Behavioral Neuroscience 9th edition Breedlove Test Bank

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Test Bank

to accompany

Behavioral Neuroscience, Ninth Edition

S. Marc Breedlove and Neil V. Watson

Chapter 1: Behavioral Neuroscience: Scope and Outlook

TEST BANK QUESTIONS

Multiple Choice

1. Contact points between neurons are called
a. axons.
b. synapses.
c. nerves.
d. impulses.
Answer: b
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.1 Name the main type of cells found in the brain, and name the connections between them.
Bloom's Level: 1. Remembering

2. Behavioral neuroscience
a. is concerned with how the functioning of the brain, but not its structure, underlies behavior.
b. is concerned with human behavior rather than animal behavior.
c. spans several scientific disciplines.
d. is not concerned with the treatment of behavioral problems.
Answer: c
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.2 List the names of some of the many fields of study related to behavioral neuroscience.
Bloom's Level: 2. Understanding

3. Darwin's theory of evolution through natural selection gave rise to two approaches to experimentation, one of which emphasizes
a. the unique creation of species.
b. differences among species.
c. the discontinuity between behavior and biological processes.
d. the inheritance of acquired characteristics.
Answer: b
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 2. Understanding

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4. Researchers have noted that young rodents develop a capacity to learn before they develop a capacity to form long-term memories. This implies that
a. rodents have poorer memory systems than other mammals.
b. rodents are not appropriate models for studying the fundamentals of memory processes.
c. learning and memory involve different processes.
d. learning does not require functional neural circuits.
Answer: c
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

5. Which question does the *mechanisms* perspective in biological psychology address?
a. How do learning and memory performance change over the life span?
b. What physiological changes in the brain encode memories?
c. What are the prospects for a "smart pill" to improve memory performance?
d. What pattern of movements must an animal make in order to learn a maze?
Answer: b
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

6. Which question is an example of the *comparative/evolutionary* perspective in behavioral neuroscience?
a. To what extent can different species see color?
b. What environmental experiences in early life are required for vision to develop normally?
c. What kind of treatments can correct faulty vision?
d. How are the visual areas of the brain organized?
Answer: a
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

7. Which question derives from the *functional* description of behavior?
a. How does mating depend on hormones in different species?
b. How are the sounds of speech patterned?
c. How do specialized patterns of behavior contribute to mating and to care of offspring?
d. How do reproductive behaviors develop over the life span?
Answer: c
Textbook Reference: 1.1 The Brain Is Full of Surprises

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Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

8. The process by which an individual changes over the life span is called
a. phylogeny.
b. ontogeny.
c. reductionism.
d. phrenology.
Answer: b
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 1. Remembering

9. Which statement represents a *structural* description of behavior?
a. Different species of mammals produce similar types of hormones.
b. The symptoms of Parkinson's disease are related to depletion of a specific neurotransmitter.
c. When an animal learns, the number and morphology of neuron connections change in specific brain regions.
d. The amount of aggressive behavior between male rodents changes after puberty.
Answer: c
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

10. A factor manipulated by an experimenter is called a(n)
a. dependent variable.
b. somatic intervention.
c. independent variable.
d. correlation.
Answer: a
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.1 Differentiate between the independent and dependent variables in scientific experiments.
Bloom's Level: 1. Remembering

11. Which of the following is an example of a somatic intervention study?
a. Measurements of the extent of brain abnormalities in patients with schizophrenia
b. Observations of patterns of brain activity in animals trained in a maze
c. Measurements of hormones in male rats exposed to female rats
d. Observations of the effects of giving a drug to some rats but not to others
Answer: d
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior

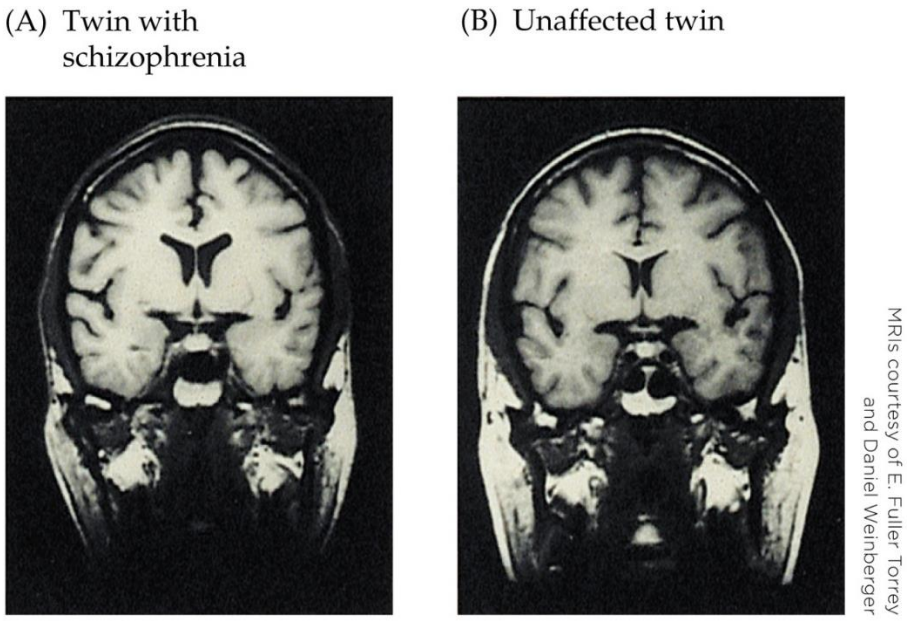
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Learning Objective: 1.2.2 Name the type of research in which a part of the brain is manipulated to observe effects on behavior, and offer examples.
Bloom's Level: 3. Applying

12. Which of the following is an example of a behavioral intervention study?
a. Measurements of the extent of brain abnormalities in patients with schizophrenia
b. Observations of patterns of brain activity in animals trained in a maze
c. Measurements of hormones in male rats exposed to female rats
d. Observations of the effects of giving a drug to some rats but not to others
Answer: b
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.3 Name the type of research in which behavior or experience is manipulated to observe effects on the brain, and offer examples.
Bloom's Level: 3. Applying

13. Refer to the figure.



A researcher who is studying schizophrenia examines the images above. What sort of study is this researcher conducting?
a. A study to determine causality
b. A somatic intervention
c. A behavioral intervention
d. A correlational study
Answer: d
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.4 Describe correlational research about the brain and behavior, and offer examples.
Bloom's Level: 3. Applying

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14. The behavioral neuroscience perspective on social behavior is particularly concerned with
a. vision.
b. learning and memory.
c. hormones.
d. the sense of smell.
Answer: b
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 2. Understanding

15. Young rats that have been raised in isolation, rather than in the company of other rats, often exhibit
a. unusual aggression.
b. changes in many brain regions.
c. depression.
d. a decrease in the size of an odor processing structure.
Answer: d
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 1. Remembering

16. Winning a game of chess is likely to cause a man's _____ levels to _____.
a. testosterone; decrease
b. norepinephrine; increase
c. testosterone; increase
d. adrenalin; decrease
Answer: c
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 1. Remembering

17. Which statement is an example of neuroplasticity?
a. Exercise causes an increase in neuron survival.
b. An enriched environment causes an increase in the number of synapses.
c. The association of a noxious and a harmless stimulus causes an increased response to the harmless stimulus when it is presented alone.
d. All of the above
Answer: d
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 2. Understanding

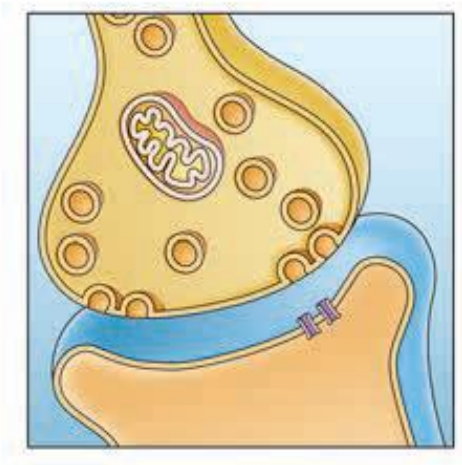
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18. Which statement about the use of multiple levels of analysis in research is *false*?
a. A given behavior or function may be addressed at different levels of analysis.
b. The brain and spinal cord together are classified as part of the "organ" level of analysis.
c. Each level of analysis considers units that are more basic or simpler than the level above.
d. A single nerve cell is the most basic unit of analysis in behavioral neuroscience.
Answer: d
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 2. Understanding

19. Which statement represents the most reductionist explanation of an observed phenomenon?
a. A group of fish form a school to avoid predation.
b. Muscle contractions are caused by spinal cord neurons.
c. Each neurotransmitter released by neurons must bind to a specific receptor protein.
d. The eyes send light information to the visual cortex at the back of the brain.
Answer: c
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 5. Evaluating

20. Refer to the figure, which illustrates the gap between two neurons.



Which level of analysis is pictured in the figure?
a. Neural systems
b. Circuit level
c. Synaptic level

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d. Molecular level
Answer: c
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 2. Understanding

21. A researcher can determine how much of the human brain is used for even the simplest of tasks by
a. looking at brain activity in brain scans.
b. measuring a person's brain size.
c. administering IQ tests.
d. measuring how much a person sleeps.
Answer: a
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 2. Understanding

22. Brain scans show that different language tasks activate
a. the same brain areas.
b. only one brain area.
c. different brain areas.
d. the same brain areas if words are read or only seen.
Answer: c
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 1. Remembering

23. In humans, about how much of the brain is used during routine, day-to-day activities?
a. 10%
b. 25%
c. 50%
d. 100%
Answer: d
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.2 Give a survey of important ongoing questions about the relationship between the brain and behavior.
Bloom's Level: 2. Understanding

24. At a given moment, the proportion of the world's population suffering from neurologic and/or psychiatric disorders is about
a. 1%.
b. 15%.
c. 20%.

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d. 38%.
Answer: c
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 2. Understanding

25. Studies of identical twins in which one twin has schizophrenia have revealed a relationship between schizophrenia and enlargement of the
a. cerebral ventricles.
b. anterior cingulate.
c. cerebral arteries.
d. pineal gland.
Answer: a
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

26. Each year, the direct and indirect costs of psychiatric and neurological disorders in the United States amount to about
a. $40 million.
b. $400 million.
c. $40 billion.
c. $400 billion.
Answer: d
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

27. Which of the following neurological disorder(s) is(are) *least* prevalent in the United States?
a. Huntington's and Parkinson's diseases
b. Epilepsy
c. Stroke
d. Alzheimer's disease
Answer: a
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

28. Which statement about mental health disorders is *true*?
a. The cost of cancer is greater than the cost of treating neurological diseases.

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b. The cost of treating dementia is greater than the cost of treating heart disease and cancer combined.
c. There are more people with cerebral palsy than people who have had a stroke.
d. There are more people who have had a stroke than people who have mood disorders.
Answer: b
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

29. Which statement about animal research is *false*?
a. Most Americans believe that animals should not be used for research.
b. Over 90% of mammals used for research are laboratory-raised rodents.
c. The use of animals for research is highly regulated.
d. Animal research has provided treatments for minimizing pain in animals.
Answer: a
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.4 Explain the importance of research with animals for neuroscience, and discuss the ethics of such research.
Bloom's Level: 1. Remembering

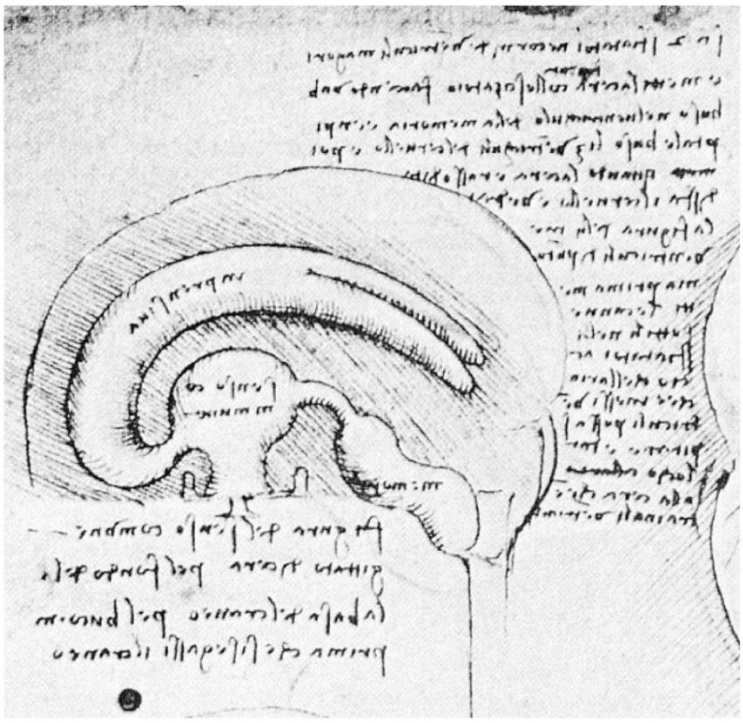
30. Aristotle thought that the brain's major function was to
a. remove wastes from the body.
b. control behavior.
c. cool the blood.
d. contain the soul.
Answer: c
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.1 Trace the historical point at which the brain was recognized as the control unit for behavior.
Bloom's Level: 1. Remembering

31. The Greek physician _____ noted that separate spinal nerves connect to each region of the body.
a. Galen
b. Hebb
c. Galton
d. Herophilus
Answer: d
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.1 Trace the historical point at which the brain was recognized as the control unit for behavior.
Bloom's Level: 1. Remembering

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32. Refer to the figure.



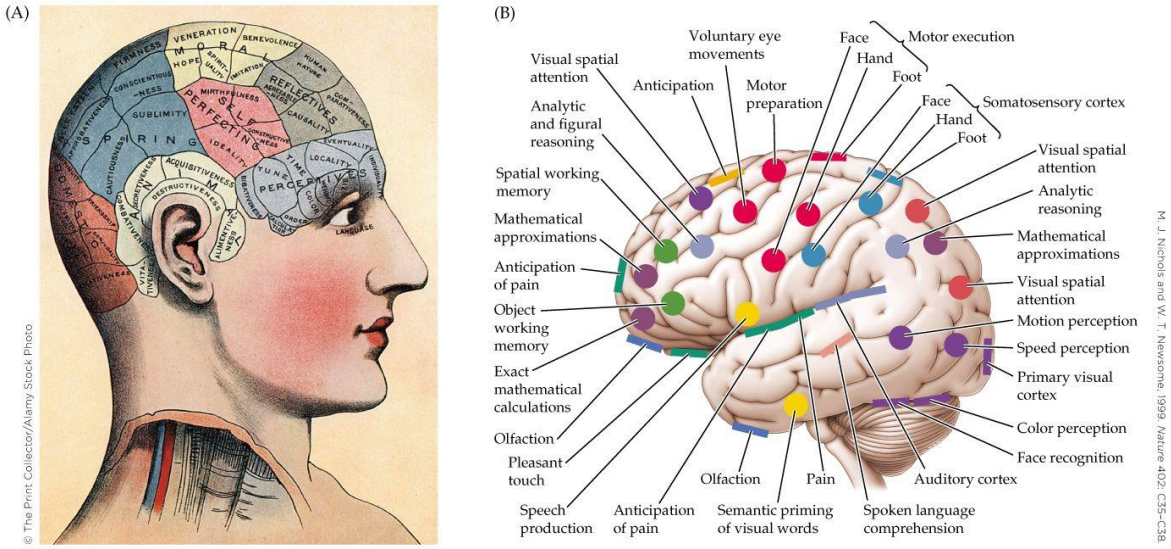
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Which statement accurately identifies the figure?
a. This is a page from the notes of Galen, the physician.
b. This is an accurate drawing of ventricles by da Vinci.
c. This is a drawing of an ox's ventricles by Michelangelo.
d. This is a drawing of the pineal gland from Descartes' notes.
Answer: b
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.2 Discuss the importance of the Renaissance in better understanding human anatomy.
Bloom's Level: 1. Remembering

33. The concept of dualism was proposed by
a. William James.
b. Donald Hebb.
c. Francis Galton.
d. René Descartes.
Answer: d
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.3 Explain Descartes's contribution to early neuroscience and his now discredited ideas of dualism.
Bloom's Level: 1. Remembering

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34. Refer to the figure.



Which statement accurately describes the information represented by the figure?
a. There is evidence that the brain functions as a whole.
b. Phrenology localizes areas of peak activation in the brain.
c. It is possible to determine a person's strengths from the shape of their head.
d. There is localization in the brain, but it does not reliably correspond to bumps on the head.
Answer: b
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 3. Applying

35. Which statement is supported by phrenology?
a. The brain functions as a whole.
b. There is some localization of function in the brain.
c. Visual processing occurs in several lobes of the brain.
d. There is more than one brain area that is responsible for aggression.
Answer: b
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 5. Evaluating

36. When Sir Francis Galton invented the correlation coefficient, he looked at the relationship between
a. brain size and intelligence.

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b. skull volume and brain size.
c. skull volume and intelligence.
d. head size and estimates of intelligence.
Answer: d
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 1. Remembering

37. In studying brain-damaged patients exhibiting language difficulties, Paul Broca discovered that a particular region in the _____ part of the brain appears to be especially important.
a. right temporal
b. right frontal
c. left frontal
d. left cerebellar
Answer: c
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 1. Remembering

38. The beginnings of modern behavioral neuroscience are attributed to the work of _____, who proposed that cognitive processes are properties of the nervous system.
a. William James
b. Karl Lashley
c. Francis Galton
d. René Descartes
Answer: a
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 1. Remembering

39. Measurements of learning and memory were carried out by many scientists. Which of the following was *not* one of them?
a. William James
b. Edward Thorndike
c. Hermann Ebbinghaus
d. Ivan Pavlov
Answer: a
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity

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Learning Objective: 1.4.5 Discuss the difficult question of consciousness and the explosion of neuroscience research.
Bloom's Level: 1. Remembering

40. _____ can be defined as a state of awareness of one's own existence and experience.
a. Arousal
b. Sensation
c. Consciousness
d. Stimulation
Answer: c
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.5 Discuss the difficult question of consciousness and the explosion of neuroscience research.
Bloom's Level: 1. Remembering

Fill in the Blank

41. The most commonly used experimental approach in behavioral neuroscience is _____.
Answer: somatic intervention
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.2 Name the type of research in which a part of the brain is manipulated to observe effects on behavior, and offer examples.
Bloom's Level: 2. Understanding

42. In a recent experiment, subjects who believed they would experience discomfort in response to a stimulus exhibited increased activation of the _____ compared to subjects who believed they would experience minimal discomfort, even though the stimulus (warm water) was identical in both groups.
Answer: anterior cingulate
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.3 Name the type of research in which behavior or experience is manipulated to observe effects on the brain, and offer examples.
Bloom's Level: 1. Remembering

43. Young rats raised in isolation show changes in brain regions associated with the processing of _____.
Answer: odors
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 1. Remembering

44. A feature of neurons that is particularly plastic is the _____.

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Answer: dendritic spine (or synaptic spine)
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: Not aligned
Bloom's Level: 1. Remembering

45. The scientific approach known as _____ involves analysis at a simpler or more basic level of organization than the structure or function to be explained.
Answer: reductionism
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 1. Remembering

46. The three most prevalent psychiatric disorders are related to anxiety, impulse control (or attention deficit), and _____.
Answer: mood
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis Human Disorders
Learning Objective: 1.3.3 Offer estimates of the 3extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

47. A major goal of behavioral neuroscience is to improve the health and well-being of humans and other _____.
Answer: animals
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.4 Explain the importance of research with animals for neuroscience, and discuss the ethics of such research.
Bloom's Level: 2. Understanding

48. Researchers have a responsibility to minimize the _____ of their animal subjects.
Answer: discomfort (or pain)
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Bloom's Level: 1. Remembering

49. The Greek physician _____ noted that separate spinal nerves connect to each region of the body.
Answer: Herophilus
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.1 Trace the historical point at which the brain was recognized as the control unit for behavior.
Bloom's Level: 1. Remembering

50. Descartes believed, incorrectly, that only the brains of humans contain a _____.
Answer: pineal gland

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Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.3 Explain Descartes's contribution to early neuroscience and his now-discredited ideas of dualism.
Bloom's Level: 1. Remembering

51. Broca described a region located in the anterior part of the _____ hemisphere that is especially important for language functions.
Answer: left
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 1. Remembering

52. Many modern neuroscientists are interested in the idea of _____ synapses, which may change in strength through use.
Answer: Hebbian
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 1. Remembering

53. Karl Lashley was engaged in a program of research that has been called the "search for the _____."
Answer: engram
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 1. Remembering

54. The Human Brain Project aims to produce a(n) _____ re-creation of the human brain.
Answer: digital
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.5 Discuss the difficult question of consciousness and the explosion of neuroscience research.
Bloom's Level: 1. Remembering

55. There is a small but significant correlation between brain size and _____ in humans.
Answer: IQ (or intelligence quotient)

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Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: Not aligned
Bloom's Level: 1. Remembering

Essay/Discussion

Prepare a comprehensive discussion for each of the following topics:

56. Select a particular kind of behavior and list the types of questions that are suggested by the five major research perspectives that characterize behavioral neuroscience.
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

57. Describe two major principles that characterize evolutionary perspectives on behavior, and explain the advantages of using both perspectives in studying neural function across different species of animals.
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 2. Understanding

58. Describe the three major research designs employed by researchers in behavioral neuroscience and give an example of each.
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.1 Differentiate between the independent and dependent variables in scientific experiments.
Bloom's Level: 2. Understanding

59. Discuss the importance of neuroplasticity as it relates to the reciprocal relationship between the brain and body.
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 2. Understanding

60. Discuss the prevalence and economic impact of neurological and psychiatric disorders, citing statistics to support your statements.
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 2. Understanding

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61. Explain the importance of animal research for studying behavioral neuroscience. Why do most behavioral neuroscientists support the use of animal experimentation?
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.4 Explain the importance of research with animals for neuroscience, and discuss the ethics of such research.
Bloom's Level: 2. Understanding

62. Explain Descartes's view of the relationship between mind and body. How do modern behavioral neuroscientists feel about Descartes's view?
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.3 Explain Descartes's contribution to early neuroscience and his now discredited ideas of dualism.
Bloom's Level: 2. Understanding

63. Describe some of the issues surrounding attempts to relate brain size to intelligence, and summarize current opinion on this issue.
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 2. Understanding

64. Describe the discoveries that led scientists to support the concept of localization of function in the brain.
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 2. Understanding

65. What do most neuroscientists agree upon regarding consciousness? What must be a part of any explanation of consciousness?
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.5 Discuss the difficult question of consciousness and the explosion of neuroscience research.
Bloom's Level: 2. Understanding

Paragraph Development

66. Write a coherent and informative paragraph incorporating each of the following terms or concepts: evolutionary; mechanisms; descriptive; developmental.
Text Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.

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Bloom's Level: 3. Applying

67. Write a coherent and informative paragraph incorporating each of the following terms or concepts: somatic intervention; behavioral intervention; correlation approach.
Text Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.2 Name the type of research in which a part of the brain is manipulated to observe effects on the brain, and offer examples; 1.2.3 Name the type of research in which behavior or experience is manipulated to observe effects on the brain, and offer examples; 1.2.4 Describe correlational research about the brain and behavior, and offer examples.
Bloom's Level: 3. Applying

68. Write a coherent and informative paragraph incorporating each of the following terms or concepts: Descartes; dualism; pineal gland; machine.
Text Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.3 Explain Descartes's contribution to early neuroscience and his now-discredited ideas of dualism.
Bloom's Level: 3. Applying

69. Write a coherent and informative paragraph incorporating each of the following terms or concepts: brain maps; peaks of activation; localization of function.
Text Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 3. Applying

70. Write a coherent and informative paragraph incorporating each of the following terms or concepts: phrenology; IQ; skull volume; correlation
Text Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.4 Trace the history of phrenology and the relationship to modern thinking about brain and behavior.
Bloom's Level: 3. Applying

Matching

71. Match each of the following lettered items with an item from the numbered list below.
_____ a. Determining brain-wave patterns in people with varying IQs
_____ b. Observing the sexual responses of castrated rats
_____ c. Quantifying changes in the synaptic spines of rats after training in a maze
_____ d. Raising mice in isolation and measuring brain biochemistry in adulthood
_____ e. Injecting a drug into a brain region of an animal and observing aggressive encounters when it is placed in a cage with other animals

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_____ f. Comparing the size of brain regions in homosexual and heterosexual men
_____ g. Examining the organization of visual areas of the brain in animals that live in constant darkness
1. Somatic intervention
2. Behavioral intervention
3. Correlation
Answer: a. 3; b. 1; c. 2; d. 2; e. 1; f. 3; g. 2
Text Reference: 1.2 Three Approaches Relate to Brain and Behavior
Learning Objective: 1.2.2 Name the type of research in which a part of the brain is manipulated to observe effects on behavior, and offer examples; 1.2.3 Name the type of research in which behavior or experience is manipulated to observe effects on the brain, and offer examples; 1.2.4 Describe correlational research about the brain and behavior, and offer examples.
Bloom's Level: 3. Applying

CHAPTER QUIZ QUESTIONS

Multiple Choice

1. Which question reflects a comparative/evolutionary perspective?
a. What hormonal treatments can alleviate sexual problems?
b. How are hormones involved in mating in different species of mammals?
c. How do reproductive behaviors change during the life span?
d. What are the patterns of mating behavior in humans?
Answer: b
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

2. Certain classes of hormones modulate sexual behavior in many different species of vertebrates. This phenomenon is evidence of
a. the relatively small role that the nervous system plays in some forms of behavior.
b. the strong similarities of the environments that the animals inhabit.
c. the evolutionary continuity of species.
d. species-specific behavior.
Answer: c
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 3. Applying

3. The term "somatic intervention" refers to
a. research procedures that alter the structure or function of the body.
b. any type of experimental treatment.

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c. the consequences of experimental alteration of the brain or body.
d. the effects of forced changes in behavior.
Answer: a
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.2 Name the type of research in which a part of the brain is manipulated to observe effects on behavior, and offer examples.
Bloom's Level: 1. Remembering

4. An experiment in which an animal's brain activity is mapped following exposure to a particular visual stimulus is an example of a
a. nonexperimental study.
b. behavioral intervention.
c. correlation study.
d. somatic intervention.
Answer: b
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.3 Name the type of research in which behavior or experience is manipulated to observe effects on the brain, and offer examples.
Bloom's Level: 3. Applying

5. Which procedure would be part of a correlational study?
a. Severing the connections between the two sides of the brain
b. Observing the pattern of brain activity of rats that have been trained in a maze
c. Giving a drug to some animals but not to others
d. Measuring the extent of brain abnormalities in people with schizophrenia
Answer: d
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.4 Describe correlational research about the brain and behavior, and offer examples.
Bloom's Level: 3. Applying

6. The ability of the brain to be changed by environmental inputs throughout the life span is called
a. plasticity.
b. ontogeny.
c. dominance.
d. dementia.
Answer: a
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 1. Remembering

7. Dendritic spines can change shape in the course of
a. seconds.
b. minutes.

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c. hours.
d. days.
Answer: a
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 1. Remembering

8. Scientific explanations usually involve analysis on a simpler or more basic level of organization than that of the structure or function to be explained. This approach is known as
a. conservation.
b. reductionism.
c. levels of analysis.
d. contextualism.
Answer: b
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 1. Remembering

9. Which statement is *false*?
a. People use their entire brains to do mundane tasks.
b. There are no differences between the brains of heterosexual and homosexual men.
c. Some people who have experienced certain kinds of brain damage are incapable of judging the emotions of other people.
d. Sometimes brain damage causes a person to lose the ability to recognize other people's faces.
Answer: b
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.2 Give a survey of important ongoing questions about the relationship between the brain and behavior.
Bloom's Level: 2. Understanding

10. Worldwide, an estimated _____% will suffer from a mental disorder in a typical year.
a. 8
b. 15
c. 25
d. 38
Answer: d
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

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11. Which neurological disorder has the highest prevalence in the United States?
a. Stroke
b. Parkinson's disease
c. Epilepsy
d. Alzheimer's disease
Answer: a
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 1. Remembering

12. About _____% of the animals used in research are *not* lab-reared rodents.
a. 7
b. 17
c. 25
d. 93
Answer: a
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.4 Explain the importance of research with animals for neuroscience, and discuss the ethics of such research.
Bloom's Level: 1. Remembering

13. Galen's views about the bodily origins of behavior were based on his observations of
a. the ventricular systems of humans and animals.
b. the effects of heart injuries on behavior.
c. spinal reflexes.
d. the effects of head injuries in gladiators.
Answer: d
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.1 Trace the historical point at which the brain was recognized as the control unit for behavior.
Bloom's Level: 1. Remembering

14. The notion of dualism as proposed by Descartes stated that
a. the mind and the brain are one and the same.
b. humans have a nonmaterial soul and a material body that are not the same.
c. humans have a nonmaterial soul and a material body that are one and the same.
d. science and the church are one and the same.
Answer: b
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.3 Explain Descartes's contribution to early neuroscience and his now discredited ideas of dualism.
Bloom's Level: 2. Understanding

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15. Personal awareness of one's own emotions, thoughts, movements, and experiences is called
a. the soul.
b. intelligence.
c. consciousness.
d. ego.
Answer: c
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.5 Discuss the difficult question of consciousness and the explosion of neuroscience research.
Bloom's Level: 2. Understanding

Essay

16. Identify the five viewpoints used in behavioral neuroscience research.
Answer: Describing behavior, structurally or functionally
Studying the evolution of behavior
Observing the development of behavior over the life-span
Studying the biological mechanisms of behavior
Studying the applications of behavioral neuroscience
Textbook Reference: 1.1 The Brain Is Full of Surprises
Learning Objective: 1.1.3 Describe five different perspectives taken in understanding the biology of behavior.
Bloom's Level: 1. Remembering

17. Give a basic description, with examples, of each of the three major experimental approaches employed in behavioral neuroscience research.
Answer: In somatic intervention, one adds or subtracts something from an animal's body then observes the behavioral response; give a rat cocaine and then watch its behavior.
In behavioral intervention, one subjects an animal to a condition and then studies the neurological changes: put rats in cages alone or with other rats and then measure and compare hormones or volume of brain regions in the individuals from both groups.
In correlational studies, one looks at how a body measure varies in relation to a given behavioral measure: compare the severity of a neurological disorder with the magnitude of variation in brain structure or activity.
Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.2 Name the type of research in which a part of the brain is manipulated to observe effects on behavior, and offer examples.
Bloom's Level: 2. Understanding

18. Name the concept of neural structure and function changing in response to experience, and indicate one observable change.
Answer: Neuroplasticity is the ability of the brain to change in response to the environment and experiences. Dendritic spines on neurons have been observed to change shape within seconds in response to experience.

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Textbook Reference: 1.2 Three Approaches Relate Brain and Behavior
Learning Objective: 1.2.5 Explain why the brain must be capable of changing its structure, and name the term to describe that changeability.
Bloom's Level: 1. Remembering

19. Name and define the seven perspectives that behavioral neuroscience studies, from the level of molecules to that of social systems.
Answer: Molecular level: Studies the changes in the chemistry of the brain.
Synaptic level: Looks at changes in connectivity in the nervous system.
Cellular level: Studies an individual neuron and what it does.
Circuit level: Identifies local circuits of several cells and studies how they interact.
Neural systems level: Considers larger associations of neurons, for instance, all the neurons involved in vision, from the retina to the visual cortices.
Organ level: Considers the brain, spinal cord, peripheral nerves, and eyes.
Social level: Considers the behavior of individuals interacting in social situations.
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.1 Name and describe the scientific approach of explaining mechanisms at simpler and simpler levels.
Bloom's Level: 1. Remembering

20. Summarize the challenges of studying the neuroanatomical components of psychiatric disease.
Answer: Any structural differences between unaffected and affected individuals may have preceded the condition or they may be the result of the condition or treatments for the condition, and it is unknown when the structural difference arose—at birth, at puberty, or after an injury or illness.
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.3 Offer estimates of the extent of neurological and psychiatric disorders.
Bloom's Level: 2. Understanding

21. Present one argument against and one in favor of using animals in research, and provide a rebuttal for each.
Answer: An argument against using animals in research is that it is inhumane; a rebuttal would be that researchers are legally bound to minimize discomfort and pain in laboratory animals. An argument for using animals in research is that information learned from animal research leads to substantial benefits; a rebuttal would be that not all research leads to a breakthrough.
Textbook Reference: 1.3 Behavioral Neuroscientists Use Several Levels of Analysis
Learning Objective: 1.3.4 Explain the importance of research with animals for neuroscience, and discuss the ethics of such research.
Bloom's Level: 3. Applying

22. Modern behavioral neuroscience has discredited many past beliefs regarding the brain, knowledge, and function. Briefly identify four beliefs that we now believe to be incorrect.

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Answer: In ancient Egypt, the people believed organs other than the brain were essential to existence in the afterlife. The Bible mentions the heart as the location for wisdom. Aristotle localized mental capacities to the heart. Descartes believed the pineal gland is the point where the mind and body connect. Thomas Willis believed the bumps on the skull are related to behavioral characteristics. (Accept any four of these five.)
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.1 Trace the historical point at which the brain was recognized as the control unit for behavior.
Bloom's Level: 2. Understanding

23. Name four of the five aspects of consciousness that are agreed upon by most scientists, according to Zeman.
Answer: Consciousness matters; it permits us to do certain important things, like planning and mentally "simulating" what might happen in the future. Consciousness is bound up somehow with the activity of the brain. We are not aware of all of our brain's activities. Some brain activity, and therefore some of our behavior, is unconscious. The deepest parts of our brain are important for arousal. The topmost parts of the brain are responsible for whatever we experience from moment to moment. (Accept any four of these five.)
Textbook Reference: 1.4 The History of Research on the Brain and Behavior Begins in Antiquity
Learning Objective: 1.4.5 Discuss the difficult question of consciousness and the explosion of neuroscience research.
Bloom's Level: 1. Remembering

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