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Chapter 2: The Biological Basis of Behavior

Multiple-Choice

Introduction

2.1 In regard to the brain, the term "plasticity" refers to _____.
a. easily broken or "cracked"
Incorrect: *Plasticity refers to adaptability, not damage.*
b. ability to adapt to new conditions
Correct: *Plasticity allows the brain to react to damage.*
c. level of complexity
d. brittleness, or rigidity

Answer: b
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Introduction
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.2 The field of psychobiology explores the _____.
a. evolution has shaped our instincts, drives, urges, and needs
b. biological foundations of behavior and mental processes
Correct: *Psychobiology focuses on the biological foundations of behavior and mental processes.*
c. ways our mental state affects our physical health
Incorrect: *This area is referred to as psychoimmunology.*
d. behavioral patterns which affect biological development

Answer: b
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Introduction
Skill: Remember the Facts
Difficulty: 2 - Moderate

Neurons: The Messengers

2.3 The brain of the average human being contains approximately 86 billion _____.
a. neurons
Correct: *Neurons are the smallest unit of the nervous system.*
b. lobes
c. glands
d. nerves
Incorrect: *The brain contains 86 billion neurons, which are individual cells.*

Answer: a
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

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2.4 The part of a neuron which contains the nucleus and has a complete set of the neuron's chromosomes and genes is the _____.
a. cell membrane
b. axon
c. dendrite
Incorrect: *The dendrites are short fibers that branch out from the cell body to pick up incoming messages.*
d. cell body
Correct: *The cell body contains the nucleus and a set of the neuron's chromosomes and genes.*

Answer: d
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.5 The function of the neuron's dendrite is to _____.
a. receive messages from neighboring neurons
Correct: *Dendrites are like antennae, in that they are there to receive information.*
b. regulate the neuron's life processes
c. insulate against leakage of electrical impulses
d. conduct electrical impulses toward other neurons
Incorrect: *Axons, not dendrites, are responsible for taking messages toward other neurons.*

Answer: a
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 1 - Easy

2.6 The function of the neuron's axon is to _____.
a. conduct outgoing electrical electrochemical impulses toward other neurons, muscles, or glands
Correct: *The axon takes messages away from the cell body toward other neurons, muscles, or glands.*
b. receive messages from neighboring neurons
Incorrect: *The part of the neuron responsible for receiving incoming messages is a dendrite.*
c. regulate the neuron's life processes
d. insulate against leakage of electrical impulses

Answer: a
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 1 - Easy

2.7 Neurons typically have _____.
a. many axons and one dendrite
b. one axon and many dendrites
Correct: *A typical neuron has one axon and many dendrites.*
c. one axon and one dendrite
Incorrect: *While possible, typical neurons have one axon and many dendrites.*
d. many axons and many dendrites

Answer: b

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Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

2.8 A group of axons bundled together is called a _____.
a. nerve
Correct: *When axons are bundled together, they are referred to as a nerve.*
b. synaptic vesicle
c. primary cluster
d. myelinated pathway
Incorrect: *The axon of many neurons is surrounded by a white, fatty covering called a myelin sheath.*

Answer: a
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.9 The primary purpose of the myelin sheath is to _____.
a. insulate the neuron so it can transmit information more efficiently
Correct: *The myelin sheath protects and insulates the neuron, and helps to speed up the process of neural communication.*
b. receive messages from outside the neuron and carry them to the cell nucleus
c. provide a place for neural respiration and cell metabolism to occur
d. provide a soft covering to hold axons in place
Incorrect: *While the myelin is a covering that surrounds the axon, it is not there to hold the axon in a particular place.*

Answer: a
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 3 - Difficult

2.10 The term “gray matter” refers to _____.
a. interneurons
b. myelinated axons
Incorrect: *Myelinated axons are referred to as white matter, due to how they appear on brain imaging scans.*
c. unmyelinated axons
Correct: *Unmyelinated axons are referred to as gray matter, due to how they appear on brain imaging scans.*
d. glial cells

Answer: c
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

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2.11 Terminal buttons release chemicals called _____.
a. hormones
Incorrect: *Terminal buttons do not release hormones, they release neurotransmitters.*
b. neurotransmitters
Correct: *Neurotransmitters are chemical messengers that transfer information between neurons.*
c. antibodies
d. antigens

Answer: b
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 – Easy

2.12 Neurons that collect messages from sense organs and carry those messages to the spinal cord or the brain are called _____.
a. motor neurons
Incorrect: *Motor neurons carry messages from the spinal cord or brain to the muscles and glands.*
b. primary neurons
c. sensory neurons
Correct: *Sensory neurons carry messages from sense organs to the spinal cord or brain.*
d. interneurons

Answer: c
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.13 Neurons that carry messages from one neuron to another are called _____.
a. efferent neurons
Incorrect: *Efferent, or motor neurons, carry messages from the brain and spinal cord to the muscles and glands.*
b. afferent neurons
c. interneurons
Correct: *Interneurons carry messages from one neuron to another.*
d. primary neurons

Answer: c
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.14 You are a cell in the human nervous system. Your primary function is to provide support for neurons, hold them together, and help remove waste products and other substances, which could otherwise harm them. You are a(n) _____ cell.
a. adipose
Incorrect: *These functions are carried out by glial cells, not by adipose cells.*
b. epidermal
c. glial
Correct: *Glial cells perform all these functions, and are also the substance that make up the myelin sheath.*
d. lymph

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Answer: c
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.15 The language used by neurons to communicate _____.
a. involves simple "yes-no," "on-off" electrochemical impulses
Correct: *This is sometimes referred to as the "all or none" principle.*
b. is not yet known, despite years of research
c. is extremely flexible and complex, similar to human spoken language
d. involves neurons transitioning from one of four different electrochemical states to another
Incorrect: *Neurons really only have two "solid" states, on or off.*

Answer: a
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 1 - Easy

2.16 During its resting state, the electrical charge inside the neuron is _____ the electrical charge outside the neuron.
a. smaller than
b. positive compared to
Incorrect: *During the resting potential, the electrical charge in the neuron is approximately -70 mV.*
c. negative compared to
Correct: *Because there are more negative ions inside the neuron than outside, there is a small electrical charge (called the resting potential) across the cell membrane.*
d. larger than

Answer: c
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.17 When a neuron is polarized, _____.
a. both positive and negative ions are concentrated inside the neural membrane
b. positive ions are concentrated outside the neural membrane while negative ions are concentrated inside the membrane
Correct: *Positive ions are concentrated outside the neural membrane, making the interior of neuron even more negative.*
c. negative ions are concentrated outside the neural membrane while positive ions are concentrated inside the membrane
Incorrect: *The interior of the neuron is even more negative at this stage.*
d. both positive and negative ions are concentrated outside the neural membrane

Answer: b
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers

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Skill: Remember the Facts
Difficulty: 2 - Moderate

2.18 When sodium ions flow into a neuron and depolarize it, they create _____.
a. an action potential
Correct: *The action potential is caused by a depolarization resulting from the influx of sodium ions through the neuron's cellular membrane.*
b. breakdown of the cell nucleus
c. a relative refractory period
Incorrect: *A refractory period refers to a period after an action potential when another action potential is more difficult to achieve.*
d. internal combustion

Answer: a
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 2 - Moderate
4 yr.: 84% r = .31

2.19 Another term for a neural impulse is a(n) _____ potential.
a. resting
Incorrect: *Resting potential describes the neuron before it reaches a threshold to fire.*
b. kinetic
c. graded
d. action
Correct: *Another term for a neural impulse is an action potential.*

Answer: d
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.20 If an incoming message is not strong enough to cause a neuron to fire, it may cause a shift in the electrical charge of just a tiny area of the neuron. This shift, which quickly fades away, is called a(n) _____.
a. resting potential
b. action potential
Incorrect: *An action potential refers to a state where a neuron has already fired, while graded potentials are usually not adequate to cause a neural impulse on their own.*
c. transitional polarization
d. graded potential
Correct: *The sum of many graded potentials are what usually cause a neuron to fire, not a single graded potential from one other neuron.*

Answer: d
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 3 - Difficult

2.21 A frog muscle is stimulated with an electric current, but the muscle doesn't twitch. This probably happens because _____.
a. ionic balance has been restored

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b. the synapses are underactive
c. the threshold of excitation was not reached
Correct: *The threshold of excitation must be reached or exceeded for a neuron to respond.*
d. the graded potential is too great
Incorrect: *If the graded potential is "too great," then the neuron will fire. If the muscle doesn't twitch, then the graded potential is too weak.*

Answer: c
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.22 The "all or none law" is the principle stating that _____.
a. a neuron fires at full strength or not at all
Correct: *The all or none law states that a neuron fires at full strength or not at all.*
b. all neurons in an area fire at the same intensity or not at all
Incorrect: Every firing of a particular neuron produces an impulse of the same strength (full strength).
c. a neuron must be receiving only "fire" messages through its dendrites or it will not fire at all
d. all the neurons in a particular area of the brain fire simultaneously or not at all

Answer: a
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.23 A neuron is likely to fire _____ when stimulated by a strong signal.
a. less often
b. for a longer period of time
c. more often
Correct: *A neuron will likely fire more often if stimulated by a strong signal.*
d. more intensely
Incorrect: *Neurons can only fire at one intensity, and will fire more often if stimulated by a strong signal.*

Answer: c
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.24 Immediately after firing, a neuron cannot fire again no matter how strong the incoming messages may be. This period is called the _____ period.
a. relative refractory
Incorrect: *A neuron can fire during relative refractory if the incoming message is considerably strong.*
b. primary refractory
c. polarization
d. absolute refractory
Correct: *A neuron cannot fire at all during an absolute refractory period.*

Answer: d

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Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.25 The action potential causes neurotransmitters to be released into the _____.
a. cell membrane
b. synaptic space
Correct: *Neurotransmitters are released from a synaptic vesicle into the synaptic space.*
c. axon
Incorrect: *Neurotransmitters are released from a synaptic vesicle, located on the terminal button of an axon, into the synaptic space.*
d. myelin sheath

Answer: b
Learning Objective: 2.3 Describe the parts of the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

2.26 When a neural impulse reaches the end of an axon, it causes tiny oval sacs at the end of the axon to release chemicals called _____.
a. hormones
Incorrect: *The endocrine glands produce and release hormones.*
b. neurotransmitters
Correct: *Synaptic vesicles house neurotransmitters.*
c. antioxidants
d. electrolytes

Answer: b
Learning Objective: 2.3 Describe the parts of the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

2.27 An elderly female is diagnosed as having Alzheimer's disease. Her physician tells her the disorder involves a deficiency of _____.
a. acetylcholine
Correct: *Alzheimer's disease has been linked to a deficit of acetylcholine (ACh) in the brain.*
b. serotonin
c. norepinephrine
d. dopamine
Incorrect: *There is no current research that has found an association between dopamine and Alzheimer's disease.*

Answer: a
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.28 The neurotransmitter known as the "mood molecule" is _____.
a. dopamine
b. norepinephrine
Incorrect: *The correct answer is serotonin, not norepinephrine.*
c. acetylcholine
d. serotonin
Correct: *Serotonin is known as a mood molecule because of its implication in many mood-related disorders.*

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Answer: d
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Understand the Concepts
Difficulty: 2 - Moderate

2.29 A person with schizophrenia is *most* likely to have a problem with which of the following neurotransmitters?
a. dopamine
Correct: *An excess of dopamine is associated with schizophrenia.*
b. serotonin
c. acetylcholine
Incorrect: *Acetylcholine is associated with Alzheimer's disease, not schizophrenia.*
d. norepinephrine

Answer: a
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Apply What You Know
Difficulty: 2 - Moderate
4 yr.: 50% r = .23

2.30 What is the role of endorphins?
a. involved in the regulation of sleep
b. involved in the inhibition of pain
Correct: *Endorphins reduce pain by inhibiting or turning down the neurons that transmit pain messages in the brain.*
c. involved in the perception of pain
Incorrect*: Glutamate is principally an excitatory chemical that speeds up synaptic transmission through the central nervous system. It is involved in the perception of pain.* d. assists in learning and memory

Answer: b
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.31 Because they have similar chemical structures, morphine and other narcotics are able to lock into receptor sites for _____.
a. dopamine
b. serotonin
Incorrect: *Serotonin is involved in the regulation of sleep, dreaming, mood, eating, pain, and aggressive behavior.*
c. endorphins
Correct: *Endorphins reduce pain by inhibiting the neurons that transmit pain messages in the brain and morphine and other narcotics use their receptor sites.*
d. acetylcholine

Answer: c
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy
4 yr.: 85% r = .14; 2 yr.: 88% r = .23

2.32 Depression is linked to an _____.
a. oversupply of serotonin and an undersupply of norepinephrine

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b. undersupply of serotonin and an oversupply of norepinephrine
c. undersupply of serotonin and norepinephrine
Correct: *From what we know about depression, it is caused by an undersupply of serotonin and norepinephrine.*
d. oversupply of serotonin and norepinephrine
Incorrect: *Imbalances in neurotransmitters appear to contribute to many types of mental illness.*
Answer: c
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.33 M. R. Rosenzweig examined rats by studying the _____.
a. behavioral effects of lesions in different parts of their brains
Incorrect: (*Rosenzweig) demonstrated the importance of experience to neural development and the establishment of neural networks.*
b. sexual orientation effects of prenatal exposure to maternal hormones
c. effects on their brains of electrical stimulation to the frontal and parietal lobes
d. effects on their brains of exposure to impoverished or enriched environments
Correct: *Animals were split into groups, and exposed to impoverished or enriched environments.*

Answer: d
Learning Objective: 2.5 Explain neuroplasticity and neurogenesis.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.34 After drinking several cups of strong coffee, a person develops “coffee nerves” or “jitters.” This probably is due to the ability of caffeine to _____.
a. block adenosine receptor sites
Correct: *Caffeine blocks the receptor sites for adenosine, which in turn leads to the release of stimulating neurotransmitters such as epinephrine.*
b. cause neurotransmitters to leak out of the synaptic vesicles and be destroyed by enzymes
c. cause an increase in the release of excitatory neurotransmitters
Incorrect: *Caffeine does not directly cause an increase in excitatory neurotransmitters. In fact, it blocks the depression of such mechanisms.*
d. inhibit enzymes which break down excitatory neurotransmitters

Answer: a
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Apply What You Know
Difficulty: 3 - Difficult

2.35 Despite its dangers, a young man continues to take cocaine because of the feelings of euphoria it produces for him. This powerful arousal of his nervous system is probably due to cocaine's ability to _____.
a. inhibit enzymes that break down neurotransmitters
b. block the receptor sites for neurotransmitters
c. increase the release of dopamine
Incorrect: *Cocaine does not increase the release of dopamine; rather, it allows excess dopamine to accumulate.*
d. allow excess amounts of dopamine to accumulate in the synapses
Correct: *Excess amounts of dopamine produce heightened arousal of the entire nervous system.*

Answer: d
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Apply What You Know
Difficulty: 3 - Difficult

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2.36 Undifferentiated precursor cells that, under the right conditions, can give rise to any specialized cell in the body are called _____ cells.
a. stem
Correct: *Stem cells, or precells, under the right conditions can give rise to any specialized cell in the body.*
b. receptor
c. glial
Incorrect: *Glial cells hold the neurons in place, provide nourishment, remove waste products, prevent harmful substances from passing from the bloodstream into the brain, and form the myelin sheath that insulates and protects neurons.*
d. T-cells

Answer: a
Learning Objective: 2.5 Explain neuroplasticity and neurogenesis.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.37 In research with human patients suffering from Parkinson's disease, fetal nerve cell transplants _____.
a. resulted in only sporadic, temporary improvements in motor control
b. resulted in worsening of motor control
c. improved motor control
Correct: *Fetal nerve cell transplants improved motor control.*
d. resulted in no improvement in motor control
Incorrect: *These clinical trials showed some motor improvements.*

Answer: c
Learning Objective: 2.5 Explain neuroplasticity and neurogenesis.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.38 Research on human brain tissue has found that human brains are _____.
a. capable of neurogenesis only during early childhood
b. capable of neurogenesis only through adolescence
Incorrect: *New research, however, has overturned this traditional view.*
c. capable of neurogenesis even in adulthood
Correct: *Recent research has found that the human brain is capable of neurogenesis through adulthood.*
d. not capable of neurogenesis after birth

Answer: c
Learning Objective: 2.5 Explain neuroplasticity and neurogenesis.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

The Central Nervous System

2.39 The nervous system is comprised of two major parts - the _____.
a. central nervous system and the peripheral nervous system
Correct: *The two main portions of the nervous system are considered the central nervous system, and the peripheral nervous system, although both contain additional divisions.*
b. brain and the spinal cord
Incorrect: *The brain and spinal cord are one part of the central nervous system.*
c. afferent nervous system and the efferent nervous system
d. sympathetic nervous system and the parasympathetic nervous system

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Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy
2 yr.: 73% r = .29

2.40 The brain and spinal cord contain about _____ percent of the body's neurons.
a. 40
b. 65
Incorrect: *The brain and spinal cord make up the central nervous system.*
c. 15
d. 90
Correct: *The brain and spinal cord contain 90% of the body's neurons.*

Answer: d
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.41 The _____ is believed to be the earliest part of the brain to evolve.
a. midbrain
b. hindbrain
Correct: *The hindbrain controls our basic, primitive functions, yet it is essential to our survival.*
c. forebrain
Incorrect: *This is the most recent level of brain development in human beings.*
d. limbic system

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Understand the Concepts
Difficulty: 2 - Moderate

2.42 The part of the hindbrain that controls functions such as breathing, heart rate, and blood pressure is the _____.
a. cerebral cortex
b. medulla
Correct: *The medulla is the part of the hindbrain that controls breathing, heart rate, and blood pressure.*
c. cerebellum
Incorrect: *The cerebellum controls certain reflexes and coordinates body movements.*
d. pons

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate
4 yr.: 79% r = .33; 4 yr.: 84% r = .40

2.43 A college student is having difficulty with his sleep cycle. He finds himself up at all hours of the night, and falling asleep during the day. This difficulty is *most* likely due to problems in the _____.
a. cerebellum
Incorrect: *The cerebellum is part of the hindbrain, like the pons, but it is not responsible for regulating our sleep-wake cycle.*
b. basal ganglia
c. pons
Correct: *The pons is the part of the hindbrain that regulates our sleep-wake cycle.*

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d. substantia nigra

Answer: c
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.44 The cerebellum is sometimes referred to as _____.
a. the forgotten brain
b. the midbrain
c. the little brain
Correct: *The cerebellum, or "little brain" coordinates actions and balance, and contains more neurons than the rest of the brain.*
d. the main brain
Incorrect: Though the cerebellum takes up only a small space, its surface area is almost two-thirds that of the much larger cerebrum.

Answer: c
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.45 The part of the brain responsible for emotional behavior such as experiencing rage, terror, or pleasure is the _____.
a. amygdala
b. hippocampus
c. thalamus
Incorrect: *The thalamus relays and translates incoming messages from the sense receptors, except those for smell, while the hypothalamus is responsible for emotional behavior.*
d. hypothalamus
Correct: *Parts of the hypothalamus are responsible for governing hunger, thirst, and body temperature, and are directly involved in emotional behavior.*

Answer: d
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult
4 yr.: 54% r = .37; 4 yr.: 64% r = .10

2.46 After he finished shopping for a new coat, Adam returned to his car in the parking lot to find that someone had broken his back windows and stolen his laptop. Furious, Adam began to yell and kicked at his side door. What area of the brain was guiding his behavior?
a. the hypothalamus
Correct: *The hypothalamus controls many functions, and has been found to regulate emotions including rage, terror, and pleasure.*
b. the medulla
Incorrect: *The medulla may have helped increase Adam's blood pressure, circulation, and respiration, but it was not directly responsible for Adam's rage behavior.*
c. the thalamus
d. the midbrain

Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate

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2.47 Anesthetics work primarily by shutting down the _____.
a. endocrine system
b. reticular formation
Correct: *The reticular formation is a network of neurons that alerts and arouses the higher parts of the brain, and permanent damage to the area can induce a coma.*
c. limbic system
Incorrect: *The limbic system allows for the processing of emotions.*
d. dopamine receptor sites

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.48 The intricate network of folds that line the outer surface of the cerebral cortex, allowing it to fit inside the skull, are called _____.
a. convolutions
Correct: *Convolutions form a pattern in humans as unique as a fingerprint.*
b. sensory projection areas
c. association areas
Incorrect: *Association areas are areas of the cerebral cortex where incoming messages from separate senses are combined, while convolutions are the network of folds lining the outer surface of the cerebral cortex.*
d. motor projections

Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy
4 yr.: 39% r = .30

2.49 The lobe of the brain that serves as the "executive control center" for the brain is the _____ lobe.
a. occipital
b. frontal
Correct: *This area is responsible for voluntary movement, attention, and goal-directed behavior.*
c. parietal
Incorrect: *The parietal area receives spatial information and is responsible for visual and spatial abilities.*
d. temporal

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.50 The section of the frontal lobe responsible for voluntary movement is the _____.
a. primary motor cortex
Correct: *The primary motor cortex sends messages to glands and muscles. Some of those messages are related to voluntary movement.*
b. association areas
Incorrect: *The association areas are responsible for interpreting various types of sensory input, not controlling voluntary movement.*
c. primary somatosensory cortex
d. sensory projection areas

Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.

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Topic: The Central Nervous System
Skill: Understand the Concepts
Difficulty: 1 - Easy

2.51 After a car accident in which Anita hit her head on the steering wheel, she has had trouble following directions or completing her normal work tasks. She is also apathetic, and has difficulty reasoning and making decisions. The damaged part of her brain is probably the _____ lobes.
a. occipital
Incorrect: *The symptoms Anita experienced are consistent with damage to the frontal, not the occipital, lobe.*
b. parietal
c. temporal
d. frontal
Correct: *Anita's symptoms are similar to those of Phineas Gage, who probably suffered severe damage to his frontal lobe and suffered from the same symptoms.*

Answer: d
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 1 - Easy

2.52 Priya was in a skiing accident that resulted in an injury to her brain. She now has difficulty reading road maps and telling other people how to get somewhere. She has most likely suffered an injury to her _____ lobe.
a. occipital
Incorrect: *The occipital lobe is responsible for visual perception, but spatial skills like those that are impaired in Priya are controlled in the parietal lobe of the cerebrum.*
b. temporal
c. frontal
d. parietal
Correct: *Spatial recognition skills, like reading a map and following/giving directions, are controlled in the parietal lobe of the cerebrum.*

Answer: d
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 3 - Difficult

2.53 Messages from the sense receptors are registered in those areas of the brain called the _____.
a. hemispheric lateralization areas
b. primary somatosensory cortex
Correct: the p*rimary somatosensory cortex is the area that registers messages from sense receptors.*
c. motor projection areas
d. association areas
Incorrect: *The four large association areas integrate information from diverse parts of the cortex and are involved in mental processes such as learning, thinking and remembering.*

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

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2.54 Jayden was in a four-wheeler accident that resulted in an injury to his brain. He now has difficulty with his hearing and his ability to recognize faces. The part of his brain *most* likely injured was the _____ lobe.
a. frontal
Incorrect: *The frontal lobes control many different functions in the brain, but facial recognition and auditory reception are handled by the temporal lobes.*
b. temporal
Correct: *Facial recognition and auditory reception are controlled by the temporal lobes of the cerebrum.*
c. occipital
d. parietal

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.55 The limbic system is responsible for _____.
a. controlling learning and emotional behavior
Correct: *The limbic system is responsible for controlling learning and emotional behavior.*
b. connecting the brain to the rest of the body
Incorrect: *The spinal cord is responsible for connecting the brain to the rest of the body.*
c. filtering incoming messages to the brain
d. fighting disease organisms that attempt to infect the brain

Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.56 "Split brain" patients are patients who have had _____.
a. their cerebellum split in the middle
Incorrect: *"Split brain" occurs when the corpus callosum is cut in half, separating the right and left hemisphere of the brain.*
b. their brain stem cut down the middle
c. their corpus callosum cut
Correct: *The corpus callosum typically connects the right and left hemispheres.*
d. a prefrontal lobotomy

Answer: c
Learning Objective: 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate
4 yr.: 88% r = .19

2.57 A "split brain" patient is asked to stare at a spot on a screen. When a picture of an object is shown to the *left* of the spot, the patient can _____.
a. pick the object out of a group of hidden objects using her right hand, but cannot identify it verbally
b. identify the object verbally and pick it out of a group of hidden objects using her right hand
c. identify the object verbally and pick it out of a group of hidden objects using her left hand
Incorrect: *Verbal identification and physical selection require the functions of both hemispheres. In this case, only the right hemisphere is active so verbal identification would be unlikely.*
d. pick the object out of a group of hidden objects using her left hand, but cannot identify it verbally
Correct: *Most people process verbal recognition of objects in their left hemispheres. This object is processed in the right hemisphere, so it can be picked out physically but not identified verbally.*

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Answer: d
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 3 - Difficult
4 yr.: 19% r = .15

2.58 Which hemisphere of the cerebral cortex is usually dominant in language tasks?
a. the front hemisphere
b. the right hemisphere
Incorrect: *The right hemisphere controls touch and movement of the left side of the body.*
c. the rear hemisphere
d. the left hemisphere
Correct: *The left hemisphere, where Broca’s and Wernicke’s areas are housed, is usually dominant in language tasks.*

Answer: d
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate
4 yr.: 81% r = .24; 2 yr.: 58% r = .30

2.59 A baby is born with an impairment of his left cerebral hemisphere, but it is not discovered until years later, when certain clues are pieced together. Which of the following is *most* likely to be one of those clues?
a. He has difficulty identifying colors.
b. He has difficulty perceiving concepts and spatial relationships.
Incorrect: *Spatial skills are usually the responsibility of the right cerebral hemisphere.*
c. He has difficulty learning to read.
Correct: *The left cerebral hemisphere, in most people, is responsible for language abilities, including reading skills.*
d. He has difficulty recognizing people's faces.

Answer: c
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 3 - Difficult
2 yr.: 45% r = .34

2.60 The area of the frontal lobe that is crucial in our ability to talk is _____ area.
a. Gall's
b. Broca's
Correct: *Broca’s area is believed to be crucial in speech production.*
c. Korsakoff's
d. Wernicke's
Incorrect: *Broca’s area is believed to be crucial in speech production, while Wernicke’s is implicated more broadly in speech comprehension.*

Answer: b
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

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2.61 Simply put, Broca's area is important for _____, and Wernicke's area is important for _____.
a. talking; listening
Correct: *Broca's area is believed to be crucial in speech production, while Wernicke's is implicated more broadly in speech comprehension.*
b. listening; talking
Incorrect: *Broca's area is believed to be crucial in speech production, while Wernicke's is implicated more broadly in speech comprehension.*
c. listening; listening
d. talking; talking

Answer: a
Learning Objective: 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.62 Navid had a stroke, and has suffered damage to Wernicke's area in his brain. He is most likely to exhibit _____ aphasia.
a. inclusive
b. receptive
Correct: *Wernicke's area is the part of the brain associated with the reception and comprehension of language. Damage to this area would result in receptive aphasia.*
c. occlusive
d. expressive
Incorrect: *Broca's area is essential to our ability to talk, or express ourselves, so damage to this area results in expressive aphasia.*

Answer: b
Learning Objective: 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.63 Males are _____ likely than females to be left-handed.
a. much less
b. slightly more
Correct: *Males are slightly more likely than females to be left-handed.*
c. much more
d. slightly less
Incorrect: *Research has not fully explained why some people are left-handed and others are right-handed, but males are slightly more likely to be left-handed.*

Answer: b
Learning Objective: 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.64 _____ techniques are used to study the functions of single neurons.
a. Structural imaging
b. Macroelectrode
Incorrect: *Macroelectrode recording techniques are used to obtain an overall picture of the activity in particular regions of the brain.*
c. Microelectrode
Correct: *Microelectrode techniques are used to study the functions of single neurons, while macroelectrodes give an overall picture, which might contain millions of neurons.*

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d. Functional imaging

Answer: c
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.65 Macroelectrode techniques are used to _____.
a. observe neural activity as it reacts to sensory stimuli
b. study single neurons
Incorrect: *Microelectrode techniques are used to study the functions of single neurons, while macroelectrodes give an overall picture, which might contain millions of neurons.*
c. study overall activity in particular regions of the brain
Correct: *Macroelectrode recording techniques are used to obtain an overall picture of the activity in particular regions of the brain.*
d. map structures in the living brain

Answer: c
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.66 Structural imaging techniques are used to _____.
a. study overall activity in particular regions of the brain
b. map structures in the living brain
Correct*: Structural imaging allows researchers to map structures in the living brain.*
c. study single neurons
d. observe neural activity as it reacts to sensory stimuli
Incorrect*: Functional imaging allows activity to be observed in relation to sensory stimuli.*

Answer: b
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.67 Functional imaging techniques are used to _____.
a. observe the brain's activity as it reacts to sensory stimuli
Correct*: Functional imaging allows activity to be observed in relation to sensory stimuli.*
b. study single neurons
c. study overall activity in particular regions of the brain
d. map structures in the living brain
Incorrect*: Structural imaging allows researchers to map structures in the living brain.*

Answer: a
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.68 An imaging technique that has been useful in helping researchers understand the decline in memory and cognition that often accompanies aging is _____.
a. magnetoencephalogaphy (MEG)

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b. positron emission tomography (PET) scanning
Incorrect: *fMRI has helped researchers understand a decline in memory and cognition, while PET has been used to see which areas of the brain are most active during tasks.*
c. functional magnetic resonance imaging (fMRI)
Correct: *Researchers have used this technique to obtain a better understanding of the decline in memory and cognition that accompanies aging.*
d. magnetic source imaging (MSI)

Answer: c
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.69 The spinal cord is made up of soft, jellylike bundles of long _____.
a. ligaments
b. axons
Correct: *The spinal cord is made up of bundles of axons.*
c. dendrites
Incorrect: *The spinal cord is not made up of dendrites.*
d. tendons

Answer: b
Learning Objective: 2.9 Explain how the spinal cord works.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.70 Sandra is straightening her hair, and accidently touches the hot plate of the straightener. Her hand automatically opens to release the straightener. Sandra's reaction is due to the functioning of the _____.
a. medulla
Incorrect: *The medulla would not be involved in the withdrawal reaction to a hot surface.*
b. limbic system
c. spinal cord
Correct: *The spinal cord allows rapid communication between sensory neurons, interneurons, and motor neurons that allow such a reflex to occur.*
d. hypothalamus

Answer: c
Learning Objective: 2.9 Explain how the spinal cord works.
Topic: The Central Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate

The Peripheral Nervous System

2.71 Neurons that carry messages from the sense organs to the spinal cord or the brain are called _____ neurons.
a. afferent
Correct: *These neurons are called afferent, or sensory neurons.*
b. exfferent
c. inter-
d. efferent
Incorrect: *Efferent neurons carry signals from the brain to the body's muscles and glands.*
Answer: a
Learning Objective: 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
Topic: The Peripheral Nervous System

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Skill: Remember the Facts
Difficulty: 2 - Moderate

2.72 A young man returns from a day at the beach to find he has developed a severe sunburn. Which neurons are sending messages from his burned skin to his brain informing him of the pain from the burn?
a. motor neurons
b. interaction neurons
c. afferent neurons
Correct: *Afferent, or sensory, neurons take messages to the central nervous system from the sensory organs.*
d. efferent neurons
Incorrect: *Efferent, or motor, neurons take messages from the central nervous system to muscles and glands.*

Answer: c
Learning Objective: 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
Topic: The Peripheral Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.73 All the things that register through our senses (sights, sounds, smells, temperature, taste, and pressure) have their origins in the _____ nervous system.
a. secondary
b. peripheral
Correct: *All things we can sense have origins in the peripheral nervous system.*
c. central
Incorrect: *The central nervous system consists of the brain and spinal cord.*
d. autonomic

Answer: b
Learning Objective: 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
Topic: The Peripheral Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.74 The branch of the autonomic nervous system that prepares the body for quick action in an emergency is the _____ division.
a. sympathetic
Correct: *The sympathetic nervous system prepares the body for a "fight or flight" response.*
b. central
c. secondary
d. parasympathetic
Incorrect: *The sympathetic nervous system prepares the body for a "fight or flight" response, while the parasympathetic stabilizes the body.*

Answer: a
Learning Objective: 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
Topic: The Peripheral Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.75 You're walking all alone down a dark street when suddenly you hear a scream and then footsteps coming closer and closer. Your heart begins to pound, you're scared stiff, and you feel like running. Which part of the nervous system causes your body's reaction?
a. the somatic nervous system

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Incorrect: *The somatic nervous system generally controls voluntary functions, while the autonomic nervous system controls the automatic functions that are taking place when you are ready to run from a threat like this.*
b. the autonomic nervous system
Correct: *The autonomic nervous system includes the sympathetic branch, which helps to speed our body up in a crisis or emergency.*
c. the midbrain
d. the hippocampus

Answer: b
Learning Objective: 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
Topic: The Peripheral Nervous System
Skill: Apply What You Know
Difficulty: 2 - Moderate
4 yr.: 72% r = .25

2.76 The branch of the autonomic nervous system that calms and relaxes the body is the _____ division.
a. parasympathetic
Correct: *The parasympathetic stabilizes the body after arousal, while the sympathetic nervous system prepares the body for a "fight or flight" response.*
b. secondary
c. sympathetic
Incorrect: *The sympathetic nervous system prepares the body for a "fight or flight" response.*
d. central

Answer: a
Learning Objective: 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
Topic: The Peripheral Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

The Endocrine System

2.77 The system which coordinates and integrates behavior by secreting chemicals into the bloodstream is called the _____ system.
a. somatic
b. limbic
Incorrect: *The limbic system deals with emotional behavior, while the endocrine system is responsible for coordinating and integrating behavior by secreting chemicals into the bloodstream.*
c. autonomic
d. endocrine
Correct: *The endocrine system is responsible for coordinating and integrating behavior by secreting chemicals into the bloodstream.*

Answer: d
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.78 The gland that produces the largest number of different hormones and has the widest range of effects on the body's functions is the _____ gland.
a. thyroid
b. pineal

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Incorrect: *The pineal gland is located in the center of the brain and appears to regulate activity levels.*
c. adrenal
d. pituitary
Correct: *The pituitary gland is on the underside of the brain, and produces the largest number of the body's hormones.*

Answer: d
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy
4 yr.: 61% r = .24; 2 yr.: 76% r = .23; 2 yr.: 79% r = .47

2.79 The hormone melatonin is produced by the _____ gland.
a. pituitary
b. pineal
Correct: *Melatonin is produced by the pineal gland and helps regulate sleep-wake cycles.*
c. adrenal
d. thyroid
Incorrect: *The thyroid produces thyroxin; melatonin is produced by the pineal gland and helps regulate sleep-wake cycles.*

Answer: b
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.80 Gloria's friends have recently noticed a startling change in her behavior. She eats everything in sight but gains little, if any, weight. She speeds around the room as if she were taking amphetamines. She seems constantly tense and agitated, and has trouble sleeping. She has become impulsive and lately she seems to be upset by even the slightest stress. The source of Gloria's problems is probably an _____ gland.
a. overactive pituitary
b. overactive thyroid
Correct: *An overactive thyroid (hyperthyroidism) can lead to such symptoms as irritability, insomnia, and difficulty sleeping.*
c. underactive pituitary
d. underactive thyroid
Incorrect: *An underactive thyroid (hypothyroidism) ordinarily leads to fatigue and excessive sleepiness.*

Answer: b
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Apply What You Know
Difficulty: 1 - Easy

2.81 The two hormones which keep the blood-sugar level properly balanced are _____.
a. growth hormone and ACTH
b. thyroxin and parathormone
Incorrect: *Thyroxin regulates the body's rate of metabolism and parathormone regulates calcium and phosphorus in the body.*
c. insulin and glucagon
Correct: *These two hormones keep the blood-sugar level properly balanced.*
d. epinephrine and norepinephrine

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Answer: c
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.82 Oversecretion of insulin by the pancreas results in _____.
a. cirrhosis
b. diabetes
Incorrect: *Underproduction of insulin leads to diabetes mellitus.*
c. hypoglycemia
Correct: *Oversecretion of insulin results in hypoglycemia, a condition in which there is too little sugar in the blood.*
d. muscle spasms

Answer: c
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.83 The adrenal glands are important in your body's reaction to _____.
a. digestion
b. pleasurable fantasy
c. sleep
Incorrect: *The adrenal glands are important in your bodies response to stress, and release epinephrine and norepinephrine.*
d. stress
Correct: *The pineal gland secretes melatonin which helps to regulate sleep-wake cycles.*

Answer: d
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.84 The hormone that causes the anterior pituitary gland to release hormones that prolong responses to stress, thus causing you to remain aroused for some time after extreme emotional excitement is _____.
a. epinephrine
Incorrect: *Epinephrine activates the sympathetic nervous system.*
b. acetylcholine
c. norepinephrine
Correct: *Norepinephrine raises blood pressure, and prolongs the response to stress, which is why it takes time for the body to return to normal after emotional excitement.*
d. dopamine

Answer: c
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.85 Masculine sex hormones are called _____.
a. androgens

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Correct: *Masculine sex hormones are called androgens and are secreted by the gonads, which are the testes in males.*
b. endorphins
c. estrogens
d. testosterone
Incorrect: *Testosterone is a specific androgen.*

Answer: a
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.86 _____ has long been linked to aggressive behavior.
a. Thyroxin
b. Progesterone
Incorrect: *Progesterone helps to regulate ovulation and menstruation..*
c. Testosterone
Correct: *Testosterone has been shown to result in increased aggression in the subject when more is present during crucial periods of prenatal development.*
d. Melatonin

Answer: c
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

Genes, Evolution, and Behavior

2.87 The subfield of psychology concerned with the roots of behaviors and mental processes is _____.
a. psychoneuroendocrinology
b. evolutionary psychology
Correct: *Evolutionary psychology studies the evolutionary roots of behaviors and mental processes.*
c. behavior genetics
Incorrect: *Behavior genetics studies the relationship between heredity and behavior.*
d. psychobiology

Answer: b
Learning Objective: 2.13 Distinguish between behavior genetics and evolutionary psychology.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.88 Pairs of tiny threadlike bodies that carry genes are _____.
a. riboplasts
b. vesicles
Incorrect: *Synaptic vesicles are tiny sacs in a terminal button that release chemicals into the synapse.*
c. proteins
d. chromosomes
Correct: *Chromosomes are pairs of threadlike bodies within the cell nucleus that contain the genes.*

Answer: d

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Learning Objective: 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.89 The only known molecule that can replicate or reproduce itself is _____.
a. messenger RNA
b. monoamine oxidase
c. RNA
Incorrect: *RNA stands for ribonucleic acid*
d. DNA
Correct: *DNA is the only known molecule that can replicate or reproduce itself, which happens each time a cell divides. DNA is the main ingredient of chromosomes and genes and that forms the code for all genetic information.*

Answer: d
Learning Objective: 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.90 Jessica's mother has blue eyes, with two recessive genes for blue eyes. Her father has brown eyes, with a dominant gene for brown eyes and a recessive gene for blue eyes. What are the chances that Jessica has blue eyes?
a. 0 percent
Incorrect: *In order for Jessica to have no chance of having blue eyes, her father would need to have two dominant genes for brown eyes.*
b. 75 percent
c. 50 percent
Correct: *Because of Jessica's parents' genetic codes, she has a 50 percent chance of having brown eyes and a 50 percent chance of having blue eyes.*
d. 25 percent

Answer: c
Learning Objective: 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
Topic: Genes, Evolution, and Behavior
Skill: Apply What You Know
Difficulty: 3 - Difficult

2.91 In many important psychological characteristics, a number of genes make a small contribution to the trait in question. This process is known as _____.
a. polygenic inheritance
Correct: *When multiple genes contribute to a trait or characteristic, it is called polygenetic inheritance.*
b. cumulative inheritance
c. genetic dominance
Incorrect: *Genetic dominance refers to one gene being expressed over another gene. The best answer is polygenetic inheritance.*
d. natural selection

Answer: a
Learning Objective: 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
Topic: Genes, Evolution, and Behavior
Skill: Understand the Concepts
Difficulty: 2 - Moderate

2.92 The sum total of all genes within a human cell is _____.
a. polygenetic inheritance
b. the human genome

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Correct: *The sum total of all genes in a human cell is the human genome.*
c. the human phenotype
Incorrect: *A phenotype refers to the characteristics of an organism*
d. homogenetic inheritance

Answer: b
Learning Objective: 2.16 Describe the human genome and what can be learned by studying it.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.93 An organism's entire unique genetic makeup is called its _____.
a. phenotype
Incorrect: *A phenotype is the characteristics of an organism, while the genotype is its entire unique genetic makeup.*
b. genotype
Correct: *An organism's entire unique genetic makeup is its genotype.*
c. genetic imprint
d. polygenic inheritance

Answer: b
Learning Objective: 2.16 Describe the human genome and what can be learned by studying it.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.94 Strain studies involve _____.
a. a single generation of animals
b. inbreeding of close relatives of animals over several generations
Correct: *Strain studies involve inbreeding over several generations of animals to produce strains that are genetically similar.*
c. adopting children with similar traits
d. breeding animals which have a trait with other animals that share that trait
Incorrect: *Selection studies assess heritability, the degree to which a trait is inherited.*

Answer: b
Learning Objective: 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate
4 yr.: 40% r = .16

2.95 Studies of heritability in humans that assume that if genes influence a certain trait, close relatives should be more similar with that trait than distant relatives are called _____ studies.
a. strain
Incorrect: *Strain studies are only conducted on animals, not on human beings.*
b. selection
c. family
Correct: *Family studies examine the commonality of certain genetic traits in relatives who share various levels of their genetic code.*
d. twin

Answer: c
Learning Objective: 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
Topic: Genes, Evolution, and Behavior
Skill: Understand the Concepts
Difficulty: 2 - Moderate

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2.96 Fraternal twins are _____ similar genetically than are other brothers and sisters.
a. much more
Incorrect: *Identical twins are identical in genetic makeup at conception.*
b. much less
c. no more
Correct: *Fraternal twins share the same amount of DNA as any other brother and sister as they result from two separate fertilized eggs, and two separate sperm.*
d. slightly more

Answer: c
Learning Objective: 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.97 One process by which physicians can obtain cell samples from fetuses in order to analyze their genes for possible genetic abnormalities (defects) is called _____.
a. ultrasound
Incorrect: *An ultrasound scan uses high-frequency sound waves to create an image of the inside of the body in real-time.*
b. positron emission tomography scanning
c. amniocentesis
Correct: *Amniocentesis is a procedure for obtaining samples of cells from a fetus to analyze the genes.*
d. immunotherapy

Answer: c
Learning Objective: 2.18 Identify the key ethical issues that arise as society gains more control over genetics.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.98 A procedure in which cells are collected from the membranes surrounding the fetus, and then tested for genetic abnormalities, is called _____.
a. intra-uterine probe testing
b. chorionic villus sampling
Correct: *Chorionic villus sampling* is a *procedure for obtaining samples of cells from a fetus to analyze the genes.*
c. ultrasound
d. amniocentesis
Incorrect: *Amniocentesis involves the cells harvested from the fluid in which the fetus grows.*

Answer: b
Learning Objective: 2.18 Identify the key ethical issues that arise as society gains more control over genetics.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.99 The mechanism proposed by Darwin in his theory of evolution stating that organisms best adapted to their environment tend to survive and transmit their genetic characteristics to their offspring, is called _____.
a. mutational transmosis
b. natural selection
Correct: *Darwin's mechanism of natural selection was based on the idea that those organisms best adapted to their environment tend to survive and pass on their genetic material.*
c. behavior genetics
d. random adaptation

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Incorrect: *Organisms that do not possess the adaptive traits tend to die off before they reproduce, and hence, the less-adaptive traits do not get passed along to future generations.*

Answer: b
Learning Objective: 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.100 From an evolutionary perspective, for mate selection in humans, it is most advantageous for _____.
a. both males and females to seek as many mates as possible
b. males to seek one long-term mate but for females to seek as many mates as possible
Incorrect: *According to evolutionary psychology, males may gain advantage by finding as many partners as possible because of their ability to replenish sperm in a short amount of time.*
c. both males and females to seek one mate for life
d. females to seek one long-term mate but for males to seek as many mates as possible
Correct: *Females gain advantage by finding one male mate to stay with for the long term, according to evolutionary psychology.*

Answer: d
Learning Objective: 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior
Topic: Genes, Evolution, and Behavior
Skill: Understand the Concepts
Difficulty: 2 - Moderate

True/False

2.101 The tiny fibers branching out from the cell body of a neuron are called axons.
a. True
b. False

Answer: b
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

2.102 An axon is very thick and usually much shorter than dendrites.
a. True
b. False

Answer: b
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.103 The axon of a neuron is often surrounded by a fatty covering called the myelin sheath.
a. True
b. False

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Answer: a
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

2.104 Neural impulses vary in strength according to the strength of the incoming signal to the neuron.
a. True
b. False

Answer: b
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.105 The neuron cannot fire during the absolute refractory period.
a. True
b. False

Answer: a
Learning Objective: 2.2 Describe how neurons transmit information including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.106 The tiny gap between the axon terminal of one neuron and the dendrites or cell body of the next neuron is called the synaptic space.
a. True
b. False

Answer: a
Learning Objective: 2.3 Describe the parts of the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.107 Schizophrenia seems to be associated with an overabundance of dopamine.
a. True
b. False

Answer: a
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.108 Adult brains are not capable of neurogenesis.
a. True
b. False

Answer: b
Learning Objective: 2.5 Explain neuroplasticity and neurogenesis.

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Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 1 - Easy

2.109 The nervous system is usually divided into two major parts: the central nervous system and the parasympathetic nervous system.
a. True
b. False

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.110 The oldest and most primitive of the brain's structures are the cerebral hemispheres.
a. True
b. False

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.111 Breathing, heart rate, and blood pressure are controlled by the medulla.
a. True
b. False

Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.112 Phineas Gage suffered personality changes as a result of damage to his temporal lobes.
a. True
b. False

Answer: b
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.113 The limbic system is important to motivation.
a. True
b. False

Answer: a
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.114 The hemisphere of the brain most dominant in verbal tasks is the right hemisphere.
a. True

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b. False

Answer: b
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.115 Differences between hemispheres are greater in women than in men.
a. True
b. False

Answer: b
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.116 Broca's area is important in listening and Wernicke's area is important in talking.
a. True
b. False

Answer: b
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.117 Both CT scanning and MRI provide pictures of brain activity.
a. True
b. False

Answer: b
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.118 The complex cable of nerves that connects the brain to the rest of the body is the spinal cord.
a. True
b. False

Answer: a
Learning Objective: 2.9 Explain how the spinal cord works.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.119 Afferent neurons carry messages to the central nervous system.
a. True
b. False

Answer: a
Learning Objective: 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.

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Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.120 The somatic nervous system contains two branches: the sympathetic and the parasympathetic divisions.
a. True
b. False

Answer: b
Learning Objective: 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
Topic: The Peripheral Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.121 The sympathetic division carries messages to the body which tell it to prepare for an emergency.
a. True
b. False

Answer: a
Learning Objective: 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
Topic: The Peripheral Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.122 Chemical substances called hormones are released into your bloodstream by the endocrine glands.
a. True
b. False

Answer: a
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.123 The two hormones secreted by the pancreas are insulin and glucagon.
a. True
b. False

Answer: a
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.124 Estrogen has been linked to aggressive behavior in both males and females.
a. True
b. False

Answer: b
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.

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Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.125 The main ingredient of genes and chromosomes is deoxyribonucleic acid.
a. True
b. False

Answer: a
Learning Objective: 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.126 When a number of genes make small contributions to a trait, this is known as mixed dominance.
a. True
b. False

Answer: b
Learning Objective: 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.127 The effects of genetics are not always immediate or fully apparent.
a. True
b. False

Answer: a
Learning Objective: 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 1 - Easy

2.128 Genes can directly cause human behavior.
a. True
b. False

Answer: b
Learning Objective: 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.129 Strain studies are conducted on animals and humans.
a. True
b. False

Answer: b
Learning Objective: 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

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2.130 Evolutionary psychologists are especially interested in social behaviors.
a. True
b. False

Answer: a
Learning Objective: 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.
Topic: Genes, Evolution, and Behavior
Skill: Remember the Facts
Difficulty: 2 - Moderate

Essay

2.131 Define neuron, axon, dendrite, cell body, and myelin sheath. In your definitions, be sure to describe the specific functions of each item.

Answer: A neuron is an individual cell that is the smallest unit of the nervous system. An axon is a part of a neuron that is a single long fiber which extends from the cell body, and carries outgoing messages to other neurons. Myelin sheath covers the axon, and acts to insulate the outgoing message. A group of axons bundled, is a nerve. Dendrites are also part of the neuron, short fibers that branch out from the cell body and pick up incoming messages from other neurons. The cell body is the part of the neuron that contains the nucleus.
Learning Objective: 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish between afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.132 Specifically describe the effects of the neurotransmitters acetylcholine, dopamine, serotonin, and endorphins.

Answer: Acetylcholine acts where neurons meet skeletal muscles and plays a role in arousal, attention, memory, and motivation. Dopamine affects neurons responsible for voluntary movement, learning, memory, and emotions, and involves the regulation of behaviors such as pleasure, addiction, and some forms of mental illness. Serotonin is considered the mood molecule, and is involved in emotional experiences. Endorphins reduce pain by inhibiting, or turning down, the neurons that transmit pain messages to the brain.
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.133 Discuss why painkillers can be addictive.

Answer: While endorphins are the body's natural way to dilute pain messages, drugs such as morphine and other narcotics utilize the same receptor site as endorphins, yet are more powerful. In addition to dulling the pain message, the body's production of natural pain killers is reduced, and the addict requires more of the drug to exist in a "normal" state.
Learning Objective: 2.4 Explain the role of neurotransmitters in the synapse.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.134 Explain what plasticity and neurogenesis are. Briefly summarize the research regarding stem cells and the possibility of growing new neurons in the human brain.

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Answer: Plasticity in the brain allows the brain to change, and reroute if damaged. Neurogenesis is the growth of new neurons. Researchers used to believe that humans had a limited amount of stem cells and that neural networks of neurons were stabilized. However, research has found that when neural network pathways are damaged (such as individuals who are blind, have hearing issues related to the brain) that these areas are recruited for other purposes and information is processed differently. Additionally, neurogenesis has been found to occur in adult humans, something that was previously unheard of. There are also ethical issues that arise when we discuss implanting stem cells into damaged human brains, even though some studies, such as one done with Parkinson's patients, has shown that stem cells can be beneficial in treating disease.
Learning Objective: 2.5 Explain neuroplasticity and neurogenesis.
Topic: Neurons: The Messengers
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.135 Describe the location and functioning of the medulla, cerebellum, thalamus, hypothalamus, and cerebral cortex.

Answer: The medulla, cerebellum, thalamus, and hypothalamus are all located in the hindbrain, which is the earliest part of the brain believed to have evolved. The medulla controls essential life support functions (heartrate, breathing) and is above the spinal cord, while the thalamus serves as a relay station for sensory information. The hypothalamus is under the thalamus, and is in charge of motivation. The cerebral cortex is the surface of the brain, and covers the cerebrum. The cerebrum is the part of the brain that processes thought, vision, language, memory, and emotions.
Learning Objective: 2.6 Identify the parts of the brain and nervous system.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.136 Compare and contrast the functions of the left and right hemispheres of the cerebral cortex. What role does the corpus callosum play in this functioning? Finally, what were the reasons for, and results of, split-brain operations?

Answer: The left hemisphere of the cerebral cortex houses many functions to do with language, and controls writing and movement of the right side of the body. The right hemisphere controls touch and movement of the left side of the body, and is superior at nonverbal, visual and spatial tasks. The corpus callosum connects the hemispheres and allows the exchange of information. If an individual is suffering from severe epilepsy, they may sever the corpus callosum in surgery, resulting in the two hemispheres no longer being able to communicate.
Learning Objective: 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 3 - Difficult

2.137 Discuss how the brain controls language in humans, identifying the key structures involved in language processing and describing the effects of damage to these areas.

Answer: Most of the language functioning in the brain is housed within the left hemisphere. The areas typically associated with language production and comprehension are Broca's and Wernicke's areas. Broca's area is thought to deal with speech production, with damage creating Broca's aphasia, an inability to speak fluently. Damage to Wernicke's area creates Wernicke's aphasia, and typically creates an inability to comprehend the speech of others.
Learning Objective: 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.138 Summarize research findings about left-handedness and its causes.

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Answer: Hemispheric specialization has not been found to have to do with handedness. Only 10% of humans are left-handed, and slightly more men than women are left-handed. The tendency toward right-handedness appears to be a trait early which humans possessed, as prehistoric cave drawings, tools, and human skeletons all support dominant right-handedness in the past.
Learning Objective: 2.7 Explain what is meant by “hemispheric specialization” and the functional differences between the two cerebral hemispheres.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.139 Briefly discuss the purposes of and describe the procedure for studying the brain within each of the following general areas: microelectrode techniques, macroelectrode techniques, structural imaging, functional imaging.

Answer: Microelectrode techniques for studying the brain involve recording from a single neuron, while macroelectrode techniques involve recording from an area of the brain, which may contain millions of neurons. EEGs are one form of macroelectrode. Structural imaging involves taking a living picture of the brain, and techniques include CAT scanning and MRI, while functional imaging allows a living picture of the brain to be taken whilst the brain is responding to sensory stimuli. Forms of functional imaging include fMRI and PET scans.
Learning Objective: 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.140 Describe the functions of the spinal cord and explain how it works with the brain to sense events and act on them.

Answer: The spinal cord connects the brain to most of the rest of the body, and contains two major neural pathways, one with afferent, and one with efferent neurons. Sensory information from afferent neurons is transmitted to the spinal cord, where an efferent neuron can respond in a reflexive action to an immediate threat, or the information can be passed along to the brain if the information is in regard to other sensory information, and it can dictate other motor neuron responses.
Learning Objective: 2.9 Explain how the spinal cord works.
Topic: The Central Nervous System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.141 Compare and contrast the functions of the sympathetic and parasympathetic nervous system. What does the current scientific evidence indicate in regard to one's ability to consciously control functions normally controlled by the autonomic nervous system?

Answer: The autonomic nervous system is divided into the sympathetic and the parasympathetic tracts. The sympathetic nervous system responds in situations that are considered emergencies to ready the body for action. The parasympathetic follows with signals that indicate the body should relax. Recent studies have shown that humans have some control over the autonomic nervous system, such as learning to moderate the severity of high blood pressure, migraine headaches, etc. through biofeedback.
Learning Objective: 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
Topic: The Peripheral Nervous System
Skill: Remember the Facts
Difficulty: 1 - Easy

2.142 Describe the basic functions of the endocrine system, including the specific functions of the thyroid gland, pancreas, pituitary gland, gonads, and adrenal glands.

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Answer: The endocrine system is responsible for releasing hormones in the body, which function similarly to neurotransmitters in the brain. Hormones take longer to reach a site of action in the body and be effective, and tend to have different lengths of effect. The pituitary gland produces the largest number of the body's hormones. The thyroid gland regulates activity levels over the course of a day, the pancreas secretes insulin and glucagon to regulate blood-sugar, and the adrenal glands releases epinephrine or norepinephrine. The gonads (testes in males, ovaries in females) secrete hormones classified as masculine and feminine with organizing roles in human development.
Learning Objective: 2.12 Describe the endocrine glands and the way their hormones affect behavior.
Topic: The Endocrine System
Skill: Remember the Facts
Difficulty: 2 - Moderate

2.143 Define genes, chromosomes, and DNA and describe their role in the genetic transmission of traits.

Answer: Genes are elements that control the transmission of traits, and are found on chromosomes. DNA itself is the main ingredient of chromosomes and genes, which forms the code for all genetic information. A fertilized human egg contains two sets of chromosomes, one from the female and one from the male, resulting in 23 pairs. The genes are of different varieties, and can be dominant or recessive for given traits (such as eye color). Dominant genes will manifest the appearance of the trait.
Learning Objective: 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.
Topic: Genes, Evolution, and Behavior
Skill: Understand the Concepts
Difficulty: 3 - Difficult

2.144 Explain how dominant and recessive genes might influence the eye color of a child born to parents where the father has blue eyes and the mother has brown eyes. What color eyes are the grandchildren likely to have if the child marries a blue-eyed person? Why?

Answer: Dominant genes are members of the gene pair that controls the appearance of a certain trait. Recessive genes are members that can control the appearance of a trait only when paired with another recessive gene. If the father has blue eyes (blue is recessive) he contributes recessive blue genes (bb), while if a mother has brown eyes, she has at least one dominant brown gene (B) and may carry recessive blue genes (b) or another brown gene (B). Depending on what the mother carries, the child has a 50% chance of having blue eyes (if the mother carries Bb), or a 100% chance of brown eyes (if the mother carries BB).
Learning Objective: 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
Topic: Genes, Evolution, and Behavior
Skill: Apply What You Know
Difficulty: 2 - Moderate

2.145 Define and describe the uses for and limitations of family studies, twin studies, and adoption studies. What has been learned from these studies about the role of heredity in shaping human personality?

Answer: Family studies look at heritability based on the assumption that if genes influence a certain trait, close relatives should be more similar on the trait than distant relatives. This type of study has been used to look at the likelihood of schizophrenia, and whether it is genetically linked (since closer family members are more likely to have the disorder). Twin studies look at identical versus fraternal twins to determine whether nature (genetics, which identical twins share) influences behavior and personality more than nurture (which fraternal twins share similar to identical twins, but their genetic makeup is no closer than other siblings). Adoption studies look at children adopted at birth by parents not related to them to see the effect of nurture (environment) versus heredity (genetics) on behavior. All three methods look at teasing apart the influences of heredity and environment.
Learning Objective: 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.

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Topic: Genes, Evolution, and Behavior
Skill: Understand the Concepts
Difficulty: 3 – Difficult

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Revel Assessments

End of Module Quizzes

Key: Answer, Type, Learning Objective, Level

Type
Applied
Conceptual
Factual
Analyze

Level
(1)=Easy; (2)=Moderate; (3)=Difficult

LO=Learning Objective

Quiz: What is Psychology?

EOM Q2.1.1
The _____ is the level an impulse must exceed to cause a neuron to fire.
a) threshold of excitation
b) graded potential
Consider This: For a neuron to fire, graded potentials caused by impulses from many neighboring neurons—or from one neuron firing repeatedly—must exceed a certain minimum threshold. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
c) action potential
Consider This: For a neuron to fire, graded potentials caused by impulses from many neighboring neurons—or from one neuron firing repeatedly—must exceed a certain minimum threshold. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
d) threshold of potential
Consider This: For a neuron to fire, graded potentials caused by impulses from many neighboring neurons—or from one neuron firing repeatedly—must exceed a certain minimum threshold. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.

Topic: Neurons: The Messengers
ANS: a, Factual. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law. (1)

EOM Q2.1.2
Which of the following is true about dendrites?
a) They are found in every type of cell.
Consider This: Dendrites are tiny fibers that extend out from the body and pick up incoming messages from other neurons. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
b) They carry outgoing messages to neighboring neurons.
Consider This: Dendrites are tiny fibers that extend out from the body and pick up incoming messages from other neurons. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
c) Some neurons have them, and some do not.
Consider This: Dendrites are tiny fibers that extend out from the body and pick up incoming messages from other neurons. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
d) They pick up incoming messages and transmit them to the cell body.

Topic: Neurons: The Messengers
ANS: d, Factual. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells. (1)

EOM Q2.1.3
Glutamate enhances learning and memory by _____.
a) stimulating neurons in the midbrain

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Consider This: Glutamate is an excitatory chemical that speeds up synaptic transmission through the central nervous system and is involved in enhancing learning and memory by strengthening synaptic connections between neurons. LO 2.4 Explain the role of neurotransmitters in the synapse.
b) stimulating neurons that reside in the hindbrain
Consider This: Glutamate is an excitatory chemical that speeds up synaptic transmission through the central nervous system and is involved in enhancing learning and memory by strengthening synaptic connections between neurons. LO 2.4 Explain the role of neurotransmitters in the synapse.
c) strengthening synaptic connections between neurons
d) strengthening the myelin sheath
Consider This: Glutamate is an excitatory chemical that speeds up synaptic transmission through the central nervous system and is involved in enhancing learning and memory by strengthening synaptic connections between neurons. LO 2.4 Explain the role of neurotransmitters in the synapse.

Topic: Neurons: The Messengers
ANS: c, Conceptual. LO 2.4 Explain the role of neurotransmitters in the synapse. (2)

EOM Q2.1.4
The _____ is the tiny gap between the axon terminal of one neuron and the dendrites or cell body of the next neuron.
a) vesicle
Consider This: Neurons are not directly connected like links in a chain; rather, they are separated by a tiny synaptic space where the axon terminals of one neuron almost touch the dendrites or cell body of other neurons. LO 2.3 Describe the parts of the synapse.
b) synaptic cleft
c) neurotransmitter
Consider This: Neurons are not directly connected like links in a chain; rather, they are separated by a tiny synaptic space where the axon terminals of one neuron almost touch the dendrites or cell body of other neurons. LO 2.3 Describe the parts of the synapse.
d) terminal button
Consider This: Neurons are not directly connected like links in a chain; rather, they are separated by a tiny synaptic space where the axon terminals of one neuron almost touch the dendrites or cell body of other neurons. LO 2.3 Describe the parts of the synapse.

Topic: Neurons: The Messengers
ANS: b, Factual. LO 2.3 Describe the parts of the synapse. (1)

EOM Q2.1.5
Why do people from different cultures develop different neural networks?
a) because people from different cultures have different levels of hormones
Consider This: In 1984, M.R. Rosenzweig conducted experiments in which young rats lived in either "impoverished" or "enriched" cages; when examining the rats' brains, Rosenzweig found that the enriched group had larger neurons with more synaptic connections, showing that experience can actually affect the structure of the brain. LO 2.5 Explain neuroplasticity and neurogenesis.
b) because people from different cultures have very different genes
Consider This: In 1984, M.R. Rosenzweig conducted experiments in which young rats lived in either "impoverished" or "enriched" cages; when examining the rats' brains, Rosenzweig found that the enriched group had larger neurons with more synaptic connections, showing that experience can actually affect the structure of the brain. LO 2.5 Explain neuroplasticity and neurogenesis.
c) because people from different cultures often have very different experiences
d) because people from different cultures have different levels of intelligence
Consider This: In 1984, M.R. Rosenzweig conducted experiments in which young rats lived in either "impoverished" or "enriched" cages; when examining the rats' brains, Rosenzweig found that the enriched group had larger neurons with more synaptic connections, showing that experience can actually affect the structure of the brain. LO 2.5 Explain neuroplasticity and neurogenesis.

Topic: Neurons: The Messengers
ANS: c, Conceptual. LO 2.5 Explain neuroplasticity and neurogenesis. (3)

Quiz: The Central Nervous System

EOM Q2.2.1
Damage to the hypothalamus might result in which of the following problems?
a) difficulty recognizing people's faces
Consider This: Portions of the hypothalamus govern hunger, thirst, sexual drive, and body temperature and are directly involved in emotional behavior. LO 2.6 Identify the parts of the brain and the nervous system.
b) difficulty paying attention
Consider This: Portions of the hypothalamus govern hunger, thirst, sexual drive, and body temperature and are directly involved in emotional behavior. LO 2.6 Identify the parts of the brain and the nervous system.
c) difficulty controlling emotions
d) difficulty sleeping
Consider This: Portions of the hypothalamus govern hunger, thirst, sexual drive, and body temperature and are directly involved in emotional behavior. LO 2.6 Identify the parts of the brain and the nervous system.

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Topic: The Central Nervous System
ANS: c, Conceptual. LO 2.6 Identify the parts of the brain and the nervous system. (2)

EOM Q2.2.2
The _____ includes the brain and the spinal cord, which together contain more than 90% of the body's neurons.
a) peripheral nervous system
Consider This: The CNS is the division of the nervous system that consists of the brain and spinal cord. LO 2.6 Identify the parts of the brain and the nervous system.
b) central nervous system
c) autonomic nervous system
Consider This: The CNS is the division of the nervous system that consists of the brain and spinal cord. LO 2.6 Identify the parts of the brain and the nervous system.
d) limbic system
Consider This: The CNS is the division of the nervous system that consists of the brain and spinal cord. LO 2.6 Identify the parts of the brain and the nervous system.

Topic: The Central Nervous System
ANS: b, Factual. LO 2.6 Identify the parts of the brain and the nervous system. (1)

EOM Q2.2.3
_____ are impairments of the ability to use or understand language.
a) Occipital delays
Consider This: In the brain, Broca's area and Wernicke's area work together to produce and understand speech and language. Damage to Broca's area causes "expressive" aphasias, and damage to Wernicke's area causes "receptive" aphasias. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
b) Speech impediments
Consider This: In the brain, Broca's area and Wernicke's area work together to produce and understand speech and language. Damage to Broca's area causes "expressive" aphasias, and damage to Wernicke's area causes "receptive" aphasias. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
c) Temporal delays
Consider This: In the brain, Broca's area and Wernicke's area work together to produce and understand speech and language. Damage to Broca's area causes "expressive" aphasias, and damage to Wernicke's area causes "receptive" aphasias. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
d) Aphasias

Topic: The Central Nervous System
ANS: d, Factual. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres. (1)

EOM Q2.2.4
Which of the following is true of macroelectrode recording techniques?
a) They are used to study brain waves.
b) They are used to map regions of the brain.
Consider This: electroencephalography (EEG) is a macroelectrode recording technique that graphs brain waves to provide an index of both the strength and rhythm of neural activity. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
c) They use radioactive energy to map the brain.
Consider This: electroencephalography (EEG) is a macroelectrode recording technique that graphs brain waves to provide an index of both the strength and rhythm of neural activity. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
d) They are used to study the functions of single neurons.
Consider This: electroencephalography (EEG) is a macroelectrode recording technique that graphs brain waves to provide an index of both the strength and rhythm of neural activity. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.

Topic: The Central Nervous System
ANS: a, Conceptual. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain. (2)

EOM Q2.2.5
Which of the following is true about the spinal cord?
a) It is made up of hard, bonelike bundles of dendrites.
Consider This: The spinal cord consists of one pathway of motor neurons, descending from the brain, that control internal organs and muscles and help to regulate the autonomic nervous system, and another pathway of ascending sensory neurons that carry information from the extremities and internal organs to the brain. LO 2.9 Explain how the spinal cord works.
b) It contains two major neural pathways.

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c) It contains neural circuits that require input from the brain.
Consider This: The spinal cord consists of one pathway of motor neurons, descending from the brain, that control internal organs and muscles and help to regulate the autonomic nervous system, and another pathway of ascending sensory neurons that carry information from the extremities and internal organs to the brain.
LO 2.9 Explain how the spinal cord works.
d) It is not actually connected to the brain.
Consider This: The spinal cord consists of one pathway of motor neurons, descending from the brain, that control internal organs and muscles and help to regulate the autonomic nervous system, and another pathway of ascending sensory neurons that carry information from the extremities and internal organs to the brain.
LO 2.9 Explain how the spinal cord works.

Topic: The Central Nervous System
ANS: b, Conceptual. LO 2.9 Explain how the spinal cord works. (2)

Quiz: The Peripheral Nervous System

EOM Q2.3.1
Dilated pupils and bronchi, a relaxed bladder, and an accelerated heart rate would all be attributed to the stimulation of the _____.
a) parasympathetic division
Consider This: The nerves of the sympathetic division of the nervous system are busiest when you are intensely aroused, such as being enraged or very frightened. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
b) sympathetic division
c) limbic system
Consider This: The nerves of the sympathetic division of the nervous system are busiest when you are intensely aroused, such as being enraged or very frightened. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
d) endocrine system
Consider This: The nerves of the sympathetic division of the nervous system are busiest when you are intensely aroused, such as being enraged or very frightened. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.

Topic: The Peripheral Nervous System
ANS: b, Conceptual. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems. (1)

EOM Q2.3.2
What is the main function of the parasympathetic division of the autonomic nervous system?
a) to signal the body to release hormones from the thyroid gland
Consider This: Parasympathetic nerve fibers connect to the same organs as sympathetic nerve fibers do but they cause they opposite reaction: producing a calming effect during which the body returns to normal.
LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
b) to prepare the body for quick action in an emergency
Consider This: Parasympathetic nerve fibers connect to the same organs as sympathetic nerve fibers do but they cause they opposite reaction: producing a calming effect during which the body returns to normal.
LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
c) to signal the body to release hormones from the pituitary gland
Consider This: Parasympathetic nerve fibers connect to the same organs as sympathetic nerve fibers do but they cause they opposite reaction: producing a calming effect during which the body returns to normal.
LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
d) to calm and relax the body after intense arousal

Topic: The Peripheral Nervous System
ANS: d, Conceptual. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems. (1)

EOM Q2.3.3
The _____ is the part of the peripheral nervous system that carries messages between the central nervous system and the internal organs.
a) autonomic nervous system
b) sympathetic division
Consider This: Neurons in the autonomic nervous system govern involuntary activities of your internal organs, from the beating of your heart to the hormone secretions of your glands. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
c) parasympathetic division
Consider This: Neurons in the autonomic nervous system govern involuntary activities of your internal organs, from the beating of your heart to the hormone secretions of your glands. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
d) somatic nervous system

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Consider This: Neurons in the autonomic nervous system govern involuntary activities of your internal organs, from the beating of your heart to the hormone secretions of your glands. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.

Topic: The Peripheral Nervous System
ANS: a, Conceptual. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems. (1)

EOM Q2.3.4
Neurons belonging to the somatic nervous system are involved in which of the following?

a) controlling voluntary thoughts and behaviors
Consider This: The somatic nervous system is the part of the peripheral nervous system that carries messages from the senses to the CNS and between the CNS and the skeletal muscles. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
b) making involuntary movements of the skeletal muscles
Consider This: The somatic nervous system is the part of the peripheral nervous system that carries messages from the senses to the CNS and between the CNS and the skeletal muscles.
LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
c) making voluntary movements of the skeletal muscles
d) controlling the involuntary activities of the internal organs
Consider This: The somatic nervous system is the part of the peripheral nervous system that carries messages from the senses to the CNS and between the CNS and the skeletal muscles. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.

Topic: The Peripheral Nervous System
ANS: c, Conceptual. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems. (2)

EOM Q2.3.5
Fiona's brain is getting information about her movements and her external environment. The part of the central nervous system that is communicating this is called the_____ nervous system.

a) sensory
Consider This: Neurons in the somatic nervous system carry messages from the senses to the CNS and between the CNS and the skeletal muscles. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
b) somatic
c) autonomic
Consider This: Neurons in the somatic nervous system carry messages from the senses to the CNS and between the CNS and the skeletal muscles. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.
d) automatic
Consider This: Neurons in the somatic nervous system carry messages from the senses to the CNS and between the CNS and the skeletal muscles. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems.

Topic: The Peripheral Nervous System
ANS: b, Conceptual. LO 2.10 Identify the peripheral nervous system, and contrast the functions of the somatic and autonomic nervous systems. (1)

Quiz: The Endocrine System

EOM Q2.4.1
Located on the underside of the brain and often called the "master gland," the _____ gland is connected to the hypothalamus and produces the largest number of different hormones.

a) pineal
Consider This: The pituitary gland has an influential role in regulating other endocrine glands, and it influences blood pressure, thirst, sexual behavior, body growth, as well as other functions. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
b) adrenal
Consider This: The pituitary gland has an influential role in regulating other endocrine glands, and it influences blood pressure, thirst, sexual behavior, body growth, as well as other functions. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
c) thyroid
Consider This: The pituitary gland has an influential role in regulating other endocrine glands, and it influences blood pressure, thirst, sexual behavior, body growth, as well as other functions. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
d) pituitary

Topic: The Endocrine System
ANS: d, Factual. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior. (1)

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EOM Q2.4.2
Jasper is late for work and decides to skip breakfast. As lunchtime draws near, he begins to feel shaky and weak, and when he gets up to go to the cafeteria for lunch, he faints. His coworkers call an ambulance, and at the hospital, tests reveal there is an unusually low amount of sugar in his blood and urine. Jasper is suffering from _____.

a) diabetes mellitus
Consider This: Hypoglycemia is the result of the oversecretion of insulin and occurs when there is too little sugar in the blood. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
b) melatonin overload
Consider This: Hypoglycemia is the result of the oversecretion of insulin and occurs when there is too little sugar in the blood. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
c) hypoglycemia
d) overactive thyroid
Consider This: Hypoglycemia is the result of the oversecretion of insulin and occurs when there is too little sugar in the blood. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.

Topic: The Endocrine System
ANS: c, Conceptual. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior. (2)

EOM Q2.4.3
What is the primary responsibility of the parathyroid glands?

a) to balance levels of androgens in the body
Consider This: The parathyroid glands, four tiny organs that are embedded in the thyroid gland, control and balance levels of calcium and phosphate in the body, which in turn influence levels of excitability. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
b) to balance levels of calcium and phosphate in the body
c) to balance levels of acetylcholine in the body
Consider This: The parathyroid glands, four tiny organs that are embedded in the thyroid gland, control and balance levels of calcium and phosphate in the body, which in turn influence levels of excitability. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
d) to balance levels of thyroxin in the body
Consider This: The parathyroid glands, four tiny organs that are embedded in the thyroid gland, control and balance levels of calcium and phosphate in the body, which in turn influence levels of excitability. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.

Topic: The Endocrine System
ANS: b, Factual. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior. (1)

EOM Q2.4.4
Which of the following secretes insulin and glucagon to regulate blood sugar levels?

a) pancreas
b) thyroid gland
Consider This: The pancreas controls the level of sugar in the blood by secreting the regulating hormones insulin and glucagon, which work against each other to keep the blood-sugar level properly balanced. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
c) gonads
Consider This: The pancreas controls the level of sugar in the blood by secreting the regulating hormones insulin and glucagon, which work against each other to keep the blood-sugar level properly balanced. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
d) pituitary gland
Consider This: The pancreas controls the level of sugar in the blood by secreting the regulating hormones insulin and glucagon, which work against each other to keep the blood-sugar level properly balanced. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.

Topic: The Endocrine System
ANS: a, Conceptual. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior. (1)

EOM Q2.4.5
Which of the following releases melatonin, which helps regulate sleep–wake cycles?

a) adrenal glands
Consider This: The pea-sized pineal gland is located in the middle of the brain and secretes the hormone melatonin, which helps to regulate sleep–wake cycles. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
b) thyroid gland
Consider This: The pea-sized pineal gland is located in the middle of the brain and secretes the hormone melatonin, which helps to regulate sleep–wake cycles. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
c) pancreas
Consider This: The pea-sized pineal gland is located in the middle of the brain and secretes the hormone melatonin, which helps to regulate sleep–wake cycles. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
d) pineal gland

Topic: The Endocrine System

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ANS: a, Factual. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior. (1)

Quiz: Genes, Evolution, and Behavior

EOM Q2.5.1
A recessive gene can control the appearance of a certain trait only if it is _____.

a) paired with a dominant gene
Consider This: When both a dominant and a recessive gene are inherited, the dominant gene controls the appearance of a trait, such as brown eye color. However, if two recessive genes are inherited, the recessive gene then controls the trait that appears, such as with blue eye color. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
b) related to a physical trait
Consider This: When both a dominant and a recessive gene are inherited, the dominant gene controls the appearance of a trait, such as brown eye color. However, if two recessive genes are inherited, the recessive gene then controls the trait that appears, such as with blue eye color. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
c) paired with another recessive
d) a gene related to intelligence
Consider This: When both a dominant and a recessive gene are inherited, the dominant gene controls the appearance of a trait, such as brown eye color. However, if two recessive genes are inherited, the recessive gene then controls the trait that appears, such as with blue eye color. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.

Topic: Genes
ANS: c, Conceptual. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype. (2)

EOM Q2.5.2
Which type of study assesses heritability in animals and helps determine the degree to which a trait is inherited?

a) single-blind study
Consider This: Studies help researchers assess heritability; if a trait is closely regulated by genes, when animals with the trait are interbred, more of their offspring should have the trait than one would find in the general population. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
b) double-blind study
Consider This: Studies help researchers assess heritability; if a trait is closely regulated by genes, when animals with the trait are interbred, more of their offspring should have the trait than one would find in the general population. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
c) naturalistic observation
Consider This: Studies help researchers assess heritability; if a trait is closely regulated by genes, when animals with the trait are interbred, more of their offspring should have the trait than one would find in the general population. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
d) selection study

Topic: Genes
ANS: d, Conceptual. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity. (3)

EOM Q2.5.3
The human genome, or sum total of all the genes necessary to build a human being, contains approximately _____.

a) 5,000 to 10,000 genes
Consider This: The human genome is approximately 20,000–25,000 genes, located in the 23 pairs of chromosomes that make up human DNA. LO 2.16 Describe the human genome and what can be learned by studying it.
b) 20,000 to 25,000 genes
c) 15,000 to 20,000 genes
Consider This: The human genome is approximately 20,000–25,000 genes, located in the 23 pairs of chromosomes that make up human DNA. LO 2.16 Describe the human genome and what can be learned by studying it.
d) 10,000 to 15,000 genes
Consider This: The human genome is approximately 20,000–25,000 genes, located in the 23 pairs of chromosomes that make up human DNA. LO 2.16 Describe the human genome and what can be learned by studying it.

Topic: Genes
ANS: b, Factual. LO 2.16 Describe the human genome and what can be learned by studying it. (1)

EOM Q2.5.4

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Odessa is 37 and is pregnant with her third child. Her obstetrician tells her that her pregnancy is high risk because of her age and suggests she undergo a test to screen for genetic defects. She explains that the test involves harvesting cells from the fluid in which the fetus grows. Odessa's doctor is referring to _____.

a) amniocentesis
b) gene therapy
Consider This: Amniocentesis is one of two prenatal screening techniques in which cells are harvested from the fluid in which the fetus grows to detect genetic problems during pregnancy. LO 2.18 Identify the key ethical issues that arise as society gains more control over genetics.
c) ultrasound
Consider This: Amniocentesis is one of two prenatal screening techniques in which cells are harvested from the fluid in which the fetus grows to detect genetic problems during pregnancy. LO 2.18 Identify the key ethical issues that arise as society gains more control over genetics.
d) chorionic villus sampling
Consider This: Amniocentesis is one of two prenatal screening techniques in which cells are harvested from the fluid in which the fetus grows to detect genetic problems during pregnancy. LO 2.18 Identify the key ethical issues that arise as society gains more control over genetics.

Topic: Genes
ANS: a, Applied. LO 2.18 Identify the key ethical issues that arise as society gains more control over genetics. (2)

EOM Q2.5.5
In psychology, the idea that adaptive traits that increase survival chances will become more common in a species, as those who survive long enough will pass on the genes for those traits to more members of their species, is known as:

a) trait genetics.
Consider This: According to the principle of natural selection, first described by Charles Darwin, organisms that are best adapted to their environment survive and reproduce, passing on to their offspring the genetically based traits that give them this survival advantage. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.
b) human social survival.
Consider This: According to the principle of natural selection, first described by Charles Darwin, organisms that are best adapted to their environment survive and reproduce, passing on to their offspring the genetically based traits that give them this survival advantage. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.
c) evolutionary psychology.
d) behavioral genetics.
Consider This: According to the principle of natural selection, first described by Charles Darwin, organisms that are best adapted to their environment survive and reproduce, passing on to their offspring the genetically based traits that give them this survival advantage. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.

Topic: Genes
ANS: c, Factual. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior. (1)

End of Chapter Quiz

EOC Q2.1
What makes neurons different from other cells?

a) They are in the brain.
Consider This: Fibers extend out from the cell body and have one of two roles: to pick up messages from other neurons or to carry outgoing messages to neighboring neurons or to a muscle or gland. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
b) They have two nuclei.
Consider This: Fibers extend out from the cell body and have one of two roles: to pick up messages from other neurons or to carry outgoing messages to neighboring neurons or to a muscle or gland. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
c) They are shaped like trapezoids.
Consider This: Fibers extend out from the cell body and have one of two roles: to pick up messages from other neurons or to carry outgoing messages to neighboring neurons or to a muscle or gland. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells.
d) They have dendrites and axons.

Topic: Neurons: The Messengers
ANS: d, Factual. LO 2.1 Define and differentiate between psychobiology and neuroscience. Describe a typical neuron. Distinguish among afferent neurons, efferent neurons, association neurons, mirror neurons, and glial cells. (1)

EOC Q2.2

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Which of the following illustrates resting potential in a neuron?

a) The neuron has a slightly lower concentration of negative ions inside than there are outside of it.
b) The neuron has a slightly higher concentration of negative ions inside than there are outside of it.
Consider This: When there are more negative ions inside the neuron than outside, a small electrical charge is produced across the cell membrane. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
c) The neuron has a slightly higher concentration of positive ions inside than there are outside of it.
Consider This: When there are more negative ions inside the neuron than outside, a small electrical charge is produced across the cell membrane. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.
d) The neuron has the same concentration of negative ions inside than there are outside of it.
Consider This: When there are more negative ions inside the neuron than outside, a small electrical charge is produced across the cell membrane. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law.

Topic: Neurons: The Messengers
ANS: a, Conceptual. LO 2.2 Describe how neurons transmit information, including the concepts of resting potential, polarization, action potential, graded potential, threshold of excitation, and the all-or-none law. (1)

EOC Q2.3
The area comprising one neuron's axon terminal, the synaptic space, and the dendrite or cell body of the next neuron is called the:

a) synapse.
b) receptor site.
Consider This: Neurons are not directly connected like links in a chain; rather, they are separated by a synaptic space or cleft, where the axon terminals of one neuron almost touch the dendrites or cell body of other neurons. LO 2.3 Describe the parts of the synapse.
c) terminal button.
Consider This: Neurons are not directly connected like links in a chain; rather, they are separated by a synaptic space or cleft, where the axon terminals of one neuron almost touch the dendrites or cell body of other neurons. LO 2.3 Describe the parts of the synapse.
d) ion channel.
Consider This: Neurons are not directly connected like links in a chain; rather, they are separated by a synaptic space or cleft, where the axon terminals of one neuron almost touch the dendrites or cell body of other neurons. LO 2.3 Describe the parts of the synapse.

Topic: Neurons: The Messengers
ANS: a, Factual. LO 2.3 Describe the parts of the synapse. (1)

EOC Q2.4
If a person's cerebellum were damaged, it would most likely lead to _____.

a) short-term memory problems
Consider This: Traditionally, it has been thought that the cerebellum is responsible for our sense of balance and for coordinating the body's actions to ensure that movements go together in efficient sequences. LO 2.6 Identify the parts of the brain and the nervous system.
b) problems in movement
c) problems with speech
Consider This: Traditionally, it has been thought that the cerebellum is responsible for our sense of balance and for coordinating the body's actions to ensure that movements go together in efficient sequences. LO 2.6 Identify the parts of the brain and the nervous system.
d) vision problems
Consider This: Traditionally, it has been thought that the cerebellum is responsible for our sense of balance and for coordinating the body's actions to ensure that movements go together in efficient sequences. LO 2.6 Identify the parts of the brain and the nervous system.

Topic: The Central Nervous System
ANS: b, Applied. LO 2.6 Identify the parts of the brain and the nervous system. (2)

EOC Q2.5
Alex's elderly father has been having problems with memory and speech, and Alex suspects he may have Alzheimer's disease. This diagnosis is later confirmed by his father's doctor, who explains to Alex that Alzheimer's has been linked to degradation of the brain cells that produce and respond to _____.

a) dopamine
Consider This: Alzheimer's disease, which involves loss of memory and severe language problems, has been linked to degeneration of the brain cells that produce and respond to acetylcholine. LO 2.4 Explain the role of neurotransmitters in the synapse.
b) endorphins
Consider This: Alzheimer's disease, which involves loss of memory and severe language problems, has been linked to degeneration of the brain cells that produce and respond to acetylcholine. LO 2.4 Explain the role of neurotransmitters in the synapse.
c) acetylcholine
d) serotonin

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Consider This: Alzheimer's disease, which involves loss of memory and severe language problems, has been linked to degeneration of the brain cells that produce and respond to acetylcholine. LO 2.4 Explain the role of neurotransmitters in the synapse.

Topic: Neuron's The Messengers
ANS: c, Applied. LO 2.4 Explain the role of neurotransmitters in the synapse. (2)

EOC Q2.6
Dr. Skalski wants to study the effects of drugs and toxins on single neurons. She researches what types of recording techniques have been utilized to study the functions of single neurons and finds she would be best served by using _____.

a) macroeclectrode techniques
Consider This: A tiny glass or quartz pipette or tube (smaller in diameter than a human hair) can be filled with conducting liquid and the tip of the electrode placed inside a neuron; this allows technicians to study changes in the electrical conditions of that neuron. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
b) functional imaging
Consider This: A tiny glass or quartz pipette or tube (smaller in diameter than a human hair) can be filled with conducting liquid and the tip of the electrode placed inside a neuron; this allows technicians to study changes in the electrical conditions of that neuron. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
c) structural imaging
Consider This: A tiny glass or quartz pipette or tube (smaller in diameter than a human hair) can be filled with conducting liquid and the tip of the electrode placed inside a neuron; this allows technicians to study changes in the electrical conditions of that neuron. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain.
d) microelectrode techniques

Topic: The Central Nervous System
ANS: d, Applied. LO 2.8 Discuss how microelectrode techniques, macroelectrode techniques, structural imaging, and functional imaging provide information about the brain. (2)

EOC Q2.7
Juanita walks out to the garage to get something out of her car. Suddenly a possum scurries out from behind an old carpet, and Juanita tenses, screams, and jumps back. Her heart is racing, and she is breathing rapidly. Once the possum scurries away and Juanita realizes she isn't in danger, her heart begins to slow, and her breathing begins to return to normal. This calming effect is promoted by which of the following?

a) the sympathetic division
Consider This: Parasympathetic nerve fibers connect to the same organs as sympathetic nerve fibers do but they cause they opposite reaction: producing a calming effect during which the body returns to normal. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
b) the parasympathetic division
c) the endocrine system
Consider This: Parasympathetic nerve fibers connect to the same organs as sympathetic nerve fibers do but they cause they opposite reaction: producing a calming effect during which the body returns to normal. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
d) the somatic nervous system
Consider This: Parasympathetic nerve fibers connect to the same organs as sympathetic nerve fibers do but they cause they opposite reaction: producing a calming effect during which the body returns to normal. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.

Topic: The Peripheral Nervous System
ANS: b, Applied. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems. (2)

EOC Q2.8
Eva has been unable to sleep lately, and she notices that her attention span has decreased significantly. She has also noticed that she seems to become overstimulated and overexcited in certain situations. After explaining these symptoms to her primary care physician, he suggests she might be suffering from an _____.

a) overactive thyroid gland
b) overactive pituitary gland
Consider This: The thyroid gland produces the hormone thyroxin, which regulates the body's rate of metabolism and thus how alert and energetic people are and how fat or thin they tend to be. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
c) underactive pituitary gland
Consider This: The thyroid gland produces the hormone thyroxin, which regulates the body's rate of metabolism and thus how alert and energetic people are and how fat or thin they tend to be. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.
d) underactive thyroid gland
Consider This: The thyroid gland produces the hormone thyroxin, which regulates the body's rate of metabolism and thus how alert and energetic people are and how fat or thin they tend to be. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior.

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Topic: The Endocrine System
ANS: a, Applied. LO 2.12 Describe the endocrine glands and the way their hormones affect behavior. (3)

EOC Q2.9
A chromosome is to a necklace cord like the genes are to the _____.

a) clasp
Consider This: The nucleus of each cell contains chromosomes, tiny threadlike bodies that carry hundreds of thousands of genes, the basic units of heredity, in fixed locations. LO 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.
b) pendant
Consider This: The nucleus of each cell contains chromosomes, tiny threadlike bodies that carry hundreds of thousands of genes, the basic units of heredity, in fixed locations. LO 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.
c) beads
d) bracelet
Consider This: The nucleus of each cell contains chromosomes, tiny threadlike bodies that carry hundreds of thousands of genes, the basic units of heredity, in fixed locations. LO 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA.

Topic: Genes
ANS: c, Conceptual. LO 2.14 Define genetics. Differentiate among genes, chromosomes, and DNA. (2)

EOC Q2.10
Suppose we assume that brown eyes are dominant and blue eyes are recessive. If a child inherits the blue-eye gene from one parent and the brown-eye gene from the other, what color eyes will the child have?

a) green
Consider This: Genes occur in pairs. In single-gene inheritance, as with eye color, the dominant gene, rather than the recessive gene, controls the appearance of the trait. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
b) blue
Consider This: Genes occur in pairs. In single-gene inheritance, as with eye color, the dominant gene, rather than the recessive gene, controls the appearance of the trait. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
c) hazel
Consider This: Genes occur in pairs. In single-gene inheritance, as with eye color, the dominant gene, rather than the recessive gene, controls the appearance of the trait. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype.
d) brown

Topic: Genes
ANS: d, Conceptual. LO 2.15 Describe what is meant by dominant and recessive genes, polygenic inheritance, and genotype versus phenotype. (2)

EOC Q2.11
Francesca is studying behavior genetics with mice that have been bred to be genetically similar to each other. This type of research is called a _____ study.

a) strain
b) genetic
Consider This: In strain studies, close relatives, such as siblings, are intensively inbred over many generations to create strains of animals that are genetically similar to one another, but different from other strains. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
c) twin
Consider This: In strain studies, close relatives, such as siblings, are intensively inbred over many generations to create strains of animals that are genetically similar to one another, but different from other strains. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.
d) cross-sectional
Consider This: In strain studies, close relatives, such as siblings, are intensively inbred over many generations to create strains of animals that are genetically similar to one another, but different from other strains. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity.

Topic: Genes
ANS: a, Factual. LO 2.17 Compare and contrast strain studies, selection studies, family studies, twin studies, and adoption studies as sources of information about the effects of heredity. (1)

EOC Q2.12
Behavioral genetics focuses on which of the following?

a) the evolutionary roots of individual behavior
Consider This: Behavior genetics studies the relationship between heredity and behavior. LO 2.13 Distinguish between behavior genetics and evolutionary psychology.
b) whether nature or nurture shapes behavior

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Consider This: Behavior genetics studies the relationship between heredity and behavior. LO 2.13 Distinguish between behavior genetics and evolutionary psychology.
c) the extent to which heredity accounts for individual differences in behavior and thinking
d) the basic units of heredity
Consider This: Behavior genetics studies the relationship between heredity and behavior. LO 2.13 Distinguish between behavior genetics and evolutionary psychology.

Topic: Genes
ANS: c, Factual. LO 2.13 Distinguish between behavior genetics and evolutionary psychology. (2)

EOC Q2.13
Natural selection is a concept from:
a) mating theory.
Consider This: First described by Charles Darwin, the process of evolution by natural selection is key to explaining the behavioral traits that people have in common. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.
b) evolutionary psychology.
c) behavioral genetics.
Consider This: First described by Charles Darwin, the process of evolution by natural selection is key to explaining the behavioral traits that people have in common. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.
d) social psychology.
Consider This: First described by Charles Darwin, the process of evolution by natural selection is key to explaining the behavioral traits that people have in common. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior.

Topic: The Central Nervous System
ANS: b, Factual. LO 2.19 Describe how evolutionary psychologists view the influence of natural selection on human social behavior. (1)

EOC Q2.14
Why do left-hemisphere strokes typically lead to aphasias?
a) because movement of the left side of the body is primarily controlled by the left cerebral hemisphere
Consider This: The left hemisphere of the brain controls writing and movement of the right side of the body; it is usually dominant in language and tasks involving symbolic reasoning. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
b) because spatial visualization is primarily controlled by the left cerebral hemisphere
Consider This: The left hemisphere of the brain controls writing and movement of the right side of the body; it is usually dominant in language and tasks involving symbolic reasoning. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
c) because writing is primarily controlled by the left cerebral hemisphere
Consider This: The left hemisphere of the brain controls writing and movement of the right side of the body; it is usually dominant in language and tasks involving symbolic reasoning. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres.
d) because language is primarily controlled by the left cerebral hemisphere

Topic: The Central Nervous System
ANS: d, Analyze. LO 2.7 Explain what is meant by "hemispheric specialization" and the functional differences between the two cerebral hemispheres. (3)

EOC Q2.15
Which branch of the autonomic nervous system prepares the body for quick action in an emergency?
a) the sympathetic division
b) the parasympathetic division
Consider This: The nerve fibers of the sympathetic division are busiest when you are intensely aroused, such as being enrage or very frightened. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
c) the efferent division
Consider This: The nerve fibers of the sympathetic division are busiest when you are intensely aroused, such as being enrage or very frightened. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.
d) the somatic division
Consider This: The nerve fibers of the sympathetic division are busiest when you are intensely aroused, such as being enrage or very frightened. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems.

Topic: The Peripheral Nervous System
ANS: a, Factual. LO 2.11 Explain the differences between the sympathetic and the parasympathetic nervous systems. (1)

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