

## **Chapter 02**

### **Neuroscience and Behavior**

#### **Multiple Choice Questions**

1.

Psychologists who specialize in considering the ways in which the biological structures and functions of the body affect behavior are known as \_\_\_\_\_.

A.

genetic psychologists

**B.**

biopsychologists

C.

evolutionary psychologists

D.

clinical neuropsychologists

*APA LO: 1.1*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-1*

*Topic: Neurons*

## Chapter 02 - Neuroscience and Behavior

2.

Alison has developed an interest in the ways in which the biological structures and functions of the body affect behavior. She will most likely become a(n):

A.

genetic psychologist.

**B.**

behavioral neuroscientist.

C.

evolutionary psychologist.

D.

clinical neuropsychologist.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-1*

*Topic: Neurons*

## Chapter 02 - Neuroscience and Behavior

3.

The basic elements of the nervous system are called:

A.

axons.

B.

glial cells.

**C.**

neurons.

D.

neurotransmitters.

*APA LO: 1.1*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurons*

## Chapter 02 - Neuroscience and Behavior

4.

As many as \_\_\_\_\_ neurons throughout the body are involved in the control of behavior.

A.

1 billion

**B.**

1 trillion

C.

5 million

D.

50 million

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe how nerve cells communicate with other nerve cells.*

*Learning Outcome: 5-2*

*Topic: Neurons*

## Chapter 02 - Neuroscience and Behavior

5.

Neurons are physically held in place by \_\_\_\_\_.

A.

axons

**B.**

glial cells

C.

dendrites

D.

myelin cells

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurons*

## Chapter 02 - Neuroscience and Behavior

6.

Which of the following is NOT one of the functions of glial cells?

A.

They nourish nerve cells.

**B.**

They communicate messages within the nervous system.

C.

They help repair damage that might occur to neurons.

D.

They provide nourishment to neurons.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: How Neurons Fire*

## Chapter 02 - Neuroscience and Behavior

7.

A cluster of fibers at one end of a neuron that receives messages from other neurons is called:

A.

axon.

B.

terminal button.

C.

glial fiber.

**D.**

dendrite.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

8.

Compare your forearm, palm, wrist, and fingers to a neuron. In such an analogy, the dendrites would be your:

A.

forearm.

**B.**

fingers.

C.

wrist.

D.

palm.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Nervous System*



## Chapter 02 - Neuroscience and Behavior

9.

An axon is a:

A.

neuron's cell body.

B.

cluster of fibers at one end of a neuron.

C.

support cell in the nervous system.

**D.**

long, slim, tube-like structure extending from a neuron.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

10.

Which of the following structures is especially important for carrying messages received by the dendrites to other neurons?

A.

Neurotransmitter

B.

Synapse

**C.**

Axon

D.

Glial cell

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

11.

Terminal buttons are found at the end of:

A.

neurotransmitters.

B.

dendrites.

**C.**

axons.

D.

glial cells.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

12.

Which of the following sequences correctly arranges nervous system structures from the most general to the most specific?

**A.**

Neuron – axon – terminal button

B.

Neuron – terminal button – axon

C.

Axon – terminal button – neuron

D.

Axon – neuron – terminal button

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

13.

Dendrite is to axon what \_\_\_\_\_ is to \_\_\_\_\_.

A.

receiving; sending

B.

sending; receiving

C.

reuptake; action potential

D.

action potential; reuptake

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: How Neurons Fire*

## Chapter 02 - Neuroscience and Behavior

14.

Compare your forearm, palm, knuckles, and fingers to a neuron. In such an analogy, the axon would be your:

**A.**

forearm.

B.

fingers.

C.

palm.

D.

knuckles.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Easy*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: How Neurons Fire*

15.

Which of the following sequences accurately reflects the route followed by nerve impulses when one neuron communicates with another?

A.

Dendrite – axon – cell body

**B.**

Dendrite – cell body – axon

C.

Cell body – axon – dendrite

D.

Axon – dendrite – cell body

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurotransmitters*

16.

Electrical wires are generally protected by a tube of plastic. A similar insulating function is performed in the nervous system by the:

A.

myelin sheath.

B.

glial cells.

C.

terminal buttons.

D.

synapse.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurotransmitters*



## Chapter 02 - Neuroscience and Behavior

17.

\_\_\_\_\_ is a protective coat of fat and protein that wraps around the axon.

**A.**

Myelin sheath

B.

Glial cell

C.

Dendrite

D.

Synapse

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurotransmitters*

## Chapter 02 - Neuroscience and Behavior

18.

You cannot fire a gun softly, or flush a toilet halfway. Like an action potential, gun fire and a toilet's flush follow the \_\_\_\_\_ law.

A.

incremental transformation

B.

graded action

**C.**

all-or-none

D.

intensity of stimulus

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: How Neurons Fire*

## Chapter 02 - Neuroscience and Behavior

19.

The rule that neurons are either on or off is known as the \_\_\_\_\_ law.

A.

intensity of stimulus

B.

graded action

**C.**

all-or-none

D.

incremental transformational

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe how nerve cells communicate with other nerve cells.*

*Learning Outcome: 5-2*

*Topic: How Neurons Fire*

## Chapter 02 - Neuroscience and Behavior

20.

The state in which there is a negative electrical charge of about -70 millivolts within a neuron is known as the \_\_\_\_\_ state.

A.

triggering

B.

terminal

C.

optimum

**D.**

resting

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe how nerve cells communicate with other nerve cells.*

*Learning Outcome: 5-2*

*Topic: Speed of Transmission*

21.

Regarding action potentials, which of the following statements is TRUE?

A.

As the impulse travels along the axon, the movement of ions causes a change in charge from positive to neutral in successive sections of the axon.

**B.**

The action potential moves from one end of the axon to the other like a flame moving along a fuse.

C.

After the impulse has passed through a particular section of the axon, negative ions are pumped out of that section, and its charge returns to positive while the action potential continues to move along the axon.

D.

Just after an action potential has passed through a section of the axon, a neuron can fire again immediately if it receives appropriate stimulation.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Speed of Transmission*

## Chapter 02 - Neuroscience and Behavior

22.

As an action potential occurs, the neuron's electrical charge:

A.

changes from negative to neutral.

B.

changes from positive to neutral.

**C.**

changes from negative to positive.

D.

changes from positive to negative.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Speed of Transmission*

23.

\_\_\_\_\_ are specialized neurons that fire not only when a person enacts a particular behavior, but also when a person simply observes another individual carrying out the same behavior.

A.

Pharyngeal motor neuron

**B.**

Mirror neurons

C.

Ventral cord motor neuron

D.

Amphid neurons

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Mirror Neurons*

24.

Regarding mirror neurons, which of the following statements is ACCURATE?

A.

Mirror neurons are involved in face recognition and language acquisition, but not in empathy.

B.

Mirror neurons are involved in empathy and face recognition, but not in language acquisition.

C.

Mirror neurons are involved in empathy, language acquisition, and face recognition.

**D.**

Mirror neurons are involved in empathy and language acquisition, but not in face recognition.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Mirror Neurons*



## Chapter 02 - Neuroscience and Behavior

25.

A synapse is a:

A.

chemical.

B.

signal.

C.

joint.

**D.**

gap.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Synapse*

26.

\_\_\_\_\_ is the space between two neurons where the axon of a sending neuron communicates with the dendrites of a receiving neuron by using chemical messages.

**A.**

Synapse

B.

Terminal button

C.

Axon

D.

Cell body

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-2*

*Topic: Synapse*

27.

Which of the following statements regarding inhibitory messages is TRUE?

A.

Inhibitory messages always increase the likelihood that a receiving neuron will fire.

**B.**

Inhibitory messages decrease the likelihood that a receiving neuron will fire.

C.

The dendrites of a neuron cannot receive both excitatory and inhibitory messages simultaneously.

D.

Inhibitory messages make it more likely that an action potential will travel down its axon.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

## Chapter 02 - Neuroscience and Behavior

28.

The reabsorption of neurotransmitters by a terminal button is termed as:

A.

recycling.

B.

reassertion.

**C.**

reuptake.

D.

reuse.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

## Chapter 02 - Neuroscience and Behavior

29.

Which neurotransmitter is described INCORRECTLY?

A.

Acetylcholine—transmits messages related to skeletal muscles

**B.**

GABA—an excitatory neurotransmitter inhibited by alcohol or tranquilizers

C.

Serotonin—helps regulate sleep and mood

D.

Glutamate—plays a role in memory

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

## Chapter 02 - Neuroscience and Behavior

30.

The neurotransmitter dopamine is involved in:

A.

the brain's effort to deal with pain.

B.

Alzheimer's disease.

C.

the regulation of sleep, eating, mood, and pain.

**D.**

movement, attention, and learning.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

## Chapter 02 - Neuroscience and Behavior

31.

Which neurotransmitter is CORRECTLY matched with a psychological function?

A.

Relief of pain—glutamate

B.

Regulates mood—acetylcholine

C.

Facilitates learning—dopamine

D.

Contributes to memory—serotonin

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

## Chapter 02 - Neuroscience and Behavior

32.

Which disorder is CORRECTLY paired with an associated neurotransmitter?

A.

Parkinson's disease: dopamine

B.

Depression: glutamate

C.

Schizophrenia: serotonin

D.

Alzheimer's disease: endorphins

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*



## Chapter 02 - Neuroscience and Behavior

33.

Inhibitory is to excitatory what \_\_\_\_\_ is to \_\_\_\_\_.

A.

glutamate; GABA

B.

glutamate; acetylcholine

**C.**

GABA; glutamate

D.

endorphins; GABA

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

34.

Which expression below most closely approximates the number of neural connections in the brain?

**A.**

10 quadrillion

B.

1 million

C.

1 billion

D.

1 trillion

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Central Nervous System*

## Chapter 02 - Neuroscience and Behavior

35.

The nervous system is divided into the \_\_\_\_\_ and the \_\_\_\_\_ nervous systems.

A.

primary; secondary

B.

somatic; autonomic

C.

sympathetic; parasympathetic

**D.**

central; peripheral

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Central Nervous System*

## Chapter 02 - Neuroscience and Behavior

36.

The brain and the spinal cord constitute the \_\_\_\_\_ nervous system.

**A.**

central

B.

peripheral

C.

extraneous

D.

parasympathetic

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Central Nervous System*

## Chapter 02 - Neuroscience and Behavior

37.

\_\_\_\_\_ is an automatic, involuntary response to an incoming stimulus.

A.

Action potential

B.

Intuition

C.

Instinct

**D.**

Reflex

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

38.

The \_\_\_\_\_ is the main means for transmitting messages between the brain and the body.

A.

cortex

B.

medulla

C.

axon

**D.**

spinal cord

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Difficult*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

39.

Which of the following is TRUE of the spinal cord's control of behavior?

A.

The spinal cord cannot control any behaviors without the help of the brain.

B.

The spinal cord is not involved in reflexes.

C.

The spinal cord can control some simple reflexes without the brain's help.

D.

The spinal cord can control relatively complex behavior without the brain's help.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Nervous System*

## Chapter 02 - Neuroscience and Behavior

40.

The central nervous system is composed of \_\_\_\_\_. The peripheral nervous system comprises \_\_\_\_\_.

A.

the somatic and autonomic nervous systems; the sympathetic and parasympathetic nervous systems

B.

the somatic and autonomic nervous systems; the brain and the spinal cord

C.

the sympathetic and parasympathetic nervous systems; the somatic and autonomic nervous systems

**D.**

the brain and the spinal cord; the somatic and autonomic nervous systems

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Central Nervous System*



## Chapter 02 - Neuroscience and Behavior

41.

Sensory is to motor what \_\_\_\_\_ is to \_\_\_\_\_.

A.

efferent; afferent

**B.**

afferent; efferent

C.

afferent; interneuron

D.

interneuron; efferent

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

## Chapter 02 - Neuroscience and Behavior

42.

\_\_\_\_\_ communicate information in the opposite direction, from the brain and nervous system to muscles and glands.

A.

Mirror neurons

B.

Amphid neurons

**C.**

Motor neurons

D.

Autoneurons

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

## Chapter 02 - Neuroscience and Behavior

43.

The two major divisions of the peripheral nervous system are the \_\_\_\_\_ and \_\_\_\_\_ divisions.

**A.**

somatic; autonomic

B.

sympathetic; parasympathetic

C.

afferent; efferent

D.

sensory; motor

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

44.

\_\_\_\_\_ is the part of the peripheral nervous system that specializes in the control of voluntary movements and the communication of information to and from the sense organs.

A.

Somatic division

B.

Sympathetic division

C.

Parasympathetic division

D.

Autonomic division

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

## Chapter 02 - Neuroscience and Behavior

45.

Somatic is to autonomic what \_\_\_\_\_ is to \_\_\_\_\_.

A.

involuntary; voluntary

**B.**

voluntary; involuntary

C.

excitation; rest

D.

rest; excitation

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

46.

The part of the autonomic division of the nervous system that acts to prepare the body for action in stressful situations, engaging all the organism's resources to respond to a threat is known as the \_\_\_\_\_.

A.

somatic division

**B.**

sympathetic division

C.

parasympathetic division

D.

apathetic division

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

## Chapter 02 - Neuroscience and Behavior

47.

The "fight-or-flight" response is associated with the \_\_\_\_\_ division.

A.

somatic

**B.**

sympathetic

C.

parasympathetic

D.

apathetic

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

## Chapter 02 - Neuroscience and Behavior

48.

The part of the autonomic division of the nervous system that acts to calm the body after an emergency has ended is known as the \_\_\_\_\_ division.

A.

somatic

B.

sympathetic

**C.**

parasympathetic

D.

apathetic

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*



## Chapter 02 - Neuroscience and Behavior

49.

The \_\_\_\_\_ division also directs the body to store energy for use in emergencies.

A.

somatic

B.

sympathetic

**C.**

parasympathetic

D.

apathetic

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

## Chapter 02 - Neuroscience and Behavior

50.

Which of the following situations is most likely to involve the action of the parasympathetic nervous system?

A.

Brooke's finger accidentally grazes the hot iron; she immediately jerks her hand away.

**B.**

After mistaking her roommate for a thief, Callum relaxes after having a glass of water.

C.

Walking toward her car in a deserted parking lot one night, Danica is surprised by a strange man appearing from nowhere.

D.

Peyton is preparing to go to bed and is alarmed to see a stranger at her window.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

51.

With respect to its potential basis in nervous system activity, "voodoo death" has been attributed to:

A.

an overactive sympathetic nervous system.

B.

an overactive parasympathetic nervous system.

C.

the cessation of sympathetic nervous system responses.

D.

an understimulated central nervous system.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Autonomic Division*

52.

Izzy sees a leopard in her backyard. Her pupils are dilated and her heart is pounding; her breathing is shallow and rapid. Her \_\_\_\_\_ nervous system is active.

A.

parasympathetic

**B.**

sympathetic

C.

apathetic

D.

somatic

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Autonomic Division*

## Chapter 02 - Neuroscience and Behavior

53.

Which of the following terms best describes the organization of the nervous system today?

A.

Linear

B.

Recursive

**C.**

Hierarchical

D.

Random

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Evolutionary Foundations of Nervous System*

54.

The branch of psychology that seeks to identify behavior patterns that are a result of our genetic inheritance from our ancestors is known as \_\_\_\_\_.

A.

social psychology

B.

health psychology

C.

clinical psychology

**D.**

evolutionary psychology

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Evolutionary Foundations of Nervous System*

55.

Evolutionary psychologists have spawned a new and increasingly influential field known as:

A.

social psychology.

B.

health psychology.

C.

molecular genetics.

**D.**

behavioral genetics.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Evolutionary Foundations of Nervous System*

56.

The study of the effects of heredity on how people conduct themselves is known as \_\_\_\_\_.

A.

behavioral genetics

B.

classical genetics

C.

development genetics

D.

molecular genetics

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Evolutionary Foundations of Nervous System*



57.

Dr. Schilling is investigating the potential genetic basis of antisocial personality disorder by examining the relative prevalence of the disorder among either identical or fraternal twins, raised either together or in different families. Dr. Schilling is best described as a \_\_\_\_\_.

**A.**

behavioral geneticist

B.

classical geneticist

C.

development geneticist

D.

molecular geneticist

*APA LO: 1.2*

*APA LO: 4.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Evolutionary Foundations of Nervous System*

58.

Which of the following statements best expresses the relationship between the nervous system and the endocrine system?

A.

They operate entirely independently.

B.

The endocrine system is part of the central nervous system.

C.

The endocrine system influences and is influenced by the central nervous system.

D.

The central nervous system is one part of the endocrine system.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

59.

A key component of the endocrine system is the tiny \_\_\_\_\_ gland, which is found near—and regulated by—the \_\_\_\_\_ in the brain.

A.

adrenal; hippocampus

B.

pituitary; hippocampus

C.

adrenal; hypothalamus

**D.**

pituitary; hypothalamus

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

60.

The \_\_\_\_\_ gland is a major component of the endocrine system which secretes hormones that control growth and other parts of the endocrine system.

A.

esophageal

B.

apocrine

C.

parotid

**D.**

pituitary

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

## Chapter 02 - Neuroscience and Behavior

61.

The \_\_\_\_\_ gland has sometimes been called the "master gland" because it controls the functioning of the rest of the endocrine system.

A.

pituitary

B.

esophageal

C.

apocrine

D.

parotid

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

62.

The hormone oxytocin has been implicated in each of the following behaviors EXCEPT the:

A.

urge to nurse newborn infants.

B.

desire to seek or respond to potential sexual partners.

C.

development of trust in others.

**D.**

tendency to produce violent, dangerous behavior.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Topic: Endocrine System*

63.

Which of the following glands or structures is CORRECTLY matched with the hormone it produces?

A.

Pineal gland; insulin

B.

Pancreas; serotonin

C.

Medulla; melatonin

**D.**

Pituitary gland; oxytocin

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

## Chapter 02 - Neuroscience and Behavior

64.

Which of the following hormones is CORRECTLY matched with its function?

A.

Aldosterone—regulates daily rhythms

B.

Erythropoietin—regulates the sodium and potassium balance in the blood

C.

Adipokines—regulate the production of red blood cells

**D.**

Steroids—bulk-up one's muscles

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*



65.

Which of the following statements is TRUE regarding hormone replacement therapy as a treatment for menopausal symptoms?

A.

It is used less frequently now than in the past.

B.

It is the only treatment that does not have any side effects.

C.

Its benefits outweigh its risks.

D.

It has become increasingly popular.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

66.

Your friend is considering using steroids to increase muscle mass. You would warn him that steroid abuse can lead to:

A.

violent, dangerous behavior.

B.

obesity.

C.

autism.

D.

Type II diabetes.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

67.

Which of the following is NOT a brain-scanning technique?

A.

Electroencephalogram (EEG)

**B.**

Electromyogram (EMG)

C.

Positron emission tomography (PET)

D.

Transcranial magnetic stimulation (TMS)

*APA LO: 1.2*

*APA LO: 2.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 7-1*

*Topic: Endocrine System*

## Chapter 02 - Neuroscience and Behavior

68.

Which brain-scanning technique below is CORRECTLY matched with its description?

**A.**

EEG—records the brain's electrical activity with electrodes

B.

PET—causes a momentary interruption of the brain's electrical activity

C.

fMRI—traces biochemical activity in the brain

D.

TMS—produces a graph of electrical wave patterns

*APA LO: 1.2*

*APA LO: 2.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

69.

Which brain-scanning technique below is INCORRECTLY matched with its diagnostic use?

A.

EEG—facilitates the diagnosis of epilepsy and learning disorders

B.

PET—may help identify brain tumors

C.

fMRI—improves diagnosis of strokes and multiple sclerosis

**D.**

TMS—facilitates the diagnosis of nervous system disorders such as Alzheimer's disease

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

70.

Brent is taking part in an experiment in the cognitive neuroscience lab on campus. Silently, he reads rapid sequences of words flashed on a computer screen. Simultaneously, the electrical activity of his brain is recorded through skull electrodes. The brain-scanning technique used in this study is:

A.

fMRI.

B.

PET.

**C.**

EEG.

D.

TMS.

*APA LO: 1.2*

*APA LO: 2.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

## Chapter 02 - Neuroscience and Behavior

71.

The newest brain-scanning technique which is popularly used is:

A.

PET.

B.

EEG.

**C.**

TMS.

D.

fMRI.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

72.

Marisol is trying a new treatment for severe depression. Brief magnetic pulses are sent through her brain. Marisol is undergoing:

A.

optogenetic therapy.

**B.**

transcranial magnetic stimulation.

C.

positron emission tomography.

D.

functional magnetic resonance imaging.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*



73.

Soon, it may be possible to view the activity of individual neural circuits, due to the emerging field of:

A.

optogenetics.

B.

synaptic reflectance.

C.

neurogenetics.

D.

transcranial magnetic stimulation.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

## Chapter 02 - Neuroscience and Behavior

74.

Which of the following structures is NOT part of the brain's central core?

**A.**

Hippocampus

B.

Cerebellum

C.

Pons

D.

Reticular formation

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-1*

*Topic: Brain Structure*

75.

The hindbrain includes each of the following structures EXCEPT the:

A.

medulla.

**B.**

thalamus.

C.

pons.

D.

cerebellum.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Structure*

76.

The part of the brain closest to the spinal cord is the \_\_\_\_; it is important for functions such as \_\_\_\_.

A.

cerebellum; maintaining body temperature

B.

cerebellum; heart rate and respiration

C.

medulla; maintaining body temperature

**D.**

medulla; heart rate and respiration

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Structure*

## Chapter 02 - Neuroscience and Behavior

77.

The pons serves to:

A.

regulate arousal.

B.

relay sensory information to the brain's association areas.

C.

integrate movement between the left and right halves of the body.

D.

consolidate memories.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Structure*

## Chapter 02 - Neuroscience and Behavior

78.

The part of the brain that controls bodily balance is the \_\_\_\_\_.

A.

hypothalamus

B.

thalamus

C.

reticular formation

**D.**

cerebellum

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

79.

Yves has been drinking. He has difficulty walking a straight line when asked to do so by a police officer. Apparently, Yves' \_\_\_\_\_ is functioning poorly.

A.

thalamus

**B.**

cerebellum

C.

corpus callosum

D.

reticular formation

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

80.

The part of the brain extending from the medulla through the pons and made up of groups of nerve cells that can immediately activate other parts of the brain to produce general bodily arousal is known as the \_\_\_\_\_.

A.

reticular formation

B.

thalamus

C.

cerebellum

D.

limbic system

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*



## Chapter 02 - Neuroscience and Behavior

81.

The thalamus may be likened to a(n):

A.

amplifier.

B.

receiver.

C.

filter.

**D.**

relay station.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

82.

The \_\_\_\_\_ is the part of the brain that is located in the middle of the central core and acts primarily to relay information about the senses.

A.

thalamus

B.

cerebellum

C.

hypothalamus

D.

amygdala

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

83.

The \_\_\_\_\_ is a tiny part of the brain that maintains homeostasis and produces and regulates vital behavior such as eating, drinking, and sexual behavior.

A.

medulla

B.

cerebellum

C.

amygdala

**D.**

hypothalamus

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

## Chapter 02 - Neuroscience and Behavior

84.

Pizza! Beer! Sex! Our motivation or drive for such things is based on the activity of the brain region known as the:

**A.**

hypothalamus.

B.

thalamus.

C.

hippocampus.

D.

amygdala.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Easy*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

## Chapter 02 - Neuroscience and Behavior

85.

The \_\_\_\_\_ maintains a steady internal environment for the body.

A.

thalamus

B.

amygdala

C.

hypothalamus

D.

hippocampus

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

86.

The \_\_\_\_\_ in the brain contributes to the body's maintenance of a steady internal physiological state called \_\_\_\_\_.

A.

thalamus; homeostasis

**B.**

hypothalamus; homeostasis

C.

hippocampus; equilibrium

D.

thalamus; equilibrium

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

87.

The limbic system contains which of the following structures?

A.

Amygdala

B.

Pons

C.

Thalamus

D.

Corpus callosum

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Function*

88.

The structures of the \_\_\_\_\_ jointly control a variety of basic functions relating to emotions and self-preservation such as eating, aggression, and reproduction.

A.

central core of the brain

B.

endocrine system

**C.**

limbic system

D.

cerebral cortex

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the limbic system's key structures and functions.*

*Learning Outcome: 7-2*

*Topic: Limbic System*



89.

Darnell underwent surgery to control his severe epilepsy. However, Darnell cannot form new memories of his experiences now, although he does remember past events. Most likely, the surgery destroyed a portion of the \_\_\_\_\_ in Darnell's brain.

A.

amygdala

B.

striatum

C.

medulla

**D.**

hippocampus

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Identify the limbic system's key structures and functions.*

*Learning Outcome: 7-2*

*Topic: Limbic System*

## Chapter 02 - Neuroscience and Behavior

90.

The \_\_\_\_\_ is referred to as the "new brain."

A.

hindbrain

B.

limbic system

**C.**

cerebral cortex

D.

central core

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

91.

Which of the following sequences correctly identifies the orders of the lobes of the cortex, from anterior to posterior?

A.

Frontal – temporal and parietal – posterior

B.

Occipital – temporal and parietal – frontal

C.

Frontal – occipital – temporal and parietal

**D.**

Frontal – temporal and parietal – occipital

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

92.

In which lobe is the motor area located?

A.

Occipital

**B.**

Frontal

C.

Parietal

D.

Temporal

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

## Chapter 02 - Neuroscience and Behavior

93.

The \_\_\_\_\_ area is part of the cortex that is largely responsible for the body's voluntary movement.

A.

attribution

B.

sensory

**C.**

motor

D.

association

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

94.

In a neurophysiological investigation, a monkey makes an involuntary gesture when a portion of its brain is electrically stimulated. The area of the brain that was most likely stimulated is the:

A.

parietal lobe.

**B.**

frontal lobe.

C.

temporal lobe.

D.

occipital lobe.

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

95.

The \_\_\_\_\_ area is the site in the brain of the tissue that corresponds to each of the senses, with the degree of sensitivity related to the amount of tissue.

A.

attribution

**B.**

sensory

C.

motor

D.

association

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

96.

The somatosensory area is to the auditory area what the \_\_\_\_\_ lobe is to the \_\_\_\_\_ lobe.

A.

temporal; parietal

B.

parietal; occipital

C.

occipital; parietal

**D.**

parietal; temporal

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*



## Chapter 02 - Neuroscience and Behavior

97.

The visual area in the cortex is located in the \_\_\_\_\_.

A.

frontal lobe

**B.**

occipital lobe

C.

temporal lobe

D.

parietal lobe

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

98.

The brain injury suffered by 19<sup>th</sup> century railroad worker Phineas Gage allowed psychologists to learn about the functions of the brain's:

A.

association areas.

B.

central core.

C.

limbic system.

D.

sensory areas.

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

## Chapter 02 - Neuroscience and Behavior

99.

The \_\_\_\_\_ areas are considered to be the site of higher mental processes such as thinking, language, memory, and speech.

A.

sensory

B.

attribution

C.

motor

**D.**

association

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

## Chapter 02 - Neuroscience and Behavior

100.

Which of the following is NOT an executive function?

**A.**

Recalling information

B.

Setting goals

C.

Controlling impulses

D.

Making judgments

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

101.

Violet's speech is slow and labored; however, she can understand others' speech. Violet has:

A.

Broca's aphasia.

B.

Wernicke's aphasia.

C.

dyslexia.

D.

dyscalculia.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

102.

Warren suffers from Wernicke's aphasia. Which of the following difficulties will he experience?

A.

Warren will experience an inability to recognize faces.

B.

Warren will have difficulty recognizing objects visually.

C.

Warren will have trouble producing fluent speech.

**D.**

Warren will experience difficulty understanding language.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Identify the major areas of the cerebral cortex and their functions.*

*Learning Outcome: 7-2*

*Topic: Cerebral Cortex*

103.

The process by which the brain reorganizes itself throughout development is termed:

A.

neuroformation.

**B.**

neuroplasticity.

C.

neuroadaptation.

D.

neuromutability.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Define plasticity and describe the brain's capacity for recovery and repair.*

*Learning Outcome: 7-2*

*Topic: Neuroplasticity*

104.

\_\_\_\_\_ is the creation of new neurons.

**A.**

Neurogenesis

B.

Neuroadaptation

C.

Neuromutability

D.

Neuropathy

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Define plasticity and describe the brain's capacity for recovery and repair.*

*Learning Outcome: 7-2*

*Topic: Neuroplasticity*



105.

Neurogenesis is especially evident in brain areas related to learning and memory. Based on this statement, you might expect neurogenesis to be particularly prevalent in the brain's:

A.

thalamus.

B.

cerebellum.

**C.**

hippocampus.

D.

hypothalamus.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-2*

*Topic: Specialization of Hemispheres*

106.

Which of the following is TRUE about the brain?

A.

New research has confirmed that no new brain cells are created after childhood.

B.

The interconnections between neurons become less complex throughout life.

C.

Specific experience can modify the way in which information is processed.

D.

The brain does not have the ability to shift functions to different locations in cases of surgery.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-2*

*Topic: Specialization of Hemispheres*

107.

The use of stem cells in research and treatment remains controversial because stem cells come from:

A.

nonhuman species.

**B.**

aborted fetuses.

C.

genetic engineering in the laboratory.

D.

paid adult donors.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-1*

*Topic: Biofeedback*

108.

Which of the following statements is most accurate in the context of lateralization of language?

**A.**

It is most likely left-lateralized.

B.

It is most likely right-lateralized.

C.

The control of language is shared equally between the hemispheres.

D.

The lateralization of language varies dramatically from one person to another.

*APA LO: 1.1*

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-3*

*Topic: Split Brain*

109.

Trevor is scratching his head, trying desperately to solve a verbal analogy as part of a standardized entrance examination; Sienna, meanwhile, is giving an oral presentation in a political science class. Of the brain's hemispheres, Trevor's \_\_\_\_\_ hemisphere is most active; Sienna's \_\_\_\_\_ hemisphere is most active.

A.

right; right

**B.**

left; left

C.

right; left

D.

left; right

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-3*

*Topic: Split Brain*

110.

Kate has suffered damage to the right side of her brain. Which of the following processes is LEAST likely to be affected?

A.

Achieving feng shui in her living room by rearranging the couch and the TV

**B.**

Balancing her checkbook

C.

Reading that look on her boyfriend's face

D.

Thinking that a new song on the radio is really catchy

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-3*

*Topic: Split Brain*

111.

The hemispheres of the brain are connected by a bundle of fibers called the:

A.

corpus callosum.

B.

corpus cerebellum.

C.

central sulcus.

D.

cerebral cortex.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-3*

*Topic: Split Brain*

112.

Ramona is a woman. Stefan is a man. Which of the following statements is TRUE regarding potential differences in the corpus callosum between these two individuals?

A.

Stefan's corpus callosum is probably the same size as Ramona's.

**B.**

Ramona's corpus callosum is larger than Stefan's.

C.

Ramona's corpus callosum is slightly smaller than Stefan's.

D.

Stefan's corpus callosum is much larger than Ramona's.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-3*

*Topic: Split Brain*



113.

Which of the following generalizations is probably most accurate regarding potential gender differences in the lateralization of language?

A.

No gender differences in the lateralization of language have been found.

B.

Language is more strongly left-lateralized among females than among males.

**C.**

Language is more strongly left-lateralized among males than among females.

D.

The lateralization of language is variable from one person to another.

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-3*

*Topic: Split Brain*

114.

People whose corpus callosum has been surgically cut to stop seizures are called \_\_\_\_\_.

A.

deep-brain patients

B.

dual brain patients

C.

split-brain patients

D.

bicameral patients

*APA LO: 1.2*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-4*

*Topic: Split Brain*

115.

Mrs. Simon has learned to lessen the pain associated with her migraine headaches by voluntarily relaxing specific muscles and reducing her blood pressure. This example illustrates:

A.

deep-brain stimulation.

**B.**

biofeedback.

C.

split-brain control.

D.

transcranial stimulation.

*APA LO: 1.2*

*APA LO: 1.3*

*Accessibility: Keyboard Navigation*

*Bloom's Taxonomy: Apply*

*Difficulty: Easy*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-4*

*Topic: Split Brain*

## Worksheet Questions

116.

The **myelin sheath** is an insulating coat of fat and protein wrapped around an axon.

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurons*

117.

According to the **all-or-none** law, neurons are either on or off.

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the parts of a neuron, and explain how they transmit information.

Learning Outcome: 5-2

Topic: Neurons

118.

At the cellular level, our ability to empathize with others may reflect the activity of **mirror** neurons.

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the parts of a neuron, and explain how they transmit information.

Learning Outcome: 5-2

Learning Outcome: 7-2

Topic: Mirror Neurons

119.

**Inhibitory message** is a chemical message that prevents or decreases the likelihood that a receiving neuron will fire.

APA LO: 1.2

Bloom's Taxonomy: Understand

Difficulty: Medium

Learning Objective: Describe how nerve cells communicate with other nerve cells.

Learning Outcome: 5-3

Topic: Neurotransmitters

120. After a long run, Aaron sometimes experiences a feeling of euphoria, a "runners' high," reflecting the activity of neurotransmitters called **endorphins**.

APA LO: 1.2

Bloom's Taxonomy: Apply

Difficulty: Medium

Learning Objective: Describe how nerve cells communicate with other nerve cells.

Learning Outcome: 5-3

Topic: Neurotransmitters

121.

**Afferent** neurons transmit information from the perimeter of the body to the central nervous system.

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Difficult*

*Learning Objective: Describe how nerve cells communicate with other nerve cells.*

*Learning Outcome: 6-1*

*Topic: Neurotransmitters*

122.

The somatic nervous system regulates voluntary movement; in contrast, the **autonomic** nervous system underlies involuntary movement.

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Describe how nerve cells communicate with other nerve cells.*

*Learning Outcome: 6-1*

*Topic: Nervous System*

123.

Arif's heart rate and respiration are slowing, and his dilated pupils are contracting. His **parasympathetic** nervous system has become active.

*APA LO: 1.2*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 6-1*

*Topic: Nervous System*

124.

**Evolutionary psychology** is the branch of psychology that seeks to identify how behavior is influenced and produced by our genetic inheritance from our ancestors.

*APA LO: 1.2*

## Chapter 02 - Neuroscience and Behavior

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 6-1*

*Topic: Nervous System*

125.

The tiny **pituitary** gland is known as the "master gland."

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*

126.

A technique called **EEG (electroencephalogram)** records the brain's electrical activity through electrodes.

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

127.

Wilma has been experiencing memory difficulties, and her doctor is concerned that Wilma may have a brain tumor. He recommends a(n) **PET (positron emission tomography)** to confirm his diagnosis.

*APA LO: 1.2*

*APA LO: 1.3*

*Bloom's Taxonomy: Apply*

*Difficulty: Medium*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

128.

Extending from the medulla, through the midbrain, into the forebrain is the **reticular formation**, which serves to regulate general bodily arousal.

## Chapter 02 - Neuroscience and Behavior

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the brain's levels, structures, and functions.

Learning Outcome: 7-2

Topic: Brain Function

129.

Information travels from our sensory receptors to the **thalamus** in the brain, which relays it to higher association areas.

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the brain's levels, structures, and functions.

Learning Outcome: 7-2

Topic: Brain Function

130.

The amygdala and hippocampus are found within the brain's **limbic** system.

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Easy

Learning Objective: Identify the limbic system's key structures and functions.

Learning Outcome: 7-2

Topic: Limbic System

131.

Epileptics have sometimes had portions of their limbic system removed. Subsequent memory problems may reflect damage to the **hippocampus**.

APA LO: 1.2

Bloom's Taxonomy: Understand

Difficulty: Medium

Learning Objective: Identify the limbic system's key structures and functions.

Learning Outcome: 7-2

Topic: Limbic System

132.

The cortex has four major sections called **lobes**.

## Chapter 02 - Neuroscience and Behavior

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the limbic system's key structures and functions.

Learning Outcome: 7-2

Topic: Limbic System

133.

The **somatosensory** area in the parietal lobe encompasses specific locations associated with the ability to perceive touch and pressure in a particular area of the body.

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the major areas of the cerebral cortex and their functions.

Learning Outcome: 7-2

Topic: Cerebral Cortex

134.

New neurons are created even during adulthood, in a process called **neurogenesis**.

APA LO: 1.2

Bloom's Taxonomy: Remember

Difficulty: Medium

Learning Objective: Identify the major areas of the cerebral cortex and their functions.

Learning Outcome: 7-2

Topic: Cerebral Cortex

135.

Vance has learned to voluntarily control the activation of his autonomic nervous system as part of the treatment for an anxiety disorder. This is an example of **biofeedback**.

APA LO: 1.2

APA LO: 1.3

Bloom's Taxonomy: Apply

Difficulty: Medium

Learning Objective: Define plasticity and describe the brain's capacity for recovery and repair.

Learning Outcome: 7-4

Topic: Biofeedback

## Essay Questions



136.

Draw a typical neuron and label its major parts accurately. Briefly describe the functions of the parts labeled on your diagram.

The drawing should contain: (a) dendrites, which should appear as clusters of branchlike extensions from the cell body; (b) the cell body, which should appear as a roundish structure in the center of the diagram; (c) the axon, which should appear as a long tube extending from the cell body; and (d) myelin, which should appear bracketing portions of the axon. The diagram should also include a terminal button, a bulblike ending to the axon.

The function of the following structures should be described. Dendrites—receive information from other neurons. Axon—sends message to another neuron. Myelin—insulates one axon from another and speeds neural transmission.

*APA LO: 1.1*

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Neurons*

137.

Write a note on mirror neurons.

Mirror neurons are neurons that fire not only when a person enacts a particular behavior but also when a person simply observes another individual carrying out the same behavior. Mirror neurons may help explain how (and why) humans have the capacity to understand others' intentions. Specifically, mirror neurons may fire when we view someone doing something, helping us to predict what their goals are and what they may do next.

The discovery of mirror neurons suggests that the capacity of even young children to imitate others may be an inborn behavior. Furthermore, mirror neurons may be at the root of empathy—those feelings of concern, compassion, and sympathy for others—and even the development of language in humans.

*APA LO: 1.1*

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the parts of a neuron, and explain how they transmit information.*

*Learning Outcome: 5-2*

*Topic: Mirror Neurons*

138.

Outline the sequence of events that occur at the synapse when a neural message is communicated.

The answer should include the following steps in the sequence: (1) neurotransmitters are produced and stored in the axon. An action potential reaches the end of the axon, or the terminal button; (2) if an action potential arrives, the potential stimulates the release of neurotransmitter molecules from vesicles within the terminal button; (3) the neurotransmitter molecules float passively across the gap between the terminal button of the sending neuron and the dendrites of the receiving neuron; (4) the molecules fit into specialized receptor sites on the dendrites of the receiving neuron; making (5) the receiving neuron either more or less likely to produce its own action potential, depending on the neurotransmitter.

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Describe how nerve cells communicate with other nerve cells.*

*Learning Outcome: 5-2*

*Topic: Synapse*

139.

What are neurotransmitters?

Neurotransmitters are chemicals that carry messages across the synapse to a dendrite (and sometimes the cell body) of a receiving neuron. The chemical mode of message transmission that occurs between neurons is strikingly different from the means by which communication occurs inside neurons: Although messages travel in electrical form within a neuron, they move between neurons through a chemical transmission system.

There are several types of neurotransmitters, and not all neurons are capable of receiving the chemical message carried by a particular neurotransmitter. In the same way that a jigsaw puzzle piece can fit in only one specific location in a puzzle, each kind of neurotransmitter has a distinctive configuration that allows it to fit into a specific type of receptor site on the receiving neuron. It is only when a neurotransmitter fits precisely into a receptor site that successful chemical communication is possible.

If a neurotransmitter does fit into a site on the receiving neuron, the chemical message it delivers is basically one of two types: excitatory or inhibitory.

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

140.

Identify and describe any three neurotransmitters, using specific examples.

Students' answers may vary.

The answer should include three of the following neurotransmitters. At least one of the functions or domains listed for each of the three neurotransmitters should be mentioned, ideally in a personalized example.

Acetylcholine—movement of skeletal muscles; memory

Glutamate—memory

GABA—eating and aggression; affected by alcohol

Dopamine—involved in movement, attention, learning, and reinforcement

Serotonin—regulates sleep, mood, eating, and depression

Endorphins—the brain's natural painkiller; may produce euphoric feelings

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

141.

Identify how abnormal levels of specific neurotransmitters may be involved in each of these disorders: Alzheimer's disease, Parkinson's disease, and schizophrenia.

The answer should include the following:

Alzheimer's disease—diminished production of acetylcholine

Parkinson's disease—abnormally low levels of dopamine

Schizophrenia—abnormally high levels of dopamine

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Name the key neurotransmitters and their functions and describe their known or suspected roles in behavior as well as in illnesses.*

*Learning Outcome: 5-3*

*Topic: Neurotransmitters*

142.

Write a note on the peripheral nervous system.

The peripheral nervous system branches out from the spinal cord and brain and reaches the extremities of the body. Made up of neurons with long axons and dendrites, the peripheral nervous system encompasses all the parts of the nervous system other than the brain and spinal cord. There are two major divisions—the somatic division and the autonomic division—both of which connect the central nervous system with the sense organs, muscles, glands, and other organs.

The somatic division specializes in the control of voluntary movements—such as the motion of the eyes to read this sentence or those of the hand to turn this page—and the communication of information to and from the sense organs. The autonomic division controls the parts of the body that keep us alive—the heart, blood vessels, glands, lungs, and other organs that function involuntarily without our awareness.

*APA LO: 1.1*

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Peripheral Nervous System*

143.

Distinguish between the sympathetic and the parasympathetic divisions of the autonomic nervous system. For each division, provide an example of a situation in which the division would become active. Describe the effects on several bodily processes of the activity of each division.

Students' examples may vary.

The answer should contain the following information:

The sympathetic nervous system acts to prepare the body for action in stressful situations by mobilizing the organism's resources for "fight or flight."

The parasympathetic nervous system acts to calm the body once a stressful situation or emergency has ended. It allows the body to store energy.

The sympathetic nervous system becomes active in such "fight-or-flight" situations as spotting a threatening stranger in a desolate parking garage, being involved in a near-accident on the road, and so on.

The parasympathetic nervous system becomes active in calm, restful situations such as relaxing after dinner or resting in bed before falling asleep.

Signs of sympathetic nervous system activity are increased heart rate, inhibited digestion, dilated pupils, shallow breathing.

Signs of parasympathetic nervous system activity are decreased heart rate, facilitated digestion, constricted pupils, slowed respiration.

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Autonomic Division*

144.

Write a note on evolutionary psychology.

Evolutionary psychology is the branch of psychology that seeks to identify how behavior is influenced and produced by our genetic inheritance from our ancestors. Evolutionary psychologists argue that the course of evolution is reflected in the structure and functioning of the nervous system and that evolutionary factors consequently have a significant influence on our everyday behavior. Their work, in conjunction with the research of scientists studying genetics, biochemistry, and medicine, has led to an understanding of how our behavior is affected by heredity, our genetically determined heritage. Evolutionary psychologists have spawned a new and increasingly influential field: behavioral genetics.

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Discuss the functions of the nervous system's main divisions.*

*Learning Outcome: 6-1*

*Topic: Evolutionary Foundations of Nervous System*

145.

Briefly describe the functions of endocrine system and the pituitary gland.

Students' answers may vary.

The endocrine system is a chemical communication network that sends messages throughout the body via the bloodstream.

Its job is to secrete hormones, chemicals that circulate through the blood and regulate the functioning or growth of the body. It also influences—and is influenced by—the functioning of the nervous system. Although the endocrine system is not part of the brain, it is closely linked to the hypothalamus.

A key component of the endocrine system is the tiny pituitary gland, which is found near—and regulated by—the hypothalamus in the brain. The pituitary gland has sometimes been called the “master gland” because it controls the functioning of the rest of the endocrine system. But the pituitary gland is more than just the taskmaster of other glands; it has important functions in its own right. For instance, hormones secreted by the pituitary gland control growth. Extremely short people and unusually tall ones usually have pituitary gland abnormalities.

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Describe the function of the endocrine system.*

*Learning Outcome: 6-2*

*Topic: Endocrine System*



146.

List and describe the brain-scanning techniques.

Three of the following techniques should be identified; a description of the diagnostic utility of each technique should follow.

Electroencephalogram (EEG)—facilitates the diagnosis of epilepsy and learning disabilities

Positron emission tomography (PET)—may help identify the presence of brain tumors

Functional magnetic resonance imaging (fMRI)—has improved the diagnosis of many ailments, including strokes, multiple sclerosis, and Alzheimer's disease

Transcranial magnetic stimulation (TMS) imaging—may allow the treatment of certain psychological disorders, such as depression and schizophrenia

*APA LO: 1.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Medium*

*Learning Objective: Name the techniques used to map and study the brain.*

*Learning Outcome: 7-1*

*Topic: Brain Imaging*

147.

Identify and describe the "old brain" structures or areas. Illustrate the function of each area.

The "old brain" is the brain's central core. Three of the following structures should be identified. Damage or deterioration should lead to impairment of the function listed for a given area.

Medulla regulates breathing and heart rate.

Pons regulates sleep; coordinates movement between the right and left sides of the body.

Cerebellum controls body balance; coordinates movement.

Reticular formation—regulates alertness; when awake, produces arousal to outside stimulation; when asleep, filters out distracting background stimuli.

Thalamus—acts as a relay station for information from the senses.

Hypothalamus—maintains homeostasis, a steady internal state for the body; produces and regulates survival-related behavior, such as eating, self-protection, and sex.

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-2*

*Topic: Brain Structure*

148.

Review recent research investigating the effects of gender and culture on brain structure and function.

Young girls show earlier development in the frontal lobes, which control aggressiveness and language development. On the other hand, boys' brains develop faster in the visual region that facilitates visual and spatial tasks such as geometry. Furthermore, most males tend to show greater lateralization of language in the left hemisphere. For them, language is clearly relegated largely to the left side of the brain. In contrast, women display less lateralization, with language abilities apt to be more evenly divided between the two hemispheres. Such differences in brain lateralization may account, in part, for the superiority often displayed by females on certain measures of verbal skills, such as the onset and fluency of speech. Other research suggests that men's brains are somewhat bigger than women's brains even after taking differences in body size into account. In contrast, part of the corpus callosum, a bundle of fibers that connects the hemispheres of the brain, is proportionally larger in women than in men.

Culture also gives rise to differences in brain lateralization. Native speakers of Japanese seem to process information regarding vowel sounds primarily in the brain's left hemisphere. In contrast, North and South Americans, Europeans, and individuals of Japanese ancestry who learn Japanese later in life handle vowel sounds principally in the right hemisphere. One explanation for this difference is that certain characteristics of the Japanese language, such as the ability to express complex ideas by using only vowel sounds, result in the development of a specific type of brain lateralization in native speakers

*APA LO: 1.2*

*Bloom's Taxonomy: Understand*

*Difficulty: Medium*

*Learning Objective: Identify the brain's levels, structures, and functions.*

*Learning Outcome: 7-3*

*Topic: Brain Function*

*Topic: Brain Structure*

Chapter 02 - Neuroscience and Behavior

149.

What is biofeedback? Describe the procedure and identify some of the physical and psychological disorders where it is applied.

Biofeedback is a procedure in which a person learns to control through conscious thought internal physiological processes such as blood pressure, heart and respiration rate, skin temperature, sweating, and the constriction of particular muscles. Although it traditionally had been thought that the heart rate, respiration rate, blood pressure, and other bodily functions are under the control of parts of the brain over which we have no influence, psychologists have discovered that these responses are actually susceptible to voluntary control.

In biofeedback, a person is hooked up to electronic devices that provide continuous feedback relating to the physiological response in question. For instance, someone trying to control headaches through biofeedback might have electronic sensors placed on certain muscles on her head and learn to control the constriction and relaxation of those muscles. Later, when she felt a headache starting, she could relax the relevant muscles and abort the pain.

Although the control of physiological processes through the use of biofeedback is not easy to learn, it has been employed with success in a variety of ailments, including emotional problems (such as anxiety, depression, phobias, tension headaches, insomnia, and hyperactivity), physical illnesses with a psychological component (such as asthma, high blood pressure, ulcers, muscle spasms, and migraine headaches), and physical problems.

*APA LO: 1.2*

*APA LO: 4.2*

*Bloom's Taxonomy: Remember*

*Difficulty: Easy*

*Learning Objective: Explain what split-brain research reveals about the functions of the brain's two hemispheres.*

*Learning Outcome: 7-4*

*Topic: Biofeedback*