Chapter 2: Neuroscience Approaches to Understanding Psychopathology

Multiple Choice

1. Emotion is processed in the _____.
a. brain only
b. autonomic nervous system only
c. spinal cord
d. brain and autonomic nervous system
Ans: D
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Comprehension
Answer Location:Chapter Introduction
Difficulty Level: Easy

2. One purpose of the sympathetic nervous system is to
a. allow individuals to feel empathy toward other people
b. calm a person down after being startled
c. make us feel excited and move blood to our muscles
d. transmit information regarding fine motor movements to the muscles
Ans: A
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Comprehension
Answer Location:Chapter Introduction
Difficulty Level: Easy

3. The chapter begins by introducing the case of David, a person with Capgras syndrome. The fact that David did not show any changes in electrodermal activity (EDA) when viewing pictures of people close to him suggests that
a. there was significant damage to his frontal lobe
b. there was a disconnect between his visual face perception areas and the emotional centers of the brain
c. he was likely a sociopath
d. he had a dissociative disorder
Ans: B
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Application
Answer Location:Chapter Introduction
Difficulty Level: Medium

4. Brain imaging techniques make it possible to
a. determine how people with mental disorders perform cognitive and emotional tasks differently from those with no disorder
b. diagnose a mental disorder that a person may have
c. determine which mental disorder a person may have
d. determine which treatment plan is best for an individual with a mental disorder
Ans: A

Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Comprehension
Answer Location:The Growing Importance of Neuroscience, Genetics, and an Evolutionary Perspective
Difficulty Level:Medium

5. The brain is incredibly intricate, with neuroscientists estimating that there are approximately _____ different connections in the human brain!
a. 500 billion
b. 5 trillion
c. 50 trillion
d. 500 trillion
Ans: C
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Knowledge
Answer Location:The Growing Importance of Neuroscience, Genetics, and an Evolutionary Perspective
Difficulty Level: Easy

6. _____are the basic building element of the brain.
a. Electrons
b. Neurons
c. Electrodes
d. Neutrons
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location: Brain Anatomy, Neurons, and Neurotransmitters
Difficulty Level: Easy

7. The structures closest to the midline dividing the brain's left and right hemisphere are referred to as_____.
a. medial
b. posterior
c. dorsal
d. lateral
Ans: A
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location:A Quick Review of Brain Anatomy and Function
Difficulty Level:Easy

8. Mrs. Lennox suffers a stroke, damaging a portion of her parietal lobe. Mrs. Lennox will MOST likely experience difficulty in_____.
a. speech comprehension
b. spatial thinking
c. object recognition
d. goal-directed movement
Ans: B

Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Application
Answer Location:A Quick Review of Brain Anatomy and Function
Difficulty Level:Medium

9. Because the parietal lobe is located behind the _____, it is considered _____ to it.
a. central sulcus; anterior
b. central sulcus; posterior
c. corpus callosum; anterior
d. corpuscallosum; posterior
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Comprehension
Answer Location:A Quick Review of Brain Anatomy and Function
Difficulty Level:Medium

10. A synapse is a_____.
a. signal
b. chemical
c. gap
d. joint
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Comprehension
Answer Location: Neurons and Neural Transmission
Difficulty Level: Medium

11. The _____ is an “all-or-none” electrical signal that travels down the axon.
a. synapse
b. action potential
c. dendrite
d. myelin sheath
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location: Neurons and Neural Transmission
Difficulty Level: Easy

12. The _____ is an insulating material that covers the axon and allows the electrical signals to travel at greater speeds.
a. synapse
b. action potential
c. dendrite
d. myelin sheath
Ans: D
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location: Neurons and Neural Transmission
Difficulty Level: Easy

13. In a chemical synapse, the _____ secretes neurotransmitters that are then received by the _____ and change the physiological state of the next neuron.
a. presynaptic terminal; postsynaptic channel receptors
b. synaptic cleft; presynaptic channel receptors
c. dendrites; action potential
d. deoxyribonucleic acid; postsynaptic terminal
Ans: A
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Comprehension
Answer Location: Neurons and Neural Transmission
Difficulty Level: Medium

14. Cocaine inhibits dopamine from being reclaimed by the neuron that sent it into the synapse. Cocaine therefore increases the amount of dopamine present in the synapse by inhibiting a process called_____.
a. restoration
b. reuptake
c. recycling
d. reuse
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Application
Answer Location: How Does the Neuron Pass Information?
Difficulty Level: Medium

15. Most medications used for the treatment of mental illness influence the neurotransmitters in the _____.
a. synapse
b. action potential
c. dendrite
d. myelin sheath
Ans: A
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location: How Does the Neuron Pass Information?
Difficulty Level: Medium

16. Not all neurotransmitters have the same structure. As compared with small-molecule neurotransmitters,larger _____ are involved in slower, ongoing neural activity.
a. glutamate molecules
b. neuropeptides
c. serotonin
d. GABA
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Analysis
Answer Location: Major Neurotransmitters
Difficulty Level: Medium

17. _____ may be considered the brain’s primary neurotransmitter.
a. Serotonin

b. Dopamine
c. Glutamate
d. GABA
Ans: C
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Comprehension
Answer Location: Major Neurotransmitters
Difficulty Level: Easy

18. At the neural level, information is encoded by the _____ of action potentials.
a. intensity
b. complexity
c. duration
d. frequency
Ans: D
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Comprehension
Answer Location: Encoding Information
Difficulty Level: Easy

19. Gloria's classmate whispers a comment to her during a lecture. The instructor loudly asks the classmates if there's something she'd like to share with the class. Neurons in Gloria's _____ lobe should fire more _____ during the instructor's call-out than during the classmate's comment.
a. occipital; intensely
b. occipital; rapidly
c. temporal; intensely
d. temporal; rapidly
Ans: D
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Application
Answer Location: Encoding Information
Difficulty Level: Hard

20. Which statement is FALSE regarding spike trains?
a. The neurons connected to sensory systems all produce similar action potentials to external stimuli.
b. Spike trains are only found in specific regions of the brain.
c. The rate of spiking increases as the stimulus becomes larger.
d. If a given stimulus is continued for a long period of time, the spiking will decrease.
Ans: B
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Analysis
Answer Location: Encoding Information
Difficulty Level: Hard

21. Currently, the major brain imaging techniques do NOT include_____.
a. magnetoencephalography (MEG)
b. positron emission tomography (PET)
c. functional magnetic resonance imaging (fMRI)
d. encephalectomy (EPA)

Ans: D
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Analysis
Answer Location: How Do We Observe the Brain at Work?
Difficulty Level: Medium

22. In _____, brain activity is assessed by recording electrical activity at the scalp.
a. electroencephalography (EEG)
b. magnetoencephalography (MEG)
c. functional magnetic resonance imaging (fMRI)
d. positron emission tomography (PET)
Ans: A
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Knowledge
Answer Location: How Do We Observe the Brain at Work?
Difficulty Level: Easy

23. In _____, brain activity is assessed bymeasuring small magnetic field gradients entering and exiting and entering the scalp.
a. positron emission tomography (PET)
b. electroencephalography (EEG)
c. diffusion tensor imaging (DTI)
d. magnetoencephalography (MEG)
Ans: D
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Knowledge
Answer Location: How Do We Observe the Brain at Work?
Difficulty Level: Easy

24. In a method called _____, researchers use an MRI magnet to track the pattern of cortical connections in the brain.
a. magnetoencephalography (MEG)
b. positron emission tomography (PET)
c. electroencephalography (EEG)
d. diffusion tensor imaging (DTI)
Ans: D
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location: How Do We Observe the Brain at Work?
Difficulty Level: Easy

25. Brent is taking part in an experiment in a cognitive neuroscience lab on campus. Silently, he reads rapid sequences of words flashed on a computer screen. The electrical activity of his brain is simultaneously recorded through skull electrodes. The brain-scanning technique used in this study is _____.
a. diffusion tension imaging (DTI)
b. electroencephalography (EEG)

c. positron emission tomography (PET)
d. functional magnetic resonance imaging (fMRI)
Ans: B
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Application
Answer Location: Electroencephalography
Difficulty Level: Medium

26. The _____ pattern of electrical activity in the brain is associated not only with memory performance but also with coordinating emotional information between the limbic areas and the frontal areas of the brain.
a. alpha
b. beta
c. theta
d. delta
Ans: C
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location: Electroencephalography
Difficulty Level: Easy

27. Gemma drifts from alert wakefulness to a drowsy state as she finishes studying. An electroencephalogram would reveal a change from a(n) _____ pattern of brain activity to a(n) _____ pattern.
a. beta; alpha
b. alpha; beta
c. theta; delta
d. delta; theta
Ans: A
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Application
Answer Location: Electroencephalography
Difficulty Level: Hard

28. Jackie is using cocaine. While cocaine use is associated with a variety of EEG patterns, the text implies that _____ activity is among these patterns.
a. alpha
b. beta
c. theta
d. delta
Ans: D
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Application
Answer Location: Electroencephalography
Difficulty Level: Hard

29. In the brain, the _____ pattern of electrical activity is associated with the inhibitionof the activity of other brain areas.
a. alpha
b. beta
c. theta
d. delta
Ans: A
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Knowledge
Answer Location: Electroencephalography
Difficulty Level: Difficult

30. EEG activity related to a particular event, such as the presentation of a picture or sound, is called _____.
a. classical conditioning
b. event-related potentials (ERPs)
c. a spike train
d. diffusion tension imaging (DTI)
Ans: B
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Application
Answer Location:Evoked Potentials
Difficulty Level: Medium

31. Event-related potentials are _____ evoked potentials.
a. different from
b. the opposite of
c. the same as
d. similar to
Ans: C
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Analysis
Answer Location:Evoked Potentials
Difficulty Level: Medium

32. The main advantage of magnetoencephalography (MEG) over electroencephalography (EEG) is that MEG
a. does not expose the individual to radiation
b. is less costly and timeconsuming
c. better localizes the spatial origin of the signal
d. is less invasive to the individual
Ans: C
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location:Magnetoencephalography
Difficulty Level: Medium

33. Dr. Munakata is using a strong magnet to track bloodoxygen changes in participants' brains as they complete decision-making tasks. Dr. Munakata is using _____ to examine the brain's activity.
a. diffusion tensor imaging (DTI)
b. positron emission tomography (PET)
c. electroencephalography (EEG)
d. functional magnetic resonance imaging (fMRI)
Ans: D
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Application
Answer Location: Functional Magnetic Resonance Imaging
Difficulty Level: Medium

34. Individuals with schizophrenia display (1) decreased brain volumeand (2) a loss of white matter in the brain. Findings 1 and 2MOST likely reflect the results of brain imaging research using _____ and _____, respectively.
a. DTI; fMRI
b. fMRI; EEG
c. fMRI; DTI
d. EEG; DTI
Ans: C
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location: Diffusion Tensor Imaging
Difficulty Level: Hard

35. A researcher plots the amount of white matter in the brain as a function of participants' age, from childhood through old age. Higher values on the *y*-axis indicate more white matter. The graph's function should resemble a(n) _____.
a. straight, negativelysloped line
b. inverted U
c. U-shaped curve
d. horizontal line
Ans: B
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location: Diffusion Tensor Imaging
Difficulty Level: Hard

36. Which brain imaging method has the LEAST precise temporal resolution?
a. positron emission tomography (PET)
b. electroencephalography (EEG)
c. functional magnetic resonance imaging (fMRI)
d. magnetoencephalography (MEG)
Ans: A
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension

Answer Location: Spatial and Temporal Resolution
Difficulty Level: Medium

37. _____ is a field of ethical inquiry that is asking how brain processes are involved in making moral decisions, as well as who should have access to your internal processes.
a. Behavioral ethics
b. Neuroethics
c. Humanethics
d. Decision ethics
Ans: B
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Knowledge
Answer Location:Neuroethics
Difficulty Level: Easy

38. According to the text, “With the increased sophistication of brain imaging technology came the increased ability to view the manner in which various areas of the brain work together.” The focus on connections between brain areas implied in this statement MOST immediately brings to mind the brain imaging technique called _____.
a. diffusion tensor imaging (DTI)
b. positron emission tomography (PET)
c. electroencephalography (EEG)
d. functional magnetic resonance imaging (fMRI)
Ans: A
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location:Networks of the Brain
Difficulty Level: Medium

39. White matter allows for long-range connections between neurons, facilitating networking. Roughly _____ of the brain is white matter.
a. 10%
b. 90%
c. 45%
d. 25%
Ans: C
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location:Neurons Connect in a Network
Difficulty Level: Easy

40. Shannon is studying in her room, concentrating on a passage in her chemistry textbook and solving a few practice problems. Suddenly, she notices how chilly the room is. In Shannon’s brain, activity of the _____ network has momentarily interrupted processing in the _____ network.
a. central executive; salience
b. salience; central executive
c. default; central executive

d. salience; default
Ans: B
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Application
Answer Location:Neurons Connect in a Network
Difficulty Level: Hard

41. The _____ network is the neural network that is active during internal processes.
a. central executive
b. default
c. salience
d. sensory
Ans: B
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Knowledge
Answer Location:What Is the Brain's Default(Intrinsic) Network?
Difficulty Level: Easy

42. The default network is also called the _____ network.
a. central executive
b. dorsal attention
c. salience
d. intrinsic
Ans: D
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location:What Is the Brain's Default(Intrinsic) Network?
Difficulty Level: Medium

43. William James's notion of the stream of consciousness BEST describes activity in the _____ network.
a. central executive
b. dorsal attention
c. default
d. salience
Ans: C
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location:What Is the Brain's Default(Intrinsic) Network?
Difficulty Level: Medium

44. According to the textbook, people with schizophrenia have difficulty inhibiting the _____ network.
a. default
b. central executive
c. salience
d. sensory

Ans: B
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location:What Is the Brain's Default(Intrinsic) Network?
Difficulty Level: Easy

45. Manny is staring absentmindedly out of the window of the city bus on his way home from work. He is not looking at anything in particular and letting his mind wander.Manny's _____ network is MOST likely active in his brain.
a. central executive
b. salience
c. default
d. dorsal attention
Ans: C
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Application
Answer Location:What Is the Brain's Default(Intrinsic) Network?
Difficulty Level: Medium

46. The concept of _____describes how specific areas of the brain are dedicated to certain types of processes.
a. connectivity
b. modularity
c. functionality
d. specificity
Ans: B
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Knowledge
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Easy

47. "Different areas of the brain perform different functions." This statement refers to the concept of _____.
a. inhibition
b. connectivity
c. modularity
d. excitation
Ans: C
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Easy

48. "For example, Broca'sarea in the left frontal lobe is dedicated to speech production, whereas the fusiform face area is specialized for processing faces," lectures a psychology instructor. The instructor is MOST likely describing the concept of _____.
a. inhibition

b. connectivity
c. excitation
d. modularity
Ans: D
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Application
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Hard

49. _____ refers to the idea that different areas of the brain work together in specific circumstances.
a. Connectivity
b. Modularity
c. Functionality
d. Specificity
Ans: A
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Knowledge
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Easy

50. Keeping in mind the small-world framework, modularity and connectivity are BEST described as _____ concepts.
a. unrelated
b. complementary
c. similar
d. synonymous
Ans: B
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Hard

51. The study of environmental factors that turn genes on and off and are passed to the next generation is referred to as _____.
a. epigenetics
b. Mendel's first law of segregation
c. Mendel's second law of assortment
d. the Genome Project
Ans: A
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location:Genetics and Psychopathology
Difficulty Level: Moderate

52. A friend tells you she is fascinated by the way the environment affects the expression of genetic potential. You suggest she explore the field of _____.
a. replication

b. epigenetics
c. lifespan development
d. genetics
Ans: B
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Application
Answer Location:Genetics and Psychopathology
Difficulty Level: Moderate

53. The study of genetics began with the work of_____.
a. Gregor Mendel
b. Heinrich Hertz
c. Thomas Young
d. Albert Michelson
Ans: A
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge
Answer Location: The Study of Genetics
Difficulty Level: Easy

54. Mendel's law of _____ states that both nondominant elements must be present for a recessive trait to appear.
a. independent assortment
b. conservation
c. segregation
d. attraction
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: The Study of Genetics
Difficulty Level: Easy

55. Mendel's law of _____ states that the inheritance of the gene of one trait is not affected by the inheritance of the gene for another trait.
a. independent assortment
b. conservation
c. segregation
d. attraction
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge
Answer Location: The Study of Genetics
Difficulty Level: Easy

56. A single deoxyribonucleic acid (DNA) molecule, along with the proteins attached to it, is called a(n)_____.
a. helix
b. histone
c. allele
d. chromosome
Ans: D

Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: The Study of Genetics
Difficulty Level: Medium

57. When a person has two copies of the same allele, she or he is said to be _____ for that allele.
a. homozygous
b. unizygous
c. heterozygous
d. monozygous
Ans: A
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge
Answer Location: What Do Genes Do?
Difficulty Level: Medium

58. If the allele of a particular gene from the father differs from the allele of the same gene from the mother, the person is _____ for that gene.
a. phenotypic
b. heterozygous
c. polymorphic
d. homozygous
Ans: B
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: What Do Genes Do?
Difficulty Level: Easy

59. Maddie receives the brown-eyed allele of the eyecolor gene from her motherbut the blue-eyed allele of the eyecolor gene from her father. Maddie is _____ for the eyecolor gene.
a. heterozygous
b. phenotypic
c. polymorphic
d. homozygous
Ans: A
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Application
Answer Location: What Do Genes Do?
Difficulty Level: Medium

60. When a person has two different alleles for a particular gene, he or she is said to be _____ for those alleles.
a. homozygous
b. multizygous
c. heterozygous
d. dizygous
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge

Answer Location: What Do Genes Do?
Difficulty Level: Moderate

61. The job of a gene is to lay out the process by which a particular protein is made, or to _____ a protein.
a. decode
b. encode
c. process
d. direct
Ans: B
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge
Answer Location: What Do Genes Do?
Difficulty Level: Easy

62. A _____ is the blueprint that provides instructions to the body, whereas the person's _____ is the trait that is expressed on the outside.
a. protein; genotype
b. phenotype; DNA
c. phenotype; genotype
d. genotype; phenotype
Ans: D
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Analysis
Answer Location: What Do Genes Do?
Difficulty Level: Medium

63. Even identical twins with the same _____ can display a different _____ if their environmental conditions differ during their development.
a. genotype; phenotypes
b. predispositions; growth patterns
c. phenotype; genotypes
d. alleles; behaviors
Ans: A
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: What Do Genes Do?
Difficulty Level: Medium

64. Gavin has brown hair and green eyes. These traits are part of his _____.
a. genotype
b. karyotype
c. phenotype
d. archetype
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Application
Answer Location: What Do Genes Do?
Difficulty Level: Medium

65. George and Henry are identical twins. George was raised by his mother, and Henry was

raised by his father. Based on this information, one can conclude that the boys'
a. phenotypes will be the same because their genotypes are exactly the same
b. phenotypes will be different even though their genotypes are exactly the same
c. genotypes will be different because their phenotypes are different
d. genotypes will be the same because their phenotypes are the same
Ans: B
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Application
Answer Location: What Do Genes Do?
Difficulty Level: Hard

66. In order for an individual's genetic material to be manifest in the individual's observable characteristics, the information in the DNA must first do what?
a. be encoded in ribonucleic acid (RNA)
b. determine the sequence of amino acids
c. go to the part of the cell capable of proteins
d. produce proteins by producing amino acids
Ans: A
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: DNA
Difficulty Level: Medium

67. Strands of DNA consist of four types of nucleotides that are identical except for the base. Which of the following is NOT one of the four bases?
a. adenine
b. guanine
c. cryosine
d. thymine
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Analysis
Answer Location: DNA
Difficulty Level: Hard

68. Whether a segment of DNA is relaxed or condensed—and therefore able or unable to be activated—is influenced by epigenetic _____.
a. histones
b. inheritances
c. alleles
d. marks or tags
Ans: D
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: Epigenetic Processes
Difficulty Level: Medium

69. In _____ inheritance, the environment and experiences of your ancestors may have marked their genes such that the total copy you receive is different from the copy they started with.
a. Mendelian

b. epigenetic
c. mitochondrial
d. biological
Ans: B
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: Epigenetic Processes
Difficulty Level: Medium

70. In _____ inheritance, DNA is inherited only from the mother, in clear violation of the classical Mendelian view.
a. Mendelian
b. epigenetic
c. mitochondrial
d. biological
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge
Answer Location: Mitochondria and Mitochondrial Inheritance
Difficulty Level: Easy

71. Which is NOT true about the mitochondrial DNA (mtDNA)?
a. MtDNA is stable and mutates very slowly.
b. MtDNA is separate from the DNA found in the cell's nucleus.
c. MtDNA is inherited only from the father.
d. The dysfunction of the mtDNA is likely involved in specific mental disorders.
Ans: C
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Analysis
Answer Location: Mitochondria and Mitochondrial Inheritance
Difficulty Level: Medium

72. Which insight BEST reflects a contribution of the evolutionary perspective to our understanding of psychopathology?
a. Psychopathology may reflect unconscious conflicts.
b. Psychopathology may reflect behaviors and traits that might be especially functional in some contexts.
c. Psychopathology may reflect negative or distorted thinking patterns.
d. Psychopathology may reflect the difficulty some people have in finding meaning or satisfaction in life.
Ans: B
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Comprehension
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

73. Harpending and Sobus (1987) suggest that some personality disorders can represent behaviors that were once adaptations. They explicitly cite _____ personality disorder and _____ personality disorder.
a. psychopathic; histrionic

b. schizoid; histrionic
c. psychopathic; narcissistic
d. schizoid; narcissistic
Ans: A
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Knowledge
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

74. Which personality trait is shared by those with psychopathic personality disorder and those with histrionic personality disorder?
a. cold
b. emotional
c. manipulative
d. callous
Ans: C
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Analysis
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

75. Psychopathic personality disorder is to histrionic personality disorder as _____ is to _____.
a. dishonest; callous
b. sexuality; dominance
c. female; male
d. callous; emotional
Ans: D
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Analysis
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

76. Larissa is often described as “dramatic” or “theatrical.” She is always “on” and always wants to be the center of attention. She is extremely emotional and often exaggerates the things that happen to her. Larissa’s example BEST illustrates _____ personality disorder.
a. histrionic
b. psychopathic
c. avoidant
d. narcissistic
Ans: A
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Application
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

77. Johnlies, cheats, and steals. He doesn't care how he hurts others. Based solely on this information, John's case BEST illustrates _____ personality disorder.
a. histrionic
b. psychopathic
c. avoidant
d. narcissistic
Ans: B
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Application
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

78. From an evolutionary perspective, both psychopathic and histrionic personality disorder reflect adaptive strategies related to _____.
a. dominance
b. sexuality
c. creativity
d. safety
Ans: B
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Comprehension
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Easy

79. Which of these animals' sleep is characterized by putting one half of the brain to sleep while the other half remains awake?
a. elephants
b. primates
c. lizards
d. dolphins
Ans: D
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Knowledge
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Easy

80. Which statement is FALSE with respect to sleep in different species?
a. Birds do not sleep.
b. All animals are impaired by sleep deprivation.
c. Similar mechanisms control sleep across species.
d. Some animals sleep standing up.
Ans: A
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Analysis
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Hard

81. Matthew believes that one of his cats exhibits a potential feline analogue of autism spectrum disorder. This hypothesis is MOST likely suggested by the _____ perspective on psychopathology.
a. psychodynamic
b. evolutionary
c. cognitive
d. existential-humanistic
Ans: B
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Application
Answer Location:Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

True/False

1. Emotions are only processed in the brain.
Ans: F
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Comprehension
Answer Location: Chapter Introduction
Difficulty Level: Easy

2. Currently, there is no neuroscience technique that can definitively diagnose a given individual with a particular mental disorder.
Ans: T
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Comprehension
Answer Location: The Growing Importance of Neuroscience, Genetics, and an Evolutionary Perspective
Difficulty Level: Easy

3. The parietal lobe is immediately anterior to the central sulcus.
Ans: F
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Comprehension
Answer Location: A Quick Review of Brain Anatomy and Function
Difficulty Level: Medium

4. There are more than 100 different neurotransmitters in the brain.
Ans: T
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location: Major Neurotransmitters
Difficulty Level: Easy

5. Brain waves are slow and steady during REM sleep.
Ans: F

Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location: Electroencephalography
Difficulty Level: Medium

6. Functional magnetic resonance imaging (fMRI) measures the ratio of hemoglobin with and without oxygen to map changes in cortical blood and infer neuronal activity.
Ans: T
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Knowledge
Answer Location: Functional Magnetic Resonance Imaging
Difficulty Level: Medium

7. Nearly 75% of the brain is made up of white matter.
Ans: F
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Knowledge
Answer Location: Neurons Connect in a Network
Difficulty Level: Easy

8. The intrinsic network is the brain's default network.
Ans: T
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location: What Is the Brain's Default (Intrinsic) Network?
Difficulty Level: Easy

9. Two different brain areas that are active during a particular task are probably part of the same network.
Ans:T
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Comprehension
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Medium

10. The environment can influence the activation of genes through epigenetic marks or tags.
Ans:T
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: Epigenetic Processes
Difficulty Level: Medium

11. How a mother takes care of her offspring can make epigenetic changes.
Ans: T
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension

Answer Location: Epigenetic Processes
Difficulty Level: Medium

12. Mitochondrial DNA comes from both an organism's father and his mother.
Ans:F
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: Mitochondria and Mitochondrial Inheritance
Difficulty Level: Medium

13. Dolphins sleep with one half of their brain awake.
Ans: T
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Knowledge
Answer Location: Psychopathology From an Evolutionary Perspective
Difficulty Level: Easy

14. Only humans show deficits in response to lack of sleep.
Ans: F
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Comprehension
Answer Location: Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

Completion (Fill-in-the-Blank)

1. The almond shaped structure on each side of the brain that is connected to other structures in the limbic system is called the _____.
Ans: amygdala
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Knowledge
Answer Location: Chapter Introduction
Difficulty Level: Easy

2. Chemicals that transmit signals from one neuron to another are called _____.
Ans: neurotransmitters
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Knowledge
Answer Location: Major Neurotransmitters
Difficulty Level: Easy

3. _____*potentials*is another phrase for *event-related potentials*.
Ans: Evoked
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension

Answer Location: Evoked Potentials
Difficulty Level: Easy

4. Of the neuroscientific research methods described in the textbook, _____ and electroencephalography have the MOST precise temporal resolution.
Ans: magnetoencephalography
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Comprehension
Answer Location: Spatial and Temporal Resolution
Difficulty Level: Medium

5. The _____ network is the neural network involved in monitoring and noting important changes in biological and cognitive systems.
Ans: salience
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Knowledge
Answer Location: Neurons Connect in a Network
Difficulty Level: Medium

6. Cognitive tasks involved in planning, understanding new situations, and cognitive flexibility are called _____ functions.
Ans: executive
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Knowledge
Answer Location: Different Networks Are Involved in Different Tasks
Difficulty Level: Medium

7. A recessive trait may be inherited only if a gene's recessive allele is inherited from both parents. This is Mendel's first law, the law of _____.
Ans: segregation
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: The Study of Genetics
Difficulty Level: Medium

8. _____ are made up of amino chains from DNA and do the body's work.
Ans: Proteins
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Comprehension
Answer Location: What Do Genes Do?
Difficulty Level: Easy

9. _____ are processes intervening between a gene—the genotype—and its outward appearance—the phenotype.
Ans: Endophenotypes
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Knowledge

Answer Location: What Are Endophenotypes?
Difficulty Level: Medium

10. Individuals with _____ personality disorder may be described as “high-maintenance drama queens.”
Ans: histrionic
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Comprehension
Answer Location: Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium

Essay

1. Discuss how scientists in the 19th and early 20th pursued the neuroscience approach to normal and disordered mental function. Make explicit reference to at least two of the following individuals: Broca, Wundt, and Jung. How might these scientists’ work be seen as limited in comparison to contemporary neuroscientific research?
Ans: Scientists in the 19th and early 20th century attempted to make inferences about the brain activity underlying thought by studying animals and people who had suffered brain damage. Broca studied the brains of his patients who had died. In addition, psychologists such as Jung and Wundt sought a window into cognition in the form of simple behaviors like word associations and reaction time. Finally, Jung tried to relate thought to the body’s physiological responses by measuring the electrical conductivity of the skin. These techniques are limited because they are indirect; they do not image brain activity directly, as current techniques do.
Learning Objective: 2.1 Explain why neuroscience, genetics, and an evolutionary perspective are increasingly important in understanding psychopathology.
Cognitive Domain: Analysis
Answer Location:The Growing Importance of Neuroscience, Genetics, and an Evolutionary Perspective
Difficulty Level: Hard

2. Outline, in order, the six steps involved in passing information from one neuron to another.
Ans: (1) Neurotransmitters are created and stored; (2)an action potential travels down the axon to the terminal; (3) a neurotransmitter is released into the synapse; (4) the neurotransmitter binds with specific proteins in the next neuron; (5) this either increases or decreases the possibility the next neuron will create an action potential; and (6) the synapse is made neutral again.
Learning Objective: 2.2 Describe how information is communicated within the human brain.
Cognitive Domain: Analysis
Answer Location:How Does the Neuron Pass Information?
Difficulty Level: Medium

3. Provide an example of a research question for which it is critical that a brain imaging technique has good spatial resolution. Provide an example of a research question for which it is critical that a brain imaging technique has good temporal resolution. For each question, identify and briefly describe a specific neuroimaging technique that would be appropriate.
Ans: Spatial research question: You are interested in differences in hippocampal volume in individuals with and without schizophrenia. Magnetic resonance imaging (MRI) would provide an image of the brain structure in question. MRI uses a large magnet to measure blood oxygen

levels in the brain. Temporal research question: Differences in processing time in spoken versus written text in individuals with autism. Electroencephalography (EEG) would be appropriate—EEG records the electrical activity of the brain through electrodes placed on the scalp.
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Analysis
Answer Location: Spatial and Temporal Resolution
Difficulty Level: Hard

4. Several ethical questions have been raised with regard to who should have access to one's internal processes and implications for genetic discoveries. Describe one of these issues and the evidence to support both sides.
Ans: This could be a description of issues related to eugenics, sharing one's own genetic information with other third parties, or sharing incidental findings with individuals. Be sure the test taker describes both sides of the ethical argument. For example, sharing information that an individual might have the potential to experience schizophrenia with an insurance company might lead to a system that charges higher premiums up front to then offset the potential cost of treatment later. However, it is possible that the person never will experience schizophrenia throughout his or her life.
Learning Objective: 2.3 Describe the major techniques used to view the human brain at work, and their related ethical implications.
Cognitive Domain: Analysis
Answer Location: Neuroethics
Difficulty Level: Hard

5. Describe the *small-world framework*.Explain how the framework offers a metaphor for the organization of neurons in the brain. Illustrate your answer with an example drawn from your own social connections or network.
Ans: Just as the contact of any two random individuals in the world can be accomplished with a limited number of connections, any two nodes in the brain can be represented by only a limited number of connections. Neurons have many short-distance local connections, just as an individual has many friends in their local community. These connections form a hub. Each hub may be connected by a few long-distance connections to another hub, just as an individual's network of local friends may be connected to a social network in a distant city by the friendships of one or two people. For example, I have many friends in my hometown of Lafayette, LA—my hub. This network is connected to a network in Athens, GA, by my friendship with a woman in that city.
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Application
Answer Location: Neurons Connect in a Network
Difficulty Level: Medium

6. Name and describe three of the brain's networks. For each network, describe a specific instance of a situation from the past day or two in which the network may have been especially active in your brain.
Ans: Default or intrinsic network.Involved in internal processing that does not require sensory input. Example situation: Allowing one's mind to wander on a city bus or commuter train; allowing one's thoughts to drift when one first goes to bed.

Salience network: Monitors and notes important changes in biological and cognitive systems. Example situation: Suddenly realizing one is hungry at 1:30 in the afternoon; one's thoughts turn to food and where to get it.
Central executive network: Involved in planning, goal setting, directing attention, and inhibiting impulses. Example situation: Writing a to-do list for the day, planning to set a goal of reading half a chapter of a textbook between the end of a work shift and the beginning of an evening class.
Learning Objective: 2.4 Explain what brain networks are and how they influence human behavior.
Cognitive Domain: Application
Answer Location: Neurons Connect in a Network
Difficulty Level: Medium

7. Suppose that blue eyes and curly hair are recessive traits. Use this information to define and illustrate Mendel's first and second laws.
Ans: First law—the law of segregation. For a recessive trait to appear, an organism must have inherited the trait from both its parents. A blue-eyed child must have inherited the blue-eye allele of the eye color gene from both its mother and its father.
Second law—law of independent assortment. The inheritance of one trait does not influence the inheritance of another. A blue-eyed child may be curlyhaired or not. The recessive blue-eyed trait is completely independent of the recessive curlyhaired trait.
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Application
Answer Location: Epigenetic Processes
Difficulty Level: Medium

8. Briefly describe the epigenetic process and how might relate to mental illnesses.
Ans: The environment can influence the epigenetic marks or tags, which then can influence the coding of genes. It may be that specific aspects of a woman's environment triggered the coding of a gene that later resulted in the experience of a mental illness in her children.
Learning Objective: 2.5 Explain the function of genes, epigenetics, and endophenotypes.
Cognitive Domain: Analysis
Answer Location: Epigenetic Processes
Difficulty Level: Hard

9. Discuss two ways that an evolutionary perspective expands our understanding of psychopathology.
Ans: The evolutionary perspective expands our understanding of mental illness by directing us to ask whether particular disorders are universal across cultures and persistent through historical time. In this way, we might learn how and when disorders originated in the human population. The evolutionary perspective also directs us to consider how disorders may be related to traits that might be adaptive.
Learning Objective: 2.6 Ask critical questions about psychopathology from an evolutionary perspective.
Cognitive Domain: Analysis
Answer Location: Psychopathology From an Evolutionary Perspective
Difficulty Level: Medium