked hand, are usually left-brain dominant for language. Left-handed people who write with their hand below the line, and righties who use a hooked position, are usually right-brain dominant. Another hint is provided by the hand gestures. If you gesture mostly with your right hand as you talk, you probably process language in your left hemisphere, while gesturing with your left hand shows right-brain language processing. The only sure way to check brain dominance is to do a medical test that involves assessing one cerebral hemisphere at a time.

   DIF: Moderate REF: Module 2.5 MSC: TYPE: Concept

Question Grid by Type

Module 2.5: Psychology in Action: Handedness—Are	Question	Fact	Concept	Application

You Sinister or Dexterous?	Type			
Are You Right- or Left-Handed?	Multiple Choice	5, 8, 9, 10, 11, 12, 16, 17, 18, 19, 20, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42	1, 2, 3, 4, 6, 14, 15, 21, 22, 23	7, 13, 24
	True/False	2, 3	1	
	Completion	3	2	1
	Essay		1	