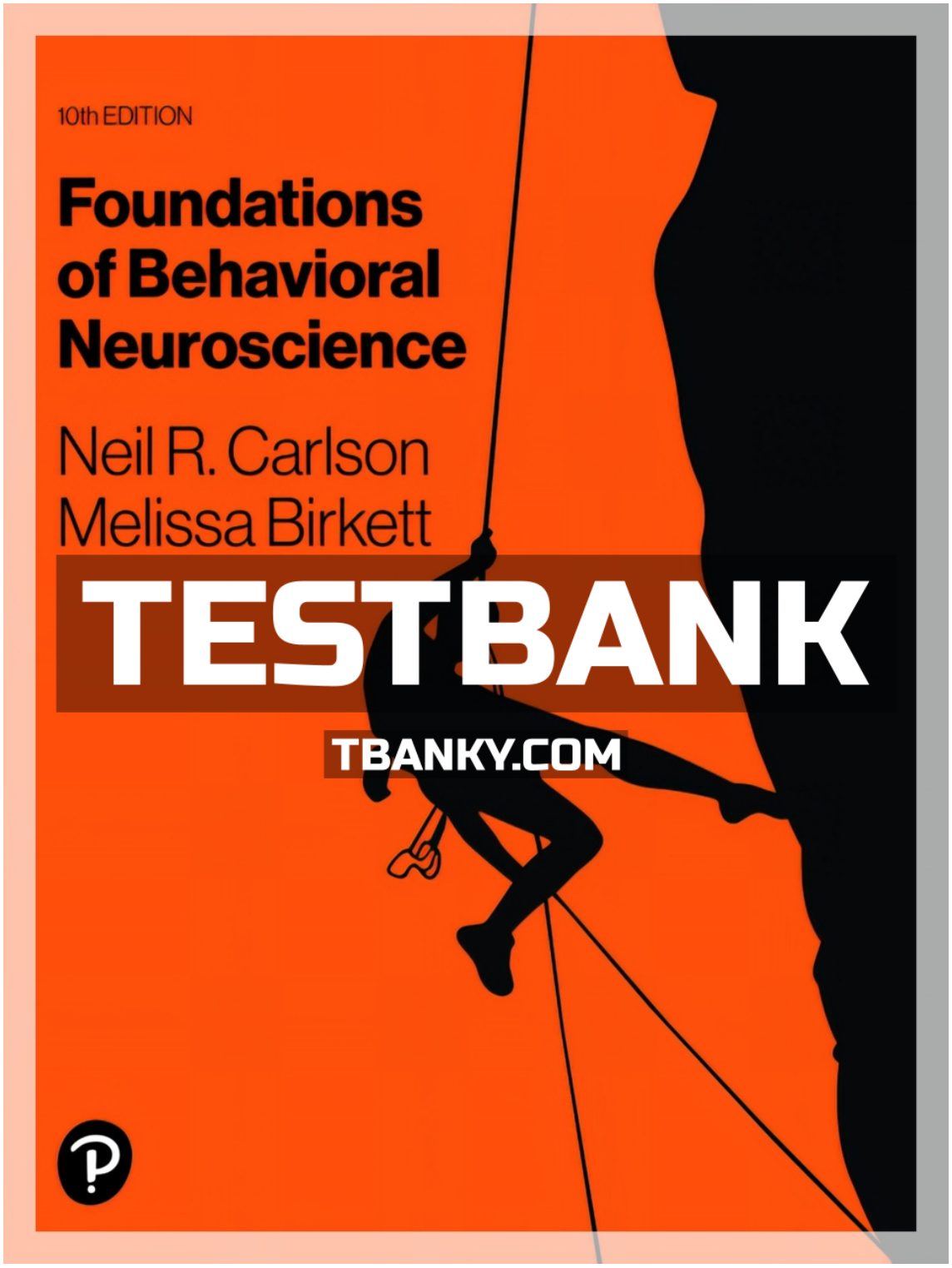
TEST BANK FOR FOUNDATIONS OF BEHAVIORAL NEUROSCIENCE 10TH EDITION CARLSON ISBN 9780137533619



CHAPTER 1
ORIGINS OF BEHAVIORAL NEUROSCIENCE

Topic	Question Type	Remember the Facts	Understand the Concepts	Apply What You Know	Analyze It
The Nature of Behavioral Neuroscience	**Multiple Choice**	14, 15, 19, 20, 25, 26, 27, 30, 33, 34, 35, 38, 39, 40, 41, 42, 44	2, 4, 11, 12, 13, 17, 18, 21, 22, 23, 28, 31, 32, 36	3, 5, 6, 7, 8, 9, 10, 16, 24, 43	29, 37
	Short Answer	79			78, 80, 81
	Essay				87, 88, 89
Natural Selection and Evolution	**Multiple Choice**	56, 58, 60, 63	46, 48, 50, 53, 54, 57, 59, 61, 62	47, 49, 51, 52, 55, 64	
	Short Answer		82	83, 84	
	Essay				
Ethical Issues in Research with Humans and Other Animals	**Multiple Choice**	65, 66, 67, 68, 70, 72	69	71, 73, 74	
	Short Answer			85, 86	
	Essay				90. 91
Careers in Behavioral Neuroscience and Strategies for Learning	**Multiple Choice**	75, 76, 77			
	Short Answer				
	Essay				

Multiple Choice Questions

1) In the past, many scientists believed the old adage, "You can't teach an old dog new tricks," because they assumed that neurons cannot be generated past a certain age. Recent research, however, suggests that _____ is less limited than previously thought.
A) neurogenesis
B) connectionism
C) neural migration
D) brain growth
Answer: A
Learning Objective: None
Topic: Introduction
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

2) A study involves research on communication across various species of animals and outlines components that appear in all of these species. These components would be considered a(n) _____.
A) generalization
B) induction
C) rationalization
D) syllogism
Answer: A
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

3) When a group of neurologists publish a paper listing common causes of stroke that individuals should be aware of, this explanation would be considered a(n) _____.
A) generalization
B) induction
C) rationalization
D) syllogism
Answer: A
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

4) A psychologist who argues that phobias are actually learned fears is putting forth a _____.
A) rationalization
B) pseudoscientific theory
C) reduction
D) generalization
Answer: D
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Easy
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

5) A researcher explains aspects of post-traumatic stress disorder as examples of symptoms that apply to all people. The researcher is putting forth a _____.
A) generalization
B) reduction
C) separatist theory
D) functional theory
Answer: A
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

6) Sally experiences such an overly strong fear of dogs that she refuses to leave her house for fear of encountering a dog. A learning theorist would suggest that the roots of Sally's fear can be attributed to past classical conditioning, in which she associated the sight and sounds of a dog with some aversive experience. This type of explanation is a _____.
A) rationalization
B) reduction
C) generalization
D) dualist theory
Answer: C
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

7) A neuroscientist records the voltage changes in a single squid axon to determine how signals are sent to neighboring cells. Here, the neuroscientist is using a _____ to explain neural signaling.
A) generalization
B) reduction
C) separatist theory
D) functional theory
Answer: B
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

8) Jim's roommate has difficulty sleeping after consuming heavily caffeinated drinks. Jim suggests that his roommate's insomnia reflects the action of caffeine on brain function—increasing arousal and lessening the ability to sleep. This explanation is a _____.
A) reduction
B) generalization
C) induction
D) falsification
Answer: A
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Difficult
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

9) If a researcher tries to understand the complex human nervous system using the simple nervous system of a sea slug, this would be considered a(n) _____ .
A) rationalization
B) simplification
C) generalization
D) reduction
Answer: D
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

10) Dr. Leary argues that muscle contraction occurs because muscle fibers undergo a physical process of shortening. His explanation is a _____.
A) reduction
B) syllogism
C) generalization
D) induction
Answer: A
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

11) Which statement is correct?
A) A reduction uses complex processes to explain complicated ones.
B) The goal of science is to explain simple phenomena in terms of complicated mechanisms.
C) Generalizations and reductions are important tools in science.
D) Physiological psychologists only use reductions.
Answer: C
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

12) The mind–body question _____.
A) asks about the nature of both the mind and the body
B) was originally posed by neuroscientists
C) has been solved
D) usually involves choosing a dualistic view
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

13) Which statement is consistent with the monistic view of the mind–body question?
A) The mind and body are separate.
B) The body can influence the mind through the actions of the muscles.
C) The mind is spiritual, whereas the body is made from matter.
D) The mind is generated through the physical actions of the brain.
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Difficult
Skill Level: Understand the Concepts
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

14) Modern neuroscience would best be characterized as _____.
A) dualistic
B) monistic
C) generalistic
D) reductionistic
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

15) Ancient Egyptian, Indian, and Chinese cultures viewed the _____ as the seat of thought and emotions.
A) gut
B) heart
C) brain
D) the blood
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

16) Five-year-old Gemma exclaims, "My brain makes me feel sad or happy!" Which philosopher would agree?
A) Aristotle
B) Galen
C) Hippocrates
D) Plato
Answer: C
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

17) Which statement about brain function would be most likely made by Aristotle?
A) The mind acts through neurogenesis to control the body.
B) The brain serves to cool the passions of the heart.
C) The brain is the seat of emotion but not thought.
D) The brain routes sensory information to the heart.
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

18) A primary difference between Aristotle and Hippocrates was that _____.
A) Aristotle attributed thought and emotion to the brain
B) Hippocrates attributed thought to the brain instead of the heart
C) Hippocrates attributed thought and emotion to the brain
D) Aristotle felt that humors (bodily fluids) cooled the passions of the heart
Answer: C
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

19) The Greek scholar _____ dissected and studied the brains of cattle, sheep, dogs, and apes.
A) Aristotle
B) Galen
C) Hippocrates
D) Descartes
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

20) René Descartes argued that _____.
A) the mind is an emerging property of organization of the brain
B) only humans are capable of reflexive behaviors
C) the brain acts to cool the passions of the heart
D) animals are mechanical devices whose behavior is controlled by environmental stimuli
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

21) René Descartes would be most comfortable with which statement?
A) The universe is a mental construction.
B) The body is a hallucination generated by the mind.
C) The body is made of matter; the mind is not.
D) the brain serves to cool the passions of the heart.
Answer: C
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Difficult
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

22) Which statement best describes the view of the relationship between mind and body held by René Descartes?
A) Mind and body are identical.
B) The mind is the residue when the brain is formed.
C) One brain gives rise to many minds.
D) The mind and body are separate but linked.
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

23) According to René Descartes, _____.
A) the heart is the organ that controls emotions
B) the muscles are activated by electrical signals carried by nerves
C) nerves carry electrical messages that contract muscles
D) the mind controls the movements of the body
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

24) Julian believes that there is a distinction between the mind and the body, that the mind is somehow made of a different substance or matter than the rest of the body. His belief would best fit with that of _____.
A) monism
B) reductionism
C) dualism
D) pluralism
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

25) A reflex is considered to be a(n) _____ movement elicited by an _____.
A) involuntary; external stimulus
B) voluntary; internal stimulus
C) conscious; external stimulus
D) unconscious; internal stimulus
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

26) Which scientist coined the term *reflexes* to describe certain bodily movements?
A) Aristotle
B) René Descartes
C) Johannes Müller
D) Luigi Galvani
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

27) Luigi Galvani removed a nerve and its attached muscle fibers from a frog and showed that _____ of the nerve caused _____ of the muscle.
A) electrical stimulation; relaxation
B) electrical stimulation; contraction
C) chemical stimulation; contraction
D) chemical stimulation; relaxation
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

28) Galvani's experiment involving a frog leg proved that _____.
A) the heart is the organ that controls emotions
B) the muscles are activated by electrical nerve signals
C) unlike animals, human bodies do not possess reflexes
D) a reflex is a process controlled by the mind
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

29) Which statement is consistent with Galvani's experiment?
A) The brain contains air-filled chambers.
B) Nerves are filled with air and exert a vacuum pressure.
C) Muscles make up the mind.
D) Electrical stimulation of a nerve can evoke contraction of a muscle, even when the nerve has been disconnected from the rest of the body.
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

30) The doctrine of specific nerve energies was proposed by _____.
A) Johannes Müller
B) Paul Broca
C) René Descartes
D) Hippocrates
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

31) Which statement is consistent with the doctrine of specific nerve energies?
A) Electrical stimulation of a sensory nerve cannot evoke a specific sensation.
B) All nerves carry a similar electrical message.
C) Exerting pressure on the eyeball can evoke pain.
D) Each brain area receives signals from all sensory systems.
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

32) Which of the following shows the correct chronological order for three scientists who championed use of experimental techniques, such as ablation, in the study of physiology?
A) Pierre Flourens; Paul Broca; Johannes Müller
B) Paul Broca; Johannes Müller; Pierre Flourens
C) Johannes Müller; Pierre Flourens; Paul Broca
D) Pierre Flourens; Johannes Müller; Paul Broca
Answer: C
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Difficult
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

33) Johannes Müller proposed _____.
A) an important role for natural selection in the evolution of behavior
B) that language is a function of the right hemisphere
C) that different brain channels carry out different functions
D) that interneurons connect the body with the mind
Answer: C
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

34) Pierre Flourens is known _____.
A) for his development and use of the experimental ablation technique
B) as the father of modern philosophy
C) for formulating the theory of evolution
D) for his study of the impairment of language in stroke victims
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

35) Experimental ablation involves _____.
A) comparisons of brain size differences across species
B) chronic chemical stimulation of the brain
C) low-level electrical stimulation of the brain
D) the study of changes in function after intentional damage to a portion of the brain
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

36) Based on his observation of brain damage and behavioral difficulties in a stroke victim, Paul Broca concluded that _____.
A) the control of speech is a function of the brain's left hemisphere
B) the brain's right hemisphere controls motor movements on the right side of the body
C) damage to the right hemisphere impairs speech
D) different regions of the brain control heart rate and breathing, purposeful movements, and sensory function
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

37) Animal experimental ablation is to human experimental ablation as _____ is to _____.
A) Flourens; Broca
B) Broca; Flourens
C) Müller; Flourens
D) Florens; Müller
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

38) Which is the correct match between scientist and idea?
A) Paul Broca; doctrine of specific nerve energies
B) Pierre Flourens; use of ablation to study brain–behavior relations
C) Pierre Flourens; language is localized in the left hemisphere
D) René Descartes; doctrine of specific nerve energies
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Difficult
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

39) _____ used the Golgi staining technique to examine individual neurons in the brain.
A) Pierre Flourens
B) René Descartes
C) Luigi Galvani
D) Ramon Santiago y Cajal
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

40) _____ won a Nobel Prize in 1906 for his work in describing the structure of the nervous system.
A) Pierre Flourens
B) René Descartes
C) Luigi Galvani
D) Ramon Santiago y Cajal
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

41) John O'Keefe, May-Britt Moser, and Edvard Moser were awarded the 2014 Nobel Prize for _____.
A) developing amplifiers to detect weak electrical signals
B) developing neurochemical techniques to analyze chemical changes within cells
C) discovering mirror neurons
D) discovering a spatial positioning system in the brain
Answer: D
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

42) Which of the following correctly matches researchers to their Nobel Prize–winning work?
A) Golgi and Cajal; structure of the nervous system
B) Axelrod, Katz, and von Euler; ionic mechanisms
C) O'Keefe, Moser, and Moser; neurotransmitters
D) Hall, Rosbach, and Young; functions of the nervous system
Answer: A
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

43) The supercomputer and chess master, Deep Blue, would be an early example of the work supported by the _____.
A) Brain Research through Advancing Innovative Neurotechnologies
B) European Human Brain Project
C) Society for Neuroscience
D) International Neuroethics Society
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

44) Hall, Rosbash, and Young won the 2017 Nobel Prize for their work on _____.
A) neural communication
B) molecular mechanisms controlling circadian rhythms
C) neurotransmitters
D) ionic mechanisms of nerve cell membrane
Answer: B
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

45) Darwin proposed the principle of _____.
A) specific nerve energy
B) homeostasis
C) natural selection
D) functionalism
Answer: C
Learning Objective: None
Topic: Natural Selection and Evolution
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

46) If there are differences between species in brain areas or physical structure that do not appear to lend a selective advantage to that animal, Darwin would say these differences are not _____.
A) unique
B) generalizable
C) evolved
D) functional
Answer: D
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Easy
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

47) Functionalism is demonstrated by _____.
A) no brain differences between different songbird species
B) same-sized spatial reasoning areas in the brains of members of a species that primarily hunts and one that does not
C) more activity in the emotional brain centers in an aggressive species
D) equal levels of activity in the emotional brain centers for calm and aggressive species
Answer: C
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

48) The physiological mechanisms of an organism can modulate behavior. Strictly speaking, these mechanisms _____.
A) can be said to have purpose
B) can be traced or linked to certain functions
C) are thought to be different from species to species
D) are not thought to be subject to evolution
Answer: B
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

49) Which would likely an example of a naturally selected mutation?
A) a moth with spots that look like predator eyes on its back
B) a brightly colored moth that is easily visible against the bark of a tree
C) a short giraffe that is unable to reach high tree leaves in drought
D) a tree-climbing animal without opposable thumbs
Answer: D
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

50) The principle of natural selection proposes that certain characteristics will become more prevalent in a species to the extent that these _____.
A) are associated with multiple genetic mutations
B) inhibit reproductive behaviors
C) increase the likelihood that an organism will successfully reproduce
D) impair adaption to the local environment
Answer: C
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

51) If a slightly taller-than-average giraffe is capable of reaching higher leaves on trees, and this animal lives to breed and pass on its genes, what would describe this situation?
A) Darwinism
B) natural selection
C) mutation
D) selective advantage
Answer: B
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

52) Female birds are often drab in coloration compared to their male counterparts, which allows them to more successfully avoid detection when they incubate their eggs. _____ might produce a group of female birds born with brighter colors.
A) A mutation
B) Natural selection
C) Genetic predisposition
D) Genetic alteration
Answer: A
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

53) Which statement is true of genetic mutations?
A) Mutations have mostly beneficial effects.
B) Mutations commonly increase the survivability of affected offspring.
C) Mutations rarely result in problems for the affected offspring.
D) Most mutations have negative consequences.
Answer: D
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

54) Genetic mutations involve _____.
A) adverse neural development caused by drug ingestion in adulthood
B) accidental changes in the chromosomes of sperms or eggs
C) poor adaptation to the environment
D) improved reproductive success
Answer: B
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

55) In the Southwest United States, rattlesnakes are being born without rattles, which allows them to avoid detection. This characteristic would be a _____.
A) selective advantage
B) genetic susceptibility
C) general advantage
D) selective disadvantage
Answer: A
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

56) Traits that can be altered via genetic mutations _____.
A) are mostly beneficial to members of the species
B) are psychological in nature
C) are physical in nature
D) exert direct actions on behavior
Answer: C
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

57) Genetic variety is good for a species in that _____.
A) such diversity allows some members of the species to adapt to a new environment
B) mutations are kept to a minimum
C) variety promotes neural development
D) variety reduces reproductive success
Answer: A
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

58) The term *evolution* _____.
A) cannot involve genetic mutations
B) can occur in the absence of natural selection
C) implies genetic similarity
D) refers to a gradual change in the structure and function of a species
Answer: D
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

59) The development of perception that allowed for color differentiation was a functional development; not all animals have this ability. What made it functional?
A) It allowed the ability to breed at night.
B) It allowed for night vision.
C) It allowed for differentiation of ripe fruits.
D) It enabled bipedalism.
Answer: C
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

60) The first primates _____.
A) were the bark from trees
B) were relatively large compared to other species
C) dined on other primates
D) were able to grasp objects with their hands
Answer: D
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

61) A larger brain allowed primates to develop which of the following capacities and abilities?
A) the ability to huddle in the forest to keep warm
B) use of smell to identify food
C) use of language to signal information to other members of the group
D) the ability to locomote within the forest
Answer: C
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Easy
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

62) Recent research has shown that intelligence is dictated by _____.
A) the number of neurons available for such functions as behavior, reasoning, and making plans
B) the number of neurons dedicated to movement and other set functions
C) ratio of larger brain to body size
D) ratio of smaller brain to body size
Answer: A
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

63) An adult human brain undergoes a _____-fold increase in weight relative to that of the newborn brain.
A) two
B) four
C) six
D) eight
Answer: B
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

64) At the zoo, Aziza asks, "Why are giraffes born already able to walk, but we don't walk until so much later?" The best answer to Aziza's question would be _____.
A) adaptation
B) mutation
C) selective advantage
D) neoteny
Answer: D
Learning Objective: 1.4 Identify factors involved in the evolution of large brains in humans.
Topic: Evolution of the Human Brain
Difficulty Level: Easy
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

65) A group that is made up of veterinarians, animals scientists, nonscientists, and community members could be considered a(n)_____.
A) University Animal Review Board
B) Institutional Animal Use and Care Committee
C) University Animal Use and Care Board
D) Institutional Animal Review Committee
Answer: B
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

66) Animal rights activists are most concerned with our use of animals _____.
A) in hunting and trapping
B) as a source of food
C) as companions or pets to humans
D) as subjects for research
Answer: D
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

67) Which of the following is an indispensable use of animals for humans?
A) research for the treatment of human disease
B) as a source of food
C) as companions to humans
D) as a source of fur
Answer: A
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

68) Research involving animals was required in order to study and develop treatments for which of the following human diseases?
A) melanoma
B) stroke
C) bulimia nervosa
D) baldness
Answer: B
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

69) Which statement is the easiest justification for the use of animals in research?
A) Animal research is conducted so as to minimize human suffering.
B) Animal research is an important part of our food supply.
C) Animal research has led to disease discoveries and treatments that would not have been possible otherwise.
D) One can simply have a conversation with an animal rights activist about the validity of animal research.
Answer: C
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

70) The board of scientists and laypeople who review studies with human participants to determine whether they protect human rights is called the _____.
A) Institutional Research Board
B) University Research Board
C) Institutional Review Board
D) Institutional Research Review Board
Answer: C
Learning Objective: 1.6 Discuss ethical considerations in research with human participants.
Topic: Research with Humans
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

71) Sam signed up for a clinical trial of a new drug for his muscular dystrophy condition. He will have to take the drug consistently and have regular doctor visits to ensure that it is not making his condition worse. In this case, Sam should be sure to understand that all studies involving human subjects must include _____.
A) freedom from risks
B) monetary benefits for participants
C) informed consent
D) parental consent even if over the age of 18
Answer: C
Learning Objective: 1.6 Discuss ethical considerations in research with human participants.
Topic: Research with Humans
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 3.1 Apply ethical standards to evaluate psychological science and practice.

72) A statement in which the researcher informs any potential participant about the nature of the study, how the data will be collected and stored, and what the anticipated benefits and costs will be for participating is called _____.
A) right to withdraw
B) agreement
C) research agreement
D) informed consent
Answer: D
Learning Objective: 1.6 Discuss ethical considerations in research with human participants.
Topic: Research with Humans
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 3.1 Apply ethical standards to evaluate psychological science and practice.

73) If a research participant was completing a survey about his or her sexual practices, the biggest possible risk would be the _____.
A) purpose of the study
B) anticipated benefits
C) data storage
D) costs of participating
Answer: C
Learning Objective: 1.6 Discuss ethical considerations in research with human participants.
Topic: Research with Humans
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 3.1 Apply ethical standards to evaluate psychological science and practice.

74) As neuroscientists better understand the brain, there is growing concern about the future use of brain imaging related to court cases. This area would be the specialty of a _____.
A) neuroscience ethicist
B) bioethicist
C) biology ethicist
D) neuroethicist
Answer: D
Learning Objective: 1.6 Discuss ethical considerations in research with human participants.
Topic: Research with Humans
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

75) _____ is the original name for the field that involves the study of the physiology of behavior.
A) Behavioral neuroscience
B) Biopsychology
C) Psychobiology
D) Physiological psychology
Answer: D
Learning Objective: 1.7 Identify careers in behavioral neuroscience.
Topic: Careers in Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

76) _____ are physicians trained to diagnose and to treat diseases of the central nervous system.
A) Psychologists
B) Neurologists
C) Anatomists
D) Behavioral neuroscientists
Answer: B
Learning Objective: 1.7 Identify careers in behavioral neuroscience.
Topic: Careers in Neuroscience
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

77) Which of the following was a strategy advocated by the text authors to assist you in learning the material of this text?
A) Focus on the conclusions of a series of studies, not on the premises that support the conclusion.
B) Each chapter section should be read once.
C) Study over time instead of in a single cram session.
D) Be passive in your study of the text material.
Answer: C
Learning Objective: 1.8 Identify effective learning strategies for studying behavioral neuroscience.
Topic: Strategies for Learning
Difficulty Level: Easy
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

Short Answer Questions

78) Discuss the difference between a generalization and a reduction.
Answer: A generalization is a type of scientific explanation that involves coming to a general conclusion based on observation of many similar phenomena. A reduction is a type of scientific explanation that involves breaking a complex situation into simpler processes.
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

79) Describe Descartes's view of the human body.
Answer: Descartes viewed the human body as a machine. At the same time, he thought that the brain controlled the movements of the body, with the exception of reflexes.
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Remember the Facts
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

80) Describe Galvani's research and the implications of that research for the field of neuroscience.
Answer: Galvani detached a frog muscle from the frog's body and then was able to contract the muscle with electrical stimulation—thus it was not pressure exerted from the brain which caused muscle contraction. This finding prompted others in the field to investigate nervous system signals.
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

81) Make an argument for whether Müller's doctrine of specific nerve energies supports dualism or monism.
Answer: Müller's doctrine of specific nerve energies supports monism. Nerves across the body communicate with the same basic message, demonstrating that all of these nerves are made of the same substance. However, the brain responds differently to each nerve type, processing these energies in different ways.
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

82) Explain what Darwin meant by the principle of natural selection.
Answer: Darwin's basic idea is that animals differ in a number of characteristics. As the environment changes, animals with characteristics that have given them selective advantages and enabled them to survive will pass on their genes to their offspring. Over time, such characteristics will increase in the population.
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Understand the Concepts
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

83) Discuss a role that mutations play in the process of natural selection.
Answer: Mutations increase the range of features or behaviors seen in an organism. Most of the time, this is harmful to the organism or to its reproductive fitness. Very rarely, the mutation results in a feature or behavior that increases the fitness of an organism; in these cases, the mutation is likely to become part of the preferred genetic makeup of the species.
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

84) Give examples of structural and behavioral characteristics that might give selective advantages to an organism.
Answer: The principle of natural selection suggests that certain characteristics of an organism offer an advantage that allows the organism to survive and reproduce and to pass on that characteristic to its offspring. The coloring of an organism may allow it to blend into the background, thus escaping detection by predators. The capacity to remain still (i.e., freeze) may similarly allow an organism to avoid predation.
Learning Objective: 1.3 Describe the role of natural selection in the evolution of behavioral traits.
Topic: Functionalism and the Inheritance of Traits
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.3 Describe applications of psychology.

85) Explain what is meant by the idea that animal research is an indispensable use of animals.
Answer: Humans use animals for a variety of means, including food to clothing. When it comes to research, the use of animals is necessary to promote the health of both humans and animals.
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

86) How has research on animals helped us to understand human diseases? Give a specific example.
Answer: We are able to test the causes of diseases and to seek treatments for diseases. Stroke research on animals has led to the development of drugs that reduce brain damage associated with a stroke.
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Moderate
Skill Level: Apply What You Know
APA Learning Objective: 1.1 Describe key concepts, principles, and overarching themes in psychology.

Essay Questions

87) Contrast generalization and reductionism. Which would be more important in understanding a complex phenomenon such as the impact of Jeremiah's stroke from the textbook introduction, and why?
Answer: Generalization involves making a general conclusion based on many observations of similar phenomena, whereas reductionism is understanding the processes that underlie the phenomena. In Jeremiah's case, generalization would be helpful in that scientists would have many examples of others who have been similarly afflicted by stroke. Treatment options could be mirrored to better help Jeremiah's recovery. In contrast, reductionism would help scientists and doctors understand what, exactly, happened in Jeremiah's brain. Ultimately, generalization would likely be more beneficial to Jeremiah and his recovery.
Learning Objective: 1.1 Compare the roles of generalization and reduction in behavioral neuroscience research.
Topic: The Goals of Research
Difficulty Level: Difficult
Skill Level: Analyze It
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

88) Compare and contrast the philosophical positions of dualism and monism. To which of these positions does modern neuroscience subscribe? Provide research evidence to support your claim.
Answer: Dualism is the belief that the mind and body are separate; the body is made up of a different matter than the mind is. In contrast, monism is the belief that everything (mind and body) consists of the same matter and energy. Today, neuroscience takes a monist view of the mind–body question. The predominant premise is that the more that is learned about the nervous system, the clearer the answer to the mind–body question will become. One example of research that demonstrates this monistic view is Galvani's experiments that demonstrated muscle contraction in response to electrical stimulation. This mechanism has been shown to be at work in the brain as well, suggesting that the mind and body function on the same principles.
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

89) Identify three contributors to the development of the field of physiology, and discuss the implications that the work of each had for the science of neurophysiology.
Answer: Galvani demonstrated that muscle contractions functioned based on electrical stimulation which prompted further exploration into the signals of the nervous system. Müller argued for the use of experimental methods to study physiology. This suggestion later resulted in great exploration of the brain by removing sections to determine their impact on behavior. Flourens developed the technique of experimental ablation, which has provided insight into the functions of brain regions.
Learning Objective: 1.2 Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, and other disciplines.
Topic: Biological Roots of Behavioral Neuroscience
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 1.2 Develop a working knowledge of psychology's content domains.

90) Discuss the use of animals in research and the ethical issues associated with such use. Make an argument *for* and an argument *against* their use in research.
Answer: A relatively small percentage of animals are used in neuroscience research, and their use must be justified by the gain in knowledge produced by the research. An argument for might focus on the fact that such research may produce benefits that are real and that cannot be realized in any other way. An argument against might suggest that humans and animals are so different that results from animals are not useful for understanding humans.
Learning Objective: 1.5 Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Topic: Research with Animals
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 3.1 Apply ethical standards to evaluate psychological science and practice.

91) Discuss the elements of informed consent from most to least important. Make a case for the importance of each element.
Answer: The components of informed consent include an understanding of the nature of the study, how data will be collected and stored, and the benefits and costs to the participant. One might argue that the two most important elements would be costs and data storage. If the study has high risk, a participant should be aware of that risk. In addition, if the data is sensitive, the storing of that information is of critical importance to a participant.
Learning Objective: 1.6 Discuss ethical considerations in research with human participants.
Topic: Research with Humans
Difficulty Level: Moderate
Skill Level: Analyze It
APA Learning Objective: 3.1 Apply ethical standards to evaluate psychological science and practice.

Revel Quiz Questions

The following questions appear at the end of each module and at the end of the chapter in Revel for *Foundations of Behavioral Neuroscience*, 10e.

Assignment: Quiz: 1.1 The Nature of Behavioral Neuroscience

EOM_1.1.1
Question: Generalization is to _____, as reductionism is to _____.

a) identifying general rules that govern behavior; identifying simple causes of complex behaviors
b) identifying simple causes of complex behaviors; identifying general rules that govern behavior across multiple organisms
c) organizing data in terms of general rules; identifying the smallest piece of a neuron
d) identifying the smallest piece of a neuron; organizing data in terms of general rules

Answer: a
Consider This: The term "general" typically means widespread, whereas "reduce" means to make something smaller or more simple; LO 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Learning Objective: 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Difficulty Level: Easy
Skill Level: Understand the Concepts

EOM_1.1.2
Question: The research efforts of behavioral neuroscientists should focus on:

a) reduction and generalization.
b) reduction.
c) generalization.
d) functionalism.

Answer: a
Consider This: Researchers should take into account multiple factors; LO 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Learning Objective: 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Difficulty Level: Moderate
Skill Level: Apply What You Know

EOM_1.1.3
Question: The idea that the mind and body are separate and made up of different matter is referred to as:

a) dualism.
b) monism.
c) separatism.
d) unity.

Answer: a
Consider This: This is not a philosophical viewpoint for the mind-body question; LO 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Learning Objective: 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM_1.1.4
Question: Experimental ablations were first performed by:
a) Flourens.
b) Broca.
c) Aristotle.
d) Galen.
Answer: a
Consider This: Experimental ablations began in the nineteenth century and were first performed on animals; LO 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Learning Objective: 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Difficulty Level: Difficult
Skill Level: Remember the Facts

EOM_1.1.5
Question: _____ believed that the body was controlled by the heart.
a) Aristotle
b) Hippocrates
c) Socrates
d) Galen
Answer: a
Consider This: Most thinkers in ancient Greek, Egyptian, Chinese, and Indian cultures thought that the heart controlled the body; LO 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Learning Objective: 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Difficulty Level: Easy
Skill Level: Remember the Facts

Assignment: Quiz: 1.2 Natural Selection and Evolution

EOM_1.2.1
Question: Which is an example of functionalism?

a) Some songbirds have highly developed brain structures which allow them to learn and produce songs.
b) A rare mutation results in new feather color that serves no purpose in a bird.
c) Being infected with a parasite causes changes in the host animals' behavior, which serves no purpose for the parasite or host.
d) The development of an efficient metabolism results in increased obesity in an environment with plentiful food sources.

Answer: a
Consider This: Functionalism refers to the extent to which a characteristic or difference in an animal serves an adaptive role; LO 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Learning Objective: 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Difficulty Level: Moderate
Skill Level: Apply What You Know

EOM_1.2.2
Question: _____ occurs when a particular characteristic allows an organism to be more reproductively successful, causing that characteristic to become more prevalent in that species.

a) Natural selection
b) Darwinism
c) Artificial selection
d) Mutation

Answer: a
Consider This: This process allows species to adapt to their changing environments; LO 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Learning Objective: 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM_1.2.3
Question: Which statement is correct regarding mutations?

a) They are always accidental changes in chromosomes of sperm or eggs.
b) Spontaneous mutations always result in extinction for a species.
c) Mutations are never found in nature.
d) Mutations always involve negative changes.

Answer: a
Consider This: Natural selection occurs due to spontaneous mutations; LO 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Learning Objective: 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Difficulty Level: Easy
Skill Level: Understand the Concepts

EOM_1.2.4
Question: Neoteny refers to:
a) slow brain maturation after birth
b) any species that has small brains.
c) the failure of a brain to develop.
d) animals that are able to fend for themselves after birth.
Answer: a
Consider This: The term "neoteny" means "extended youth"; LO 1.4: Identify factors involved in the evolution of large brains in humans.
Learning Objective: 1.4: Identify factors involved in the evolution of large brains in humans.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM_1.2.5
Question: In humans, the brain reaches adult size by:
a) adolescence.
b) infancy.
c) early childhood.
d) old age.
Answer: a
Consider This: The human brain has to nearly quadruple in size from the time an individual is born; LO 1.4: Identify factors involved in the evolution of large brains in humans.
Learning Objective: 1.4: Identify factors involved in the evolution of large brains in humans.
Difficulty Level: Easy
Skill Level: Remember the Facts

Assignment: Quiz: 1.3 Ethical Issues in Research with Humans and Other Animals

EOM_1.3.1
Question: Any time humans use another species of animal for their own purposes, they should make sure their activities are _____ and _____.

a) private; anonymous
b) public; federally-funded
c) humane; worthwhile
d) profitable; marketable

Answer: c
Consider This: Animals are used by humans for many purposes, but there are common principles that should be applied to all these uses; LO 1.5: Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Learning Objective: 1.5: Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Difficulty Level: Easy
Skill Level: Understand the Concepts

EOM_1.3.2
Question: Research with animals is:

a) highly regulated in most industrially developed societies.
b) largely unregulated because animals are not viewed as having rights.
c) typically lacking in oversight because research universities are unprepared for animal research.
d) only partially regulated, with marine life receiving the greatest protections.

Answer: a
Consider This: Any institution that uses animals needs to have an Institutional Animal Care and Use Committee (IACUC); LO 1.5: Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Learning Objective: 1.5: Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Difficulty Level: Moderate
Skill Level: Remember the Facts

EOM_1.3.3
Question: Research with human participants:

a) is overseen by an Institutional Review Board.
b) is overseen by an Institutional Animal Care and Use Committee.
c) does not pose ethical challenges and does not require oversight.
d) poses too many ethical challenges to be used in behavioral neuroscience research.

Answer: a
Consider This: Work with human participants is subject to strict regulation and is reviewed and approved by a board of experts and lay persons; LO 1.6: Discuss ethical considerations in research with human participants.
Learning Objective: 1.6: Discuss ethical considerations in research with human participants.
Difficulty Level: Moderate
Skill Level: Analyze it

EOM_1.3.4
Question: A potential research participant should not sign an informed consent form if it is missing
a) a clear statement of the researcher's hypothesis.
b) background literature about the research area.
c) a statement of the anticipated benefits and costs of participation.
d) the researcher's opinions about previous experiments in the area of study.
Answer: c
Consider This: What information would be necessary for a participant to decide whether she or he wanted to take part in the study? LO 1.6: Discuss ethical considerations in research with human participants.
Learning Objective: 1.6: Discuss ethical considerations in research with human participants.
Difficulty Level: Moderate
Skill Level: Apply What You Know

EOM_1.3.5
Question: Which recommendation was made to address the emerging field of neuroethics?
a) Ethics education should be improved for researchers working with human participants.
b) Ethics education should be improved for researchers working with animals.
c) Ethics and science should be integrated at all levels of education.
d) Ethics and science should be integrated at the highest levels of education.
Answer: c
Consider This: A panel of experts investigated the implications and best practices of ethics in neuroscience research with humans; LO 1.6: Discuss ethical considerations in research with human participants.
Learning Objective: 1.6: Discuss ethical considerations in research with human participants.
Difficulty Level: Difficult
Skill Level: Understand the Concepts

Assignment: Quiz: 1.4 Careers in Behavioral Neuroscience and Strategies for Learning

EOM_1.4.1
Question: Being a professional behavioral neuroscientist directing a research program typically requires a/an

a) doctoral degree (PhD).
b) Master of Arts (MA) degree.
c) Associate of Arts (AA) degree.
d) Bachelor of Arts (BA) degree.

Answer: a
Consider This: Most neuroscientists work in universities or hospitals that require advanced degrees; LO 1.7: Identify careers in behavioral neuroscience.
Learning Objective: 1.7: Identify careers in behavioral neuroscience.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM_1.4.2
Question: Professionals in behavioral neuroscience departments can include faculty from which background(s)?

a) Biology
b) Biology or psychology
c) Biology, psychology, or chemistry
d) Biology, psychology, chemistry, or computer science

Answer: d
Consider This: Behavioral neuroscience is diverse interdisciplinary field; LO 1.7: Identify careers in behavioral neuroscience.
Learning Objective: 1.7: Identify careers in behavioral neuroscience.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOM_1.4.3
Question: Graduate students in neuroscience are expected to:

a) conduct independent research.
b) write literature reviews without conducting independent research.
c) serve as a research assistant, never conducting independent research.
d) work with patients to prescribe appropriate medications.

Answer: a
Consider This: Graduate students are often required to think independently and are given greater responsibility at this level; LO 1.7: Identify careers in behavioral neuroscience.
Learning Objective: 1.7: Identify careers in behavioral neuroscience.
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM_1.4.4
Question: Which would be the best study tool for learning about behavioral neuroscience as you use this textbook?

a) Reading the chapter.
b) Highlighting important information as you read the chapter.
c) Underlining important information as you read the chapter.
d) Taking notes that organize the important information in your own words.

Answer: d
Consider This: Study methods that require you to generate your own material or organize your thoughts are superior when it comes to recall; LO 1.8: Identify effective learning strategies for studying behavioral neuroscience.
Learning Objective: 1.8: Identify effective learning strategies for studying behavioral neuroscience.
Difficulty Level: Moderate
Skill Level: Understand the Concepts

EOM_1.4.5
Question: When studying for an upcoming examination, it would be best to study:

a) in a single session one hour prior to the exam.
b) in a single session the night before the exam.
c) in several sessions during the weeks preceding the exam.
d) right before going to sleep.

Answer: c
Consider This: Our brains recall information that is presented repeatedly rather than a single time; LO 1.8: Identify effective learning strategies for studying behavioral neuroscience.
Learning Objective: 1.8: Identify effective learning strategies for studying behavioral neuroscience.
Difficulty Level: Moderate
Skill Level: Understand the Concepts

Assignment: Chapter 1 Quiz: Origins of Behavioral Neuroscience

EOC_1.1
Question: A neuroscientist wants to understand people's perception of pain, so she focuses on the chemical changes that take place at a cellular level when pain is experienced. This approach would be an example of

a) generalization.
b) reduction.
c) separatism.
d) validity.

Answer: b
Consider This: The term "general" typically means widespread, whereas "reduce" means to make something smaller or more simple; LO 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Learning Objective: 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Difficulty Level: Easy
Skill Level: Apply What You Know

EOC_1.2
Question: A researcher explains basic memory processes as an example of a broad phenomenon that applies to all people. This approach is consistent with the principle of

a) reductionism.
b) generalization.
c) reflexes.
d) functionalism.

Answer: b
Consider This: The researcher is offering an overall conclusion based on converging lines of evidence; LO 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Learning Objective: 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOC_1.3
Question: Neuroscientists focus on _____ in explaining their phenomena of interest.

a) generalization
b) reductionism
c) reductionism and generalization
d) separatism

Answer: c
Consider This: Researchers typically want to find specific causes and ensure those causes apply to the majority of situations; LO 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Learning Objective: 1.1: Compare the roles of generalization and reduction in behavioral neuroscience research.
Difficulty Level: Moderate
Skill Level: Apply What You Know

EOC_1.4
Question: The French philosopher René Descartes, who first described and studied reflexes, was a
a) monist.
b) dualist.
c) separatist.
d) revolutionary.
Answer: b
Consider This: Descartes believed each person possessed a mind that was not subject to the laws of the universe; LO 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Learning Objective: 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC_1.5
Question: _____ conducted experimental ablation in animals whereas _____ applied the concept of experimental ablation to humans.
a) Flourens; Broca
b) Broca; Flourens
c) Müller; Flourens
d) Müller; Broca
Answer: a
Consider This: Ablation involves removing a portion of brain and observing the effects on behavior; LO 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Learning Objective: 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Difficulty Level: Moderate
Skill Level: Remember the Facts

EOC_1.6
Question: _____ developed the doctrine of specific nerve energies.
a) Pierre Flourens
b) Johannes Müller
c) Paul Broca
d) Luigi Galvani
Answer: b
Consider This: This person is considered one of the most important figures in the development of experimental physiology; LO 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Learning Objective: 1.2: Summarize contributions to the modern field of behavioral neuroscience made by individuals involved in philosophy, physiology, or other disciplines.
Difficulty Level: Easy
Skill Level: Remember the Facts

EOC_1.7
Question: Over successive generations, moths develop spots that resemble eyes on their wings that scare off predators. This characteristic would be a(n) _____.
a) selective advantage
b) genetic susceptibility
c) artificial disadvantage
d) selective disadvantage
Answer: a
Consider This: Moths with this adaptation would live to reproduce; LO 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Learning Objective: 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Difficulty Level: Easy
Skill Level: Understand the Concepts

EOC_1.8
Question: Praying mantises are typically green or brown in color to allow them to blend in with their surroundings. If a group of praying mantises were born a different color, they would be at an adaptive disadvantage. This color change, although not helpful to the mantis, could happen naturally through the process of _____.
a) mutation.
b) gene splicing.
c) artificial selection.
d) functionalism.
Answer: a
Consider This: Accidental changes in chromosomes can affect the characteristics of the individuals that possess them; LO 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Learning Objective: 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Difficulty Level: Easy
Skill Level: Understand the Concepts

EOC_1.9
Question: Color vision in humans was a functional development; not all animals have this ability. What made this ability functional?

a) It allows for night vision.
b) It allows for selecting ripe fruits.
c) It enabled bipedalism.
d) It allows for shape recognition.

Answer: b
Consider This: Functionalism means that the development serves a purpose for humans. Which outcome would be a benefit to humans that depends on color vision? LO 1.4: Identify factors involved in the evolution of large brains in humans.
Learning Objective: 1.4: Identify factors involved in the evolution of large brains in humans.
Difficulty Level: Difficult
Skill Level: Apply What You Know

EOC_1.10
Question: How is brain size related to body size across species?

a) The size of the brain does not have to go up proportionally with the size of the body.
b) Larger animals paradoxically tend to have smaller brains.
c) As body size increases, brain size also increases in a linear fashion.
d) Humans are the only species that shows a 1-to-1 correspondence between brain size and body size.

Answer: a
Consider This: Factors other than size and proportion are important in determining brain power; LO 1.4: Identify factors involved in the evolution of large brains in humans.
Learning Objective: 1.4: Identify factors involved in the evolution of large brains in humans.
Difficulty Level: Moderate
Skill Level: Apply What You Know

EOC_1.11
Question: Mutations are:

a) always deleterious.
b) always favorable.
c) always unfavorable.
d) always accidental changes in the chromosomes.

Answer: d
Consider This: A small percentage of mutations are beneficial and confer a selective advantage on the organism that possesses them; LO 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Learning Objective: 1.3: Describe the role of natural selection in the evolution of behavioral traits.
Difficulty Level: Difficult
Skill Level: Analyze it

EOC_1.12
Question: Why can't animal research be abandoned in favor of research using tissue cultures or computer simulations?

a) Tissue cultures are regulated to an even greater extent than animal research.
b) Access to powerful computers is limited in behavioral research.
c) These methods are not effective substitutes for complex living organisms.
d) These methods would require involving biologists and computer scientists in behavioral neuroscience, thereby diluting the field.

Answer: c
Consider This: If we could program a computer to precisely mimic the action of a living nervous system, it would mean we already had all the answers to all our questions; LO 1.5: Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Learning Objective: 1.5: Outline reasons for the use of animals in behavioral neuroscience research and the regulations in place for oversight of this research.
Difficulty Level: Moderate
Skill Level: Analyze it

EOC_1.13
Question: Jerry was asked to participate in a study investigating the effect of a pain reliever on muscle tears. In order to test the effectiveness of the drug, Jerry will need to engage in physical activity that results in small tears in the muscles of his forearm. Jerry should be aware that all studies involving human participants must include

a) freedom from risks.
b) monetary benefits for participants.
c) informed consent.
d) parental consent even if the participant is over age 18.

Answer: c
Consider This: What would need to be in place for Jerry to fully understand what is being asked of him?
LO 1.6: Discuss ethical considerations in research with human participants.
Learning Objective: 1.6: Discuss ethical considerations in research with human participants.
Difficulty Level: Moderate
Skill Level: Apply What You Know

EOC_1.14
Question: What do behavioral neuroscientists study?

a) The chemical changes that occur in the nervous systems of mammals.
b) The physiology of rodent brains.
c) The anatomy of the human nervous system.
d) How the nervous system interacts with the rest of the body to control behavior.

Answer: d
Consider This: Behavioral neuroscience is part of the larger field of neuroscience, with an emphasis on understanding the biological basis of behavior; LO 1.7: Identify careers in behavioral neuroscience.
Learning Objective: 1.7: Identify careers in behavioral neuroscience.
Difficulty Level: Easy
Skill Level: Understand the Concepts

EOC_1.15
Question: Which of the following methods would best help you learn about behavioral neuroscience using this text?

a) Teaching another person the material.
b) Concentrating your study sessions into a single marathon session.
c) Studying the easiest material first.
d) Studying in a noisy environment to train yourself to focus.

Answer: a
Consider This: Engaging with the material actively rather than passively reading will result in better recall of information; LO 1.8: Identify effective learning strategies for studying behavioral neuroscience.
Learning Objective: 1.8: Identify effective learning strategies for studying behavioral neuroscience
Difficulty Level: Moderate
Skill Level: Understand the Concepts