Test Bank

Chapter 1: How the Brain Gives Rise to the Mind

Multiple Choice

1. _____ deals with the processing of information from the senses.
   a. Encoding
   b. Executive processing
   c. Perception
   d. Mental simulation

Answer: c
Page(s) in Text: 2
Topic: Introductory Terms
Question Type: factual, moderate

*2. The cognitive process responsible for entering new information into memory is _____.
   a. executive processing
   b. encoding
   c. attention
   d. representation in long-term memory

Answer: b
Page(s) in Text: 2
Topic: Introductory Terms
Question Type: factual, easy

*3. _____ allows you to hold information in awareness and to think about it.
   a. Working memory
   b. Attention
   c. Mental simulation
   d. Executive processing

Answer: a
Page(s) in Text: 2
Topic: Introductory Terms
Question Type: factual, easy

4. Preparing and executing a response to a stimulus requires _____.
   a. attention
   b. executive processing
   c. working memory
   d. motor cognition

Answer: d
Page(s) in Text: 2-3
Topic: Introductory Terms
Question Type: conceptual, difficult

5. Plato made a distinction between _____.
a. wax and stone tablets c. memories for facts and events
b. the brain and its functions d. etching and carving

Answer: b
Page(s) in Text: 3
Topic: A Brief History
Question Type: factual, easy

6. The mind-body problem was originally articulated by _____.
a. Plato c. Aristotle
b. Locke d. Descartes

Answer: d
Page(s) in Text: 4
Topic: A Brief History
Question Type: factual, easy

7. The idea that thought was composed of a series of images was espoused by _____.
a. Plato c. Locke
b. Descartes d. Berkeley

Answer: c
Page(s) in Text: 4
Topic: A Brief History
Question Type: factual, moderate

8. Looking within oneself to assess one's mental activity is referred to as _____.
a. reflectance c. transference
b. introspection d. metacognition

Answer: b
Page(s) in Text: 4-5
Topic: A Brief History
Question Type: factual, easy

9. _____ was interested in understanding the nature of consciousness.
a. Locke c. Chomsky
b. Berkeley d. Wundt

Answer: d

Page(s) in Text: 4
Topic: A Brief History
Question Type: factual, easy

10. When you describe to your friend how a stunning sunset looked, you are engaging in _____.

a. verbal report
b. self-report
c. introspection
d. perception

Answer: c
Page(s) in Text: 5
Topic: A Brief History
Question Type: conceptual, difficult

11. According to Wundt and Tichner, consciousness can be understood by characterizing _____ and the _____.

a. basic elements, rules that combine them
b. thoughts, associated processing resources
c. physical stimulus, behavioral response
d. perceptions, decisions about them

Answer: a
Page(s) in Text: 4
Topic: A Brief History
Question Type: factual, moderate

12. One of the problems with introspection is that people _____.

a. are unaware of sensations
b. could not be trained in it
c. could not do it
d. can make decisions without knowing how

Answer: d
Page(s) in Text: 6
Topic: A Brief History
Question Type: factual, moderate

13. Functionalist psychology was developed by _____ and motivated by _____.

a. Tichner, Wundt
b. Wundt, James
c. James, Darwin
d. Skinner, Hull

Answer: c
Page(s) in Text: 6
Topic: A Brief History
Question Type: factual, easy

14. William James was more interested in the _____ of mental activity than the _____ of mental activities.
a. function, nature
b. basic components, whole
c. observation, implication
d. conscious aspect, unconscious aspect

Answer: a
Page(s) in Text: 6
Topic: A Brief History
Question Type: factual, easy

15. The central doctrine of the behaviorists was that psychologists should only study _____.
a. stimuli and responses
b. animal behavior
c. stimuli, processes, and responses
d. stimuli, responses, and consequences

Answer: d
Page(s) in Text: 6
Topic: A Brief History
Question Type: factual, moderate

*16. Consequences are important for behaviorist theories because consequences establish _____ between stimuli and behavior.
a. testable outcomes
b. associations
c. specific laws
d. observable events

Answer: b
Page(s) in Text: 6
Topic: A Brief History
Question Type: factual, easy

17. If you opened the case of your desktop computer to determine what the different parts of the computer do, you might be considered a _____.
a. structuralist
b. behaviorist
c. functionalist
d. rationalist

Answer: c
Page(s) in Text: 4-6
Topic: A Brief History
Question Type: conceptual, moderate

18. If you studied your desktop computer to determine the basic units used by the computer to store information, you might be considered a _____.

a. structuralist
b. behaviorist
c. functionalist
d. rationalist

Answer: a
Page(s) in Text: 4-6
Topic: A Brief History
Question Type: conceptual, moderate

19. If you examined the relationship between what you type on the keyboard and what appears on your computer monitor, you might be considered a _____.

a. structuralist
b. behaviorist
c. functionalist
d. rationalist

Answer: b
Page(s) in Text: 4-6
Topic: A Brief History
Question Type: conceptual, easy

20. _____ believed that internal events such as motivation could be inferred directly from behaviors.

a. Skinner
b. Thorndike
c. Hull
d. Watson

Answer: c
Page(s) in Text: 6
Topic: A Brief History
Question Type: factual, easy

21. Which of the following researchers did <u>not</u> play a prominent role in the cognitive revolution?

a. Chomsky
b. Newell
c. Simon
d. Hull

Answer: d
Page(s) in Text: 6-8
Topic: A Brief History
Question Type: factual, moderate

*22. One of the reasons the cognitive revolution was successful is that technology allowed the mind to be compared to a(n) _____.

a. flow chart
b. computing machine
c. artificial organ
d. Turing machine

Answer: b
Page(s) in Text: 8
Topic: A Brief History
Question Type: factual, easy

23. Eric Kandel won the Nobel Prize in Medicine or Physiology for studying changes in neurons related to learning. What level of analysis did he use to examine memory?

a. philosophical
b. functional
c. physical
d. information processing

Answer: c
Page(s) in Text: 10-11
Topic: Understanding the Mind
Question Type: conceptual, easy

24. When Freud developed the idea that the mind can repress a memory until a person is able to address that memory, he was operating at what level of analysis?

a. philosophical
b. functional
c. physical
d. information processing

Answer: b
Page(s) in Text: 10-11
Topic: Understanding the Mind
Question Type: conceptual, moderate

25. Cognitive psychologists interested in memory typically examine how we encode, store, and retrieve information. What level of analysis do these psychologists operate at?

a. philosophical
b. functional
c. physical
d. information processing

Answer: d
Page(s) in Text: 10-11
Topic: Understanding the Mind
Question Type: conceptual, moderate

26. Based on your text, which level of analysis is superior for understanding the mind?
a. physical
b. philosophical
c. representational
d. information processing

Answer: d
Page(s) in Text: 10-11
Topic: Understanding the Mind
Question Type: conceptual, moderate

27. Two of your friends go to see a ball game. They both contact you about an amazing play. One sends a voice message and the other sends a text message. What characteristic of their messages is different?
a. content
b. relations
c. arguments
d. format

Answer: d
Page(s) in Text: 11
Topic: Understanding the Mind
Question Type: conceptual, moderate

28. You are reminiscing with your family one night about a past family experience. As people talk, you realize you remember an account of the event that is different from that of other family members. What aspect of your mental representation is different from you family members?
a. content
b. relations
c. arguments
d. format

Answer: a
Page(s) in Text: 11
Topic: Understanding the Mind
Question Type: conceptual, moderate

*29. A set of processes that use and create mental representations as needed is a(n) _____.
a. algorithm
b. mental representation
c. processing system
d. modular system

Answer: c

Page(s) in Text: 12
Topic: Understanding the Mind
Question Type: factual, moderate

30. When given a certain input, a(n) _____ is guaranteed to produce a certain response.
a. algorithm
b. mental representation
c. structure-process trade-off
d. modular system

Answer: a
Page(s) in Text: 13
Topic: Understanding the Mind
Question Type: conceptual, easy

31. Serial algorithms :: parallel algorithms as
a. iterative :: simultaneous
b. in steps :: at once
c. at once :: in steps
d. general :: specific

Answer: b
Page(s) in Text: 13
Topic: Understanding the Mind
Question Type: conceptual, moderate

32. _____ refers to the ability to specify the correct combination of representations and processes to accomplish a task.
a. Adequacy
b. Combinatory processing
c. Generalizability
d. Identifiability

Answer: d
Page(s) in Text: 13
Topic: Understanding the Mind
Question Type: conceptual, difficult

33. Understanding the structure and function of the brain can help us determine the _____ of a theory of cognitive processing.
a. generalizability
b. identifiability
c. explanatory adequacy
d. parsimoniousness

Answer: c
Page(s) in Text: 15
Topic: Understanding the Mind
Question Type: application, moderate

34. _____ are often referred to as the building blocks of the brain.
a. Glial cells
c. Neurotransmitters
b. Synapses
d. Neurons

Answer: d
Page(s) in Text: 17
Topic: The Cognitive Brain
Question Type: conceptual, easy

*35. The basic parts of the neuron include the _____.
a. axon, dendrites, and cell body
c. dendrites, axon, and synapse
b. axon, terminal buttons, and synapse
d. dendrite, synaptic cleft, and cell body

Answer: a
Page(s) in Text: 17-18
Topic: The Cognitive Brain
Question Type: factual, easy

36. Action potentials are characterized as being _____.
a. gradated
c. scaled
b. all-or-none
d. variable

Answer: b
Page(s) in Text: 18
Topic: The Cognitive Brain
Question Type: conceptual, easy

37. The brain and spinal cord make up the _____ nervous system while the skeletal and autonomic nervous systems make up the _____ nervous system.
a. sympathetic, parasympathetic
c. central, peripheral
b. peripheral, central
d. parasympathetic, sympathetic

Answer: c
Page(s) in Text: 18-19
Topic: The Cognitive Brain
Question Type: factual, easy

38. As you make a presentation in front of your class, you find that your palms are sweaty and your heart is beating quickly. These physiological changes are due to the _____ nervous system.

a. peripheral
b. parasympathetic
c. autonomic
d. sympathetic

Answer: d
Page(s) in Text: 19
Topic: The Cognitive Brain
Question Type: applied, moderate

39. As you sit in your seat after making a class presentation, you notice that your heart beat and respiratory are rate slowing down. This change is due to the _____ nervous system.

a. peripheral
b. parasympathetic
c. autonomic
d. sympathetic

Answer: b
Page(s) in Text: 19
Topic: The Cognitive Brain
Question Type: applied, moderate

40. The cerebral cortex has folds or winkles. The top of a fold or winkle is referred to as a _____.

a. fissure
b. sulcus
c. gyrus
d. ventricle

Answer: c
Page(s) in Text: 20
Topic: The Cognitive Brain
Question Type: factual, easy

41. The cortex is divided into cerebral hemispheres. The _____ is the main connection between the hemispheres.

a. corpus callosum
b. reticular formation
c. pons
d. hippocampus

Answer: a
Page(s) in Text: 20

Topic: The Cognitive Brain
Question Type: factual, easy

*42. The four major lobes of the brain are:
a. ventral, dorsal, medial, lateral
b. occipital, parietal, temporal, frontal
c. visual, auditory, somatosensory, decisional
d. cortical, ventricle, meninges, cerebral

Answer: b
Page(s) in Text: 20
Topic: The Cognitive Brain
Question Type: factual, easy

43. The visual pathway has been traced from the eye to the thalamus. The thalamus is made of several different nuclei. The nucleus important for vision is toward the side or farther away from midline. As a result, this area is called the _____ geniculate nucleus.
a. superior
b. lateral
c. inferior
d. medial

Answer: b
Page(s) in Text: 21
Topic: The Cognitive Brain
Question Type: factual, difficult

44. What sensory information is primarily processed in the occipital lobe?
a. auditory
b. somatosensory
c. visual
d. olfactory

Answer: c
Page(s) in Text: 20
Topic: The Cognitive Brain
Question Type: factual, easy

45. What sensory information is primarily processed in the parietal lobe?
a. auditory
b. somatosensory
c. visual
d. olfactory

Answer: b
Page(s) in Text: 21
Topic: The Cognitive Brain
Question Type: factual, moderate

46. What type of processing does not take place in the temporal lobe?
a. visual memory
b. language production
c. language comprehension
d. emotion

Answer: b
Page(s) in Text: 21
Topic: The Cognitive Brain
Question Type: factual, moderate

47. There is a famous neuropsychological example in which Phineas Cage, a railroad foreman, accidentally had a tamping rod shoot from under his chin through his skull damaging his frontal lobe. Which of the following is most likely to have changed for Phineas after the accident?
a. his personality
b. his sense of touch
c. his ability to recognize objects
d. his hearing

Answer: a
Page(s) in Text: 20-22
Topic: The Cognitive Brain
Question Type: applied, difficult

48. After receiving a crushing hit by the linebacker, the running back gets to return to the huddle but has difficulty running. Which lobe was most likely affected by the hit?
a. occipital
b. parietal
c. temporal
d. frontal

Answer: d
Page(s) in Text: 20-22
Topic: The Cognitive Brain
Question Type: applied, difficult

49. Unfortunately, Sam was buying a hot dog from a vendor at a baseball game when a foul ball hit him in the head. After the hit, Sam seemed to be talking louder than usual and had difficulty understanding what his friends were saying to him. Which lobe was most likely affected by the foul ball?

a. occipital
b. parietal
c. temporal
d. frontal

Answer: c
Page(s) in Text: 20-22
Topic: The Cognitive Brain
Question Type: applied, difficult

50. This subcortical area receives sensory information from the ears and sends it to the auditory cortex.

a. hippocampus
b. thalamus
c. hypothalamus
d. amygdala

Answer: d
Page(s) in Text: 20-22
Topic: The Cognitive Brain
Question Type: factual, moderate

51. The _____ controls bodily functions such as body temperature and blood pressure.

a. hippocampus
b. thalamus
c. hypothalamus
d. amygdala

Answer: c
Page(s) in Text: 23
Topic: The Cognitive Brain
Question Type: factual, moderate

52. The _____ plays an important role in storing memories in the temporal lobe.

a. hippocampus
b. thalamus
c. hypothalamus
d. amygdala

Answer: a
Page(s) in Text: 23
Topic: The Cognitive Brain
Question Type: factual, moderate

53. Physical coordination is controlled in the _____.
a. frontal lobe
b. reticular formation
c. pons
d. cerebellum

Answer: d
Page(s) in Text: 24
Topic: The Cognitive Brain
Question Type: factual, moderate

54. The basal ganglia are associated with _____.
a. basic instincts
b. developing habits
c. taste perception
d. time estimation

Answer: b
Page(s) in Text: 24
Topic: The Cognitive Brain
Question Type: factual, difficult

55. Rewards during learning activate the _____.
a. amygdala
b. cerebellum
c. nucleus accumbens
d. reticular formation

Answer: c
Page(s) in Text: 24
Topic: The Cognitive Brain
Question Type: factual, difficult

56. What part of the brain would you lesion to determine if anticipating rewards is really an important part of learning?
a. amygdala
b. cerebellum
c. nucleus accumbens
d. reticular formation

Answer: c
Page(s) in Text: 24
Topic: The Cognitive Brain
Question Type: applied, difficult

57. If you somehow damaged your pons, what would you have difficulty doing?
a. making facial expressions
b. comprehending speech
c. walking
d. recalling old memories

Answer: a
Page(s) in Text: 24
Topic: The Cognitive Brain
Question Type: applied, difficult

*58. To control seizures, a patient has part of his hippocampus removed. In which cognitive function would you anticipate seeing impairments?
a. motivation
b. visual recognition
c. motor coordination
d. memory

Answer: d
Page(s) in Text: 23
Topic: The Cognitive Brain
Question Type: applied, moderate

59. Cognitive _____ emphasizes information processing while cognitive _____ emphasizes the brain.
a. neuroscience, psychology
b. psychology, neuroscience
c. neuroscience, phrenology
d. psychology, biology

Answer: b
Page(s) in Text: 26
Topic: Studying Cognition
Question Type: conceptual, easy

*60. A variety of research methods can be used in cognitive psychology. Unfortunately, limitations can be found for all of them. This is one reason why _____ is (are) important.
a. association
b. converging evidence
c. dissociation
d. behavioral methods

Answer: b
Page(s) in Text: 26
Topic: Studying Cognition
Question Type: conceptual, easy

61. An advantage of the protocol collection method is that it _____.
a. is subtle
c. can reveal a sequence of processing steps
b. assesses subjective reactions
d. measures processing effectiveness

Answer: c
Page(s) in Text: 27-28
Topic: Studying Cognition
Question Type: conceptual, moderate

62. Each of the following is a limitation of using accuracy as a dependent variable in memory research except _____.
a. ceiling effects
c. floor effects
b. expectancy effects
d. speed-accuracy tradeoff

Answer: b
Page(s) in Text: 27-28
Topic: Studying Cognition
Question Type: factual, moderate

63. Experimental expectancy effects and speed-accuracy tradeoff are potential research limitations when using _____.
a. response time
c. accuracy
b. judgments
d. protocol collection

Answer: a
Page(s) in Text: 27-28
Topic: Studying Cognition
Question Type: factual, moderate

64. If everyone in class gets nearly all the multiple choice questions correct on this exam, you might argue that the questions were too easy resulting in a _____.
a. floor effect
c. expectancy effect
b. curve
d. ceiling effect

Answer: d
Page(s) in Text: 28
Topic: Studying Cognition
Question Type: applied, moderate

65. You conduct a study in which you measure both accuracy and response time. As you examine the data, you notice that response times are fairly quick but the participants made quite a few errors. What could possibly explain this finding?

a. expectancy effects
b. floor effects
c. speed-accuracy trade-off
d. task demands

Answer: c
Page(s) in Text: 28
Topic: Studying Cognition
Question Type: applied, easy

66. Psychology majors are not always good psychological research participants because they can sometimes figure out what the experiment is about and then tend to change their responses accordingly resulting in _____.

a. ceiling effects
b. experimenter bias
c. experimental curing effects
d. experimental expectancy effects

Answer: d
Page(s) in Text: 28
Topic: Studying Cognition
Question Type: applied, easy

67. When cues are present within a task itself that suggest to a participant how to respond in an experiment, _____ exist.

a. expectancy effects
b. task demands
c. a speed-accuracy trade-off
d. confounds

Answer: b
Page(s) in Text: 28
Topic: Studying Cognition
Question Type: factual, easy

68. Neuroimaging methods can be evaluated using four dimensions. Which of the following is not a dimension used in evaluating neuroimaging methods?

a. functional resolution
b. spatial resolution
c. invasiveness
d. temporal resolution

Answer: a
Page(s) in Text: 29
Topic: Studying Cognition
Question Type: factual, easy

69. Which of the following neuroimaging methods would be best to use if you are interested in locating the place in the brain associated with a certain cognitive function?
a. EEG
b. optical imaging
c. MRI
d. MEC

Answer: c
Page(s) in Text: 30
Topic: Studying Cognition
Question Type: applied, moderate

70. Which of the following neuroimaging methods would be best to use if you are interested in examining changes in cognitive processing over time?
a. optical imaging
b. ERP
c. MRI
d. PET

Answer: b
Page(s) in Text: 30
Topic: Studying Cognition
Question Type: applied, moderate

*71. A(n) _____ can be used to determine the part of the brain damaged after a stroke and _____ can be used to determine the extent of cognitive deficits caused by the stroke.
a. ERP, TMS
b. MRI, self-reports
c. ERP, transcranial magnetic stimulation
d. MRI, neuropsychological studies

Answer: d
Page(s) in Text: 29-37
Topic: Studying Cognition
Question Type: applied, moderate

72. Which of the following is <u>not</u> a limitation of neuropsychological studies?
a. damage not be limited to one area
b. temporal resolution is poor
c. lack of adequate neuropsychological tests
d. only good for areas near the brain surface

Answer: a
Page(s) in Text: 37
Topic: Studying Cognition

Question Type: factual, easy

73. All of the following are potential problems when using drugs that affect specific brain areas except that they
a. affect multiple brain areas.
b. take a long time to work.
c. help determine brain areas for certain tasks.
d. only provide correlational evidence of function.

Answer: d
Page(s) in Text: 39-40
Topic: Studying Cognition
Question Type: factual, easy

74. The difference between computer simulation models and artificial intelligence is that computer simulation models _____ underlying human cognitive processing while artificial intelligence _____ intelligent behavior.
a. mimic, corresponds to
b. fabricate, copies
c. represent, produces
d. are unrelated to, creates

Answer: c
Page(s) in Text: 40
Topic: Studying Cognition
Question Type: conceptual, difficult

75. Although process models can specify the sequence of processes that occur from a stimulus input to a corresponding response, they also have all of the following limitations except they _____.
a. assume serial processing
b. cannot convert input to output
c. do not learn
d. only provide feedback when a process is complete

Answer: b
Page(s) in Text: 42
Topic: Studying Cognition
Question Type: conceptual, easy

76. Which of the following would be part of a neural-network model?
a. intermediate layer
b. output layer
c. input layer
d. hidden layer

Answer: a
Page(s) in Text: 42
Topic: Studying Cognition
Question Type: factual, easy

Short Answer

77. Describe Wundt's approach to understanding consciousness.

Answer: First characterize the basic sensations and then find the rules that combine them.
Page(s) in Text: 4
Topic: A Brief History
Question Type: conceptual, moderate

78. Briefly state the two major contributions of Wundt's school of psychology.

Answer: (1) showed that mental activities could be broken down into basic operations and (2) developed objective methods for assessing mental activity
Page(s) in Text: 4
Topic: A Brief History
Question Type: factual, moderate

79. Explain what the cognitive revolution was in response to.

Answer: (1) researchers understood the limitations of behaviorism and became open to other approaches, (2) technological advances led to new ways to think about mental activity, (3) comparisons of mind to machine, (4) new methods developed to test predictions from computational models leading to more objective measures of mental activity
Page(s) in Text: 7-9
Topic: A Brief History
Question Type: factual, moderate

80. Although behaviorists have made numerous contributions to the nature of learning and to experimental psychology, they failed to account for a number of important areas related to cognition. List at least three of these areas.

Answer: (1) some behaviorists rejected all discussion of internal events, (2) could not explain the most interesting human behaviors such as language, and (3) failed to provide insights into the nature of perception, memory, decision making
Page(s) in Text: 7
Topic: A Brief History
Question Type: conceptual, moderate

81. Why is it important to be able to examine internal events in contrast to only external events as proposed by the behaviorists?

Answer: Sometimes an input does not produce a desired response. When this happens, it is important to determine how the input is interpreted in order to fully understand the process of responding to a particular stimulus.
Page(s) in Text: 9
Topic: A Brief History
Question Type: conceptual, moderate

82. Your authors define two facets to mental representations. Describe these facets and provide an example of how they can be combined to represent information.

Answer: form or means by which the information is conveyed (e.g., visual) and content or meaning conveyed (e.g., scene)
Page(s) in Text: 11
Topic: Understanding the Mind
Question Type: applied, moderate

83. Cognitive psychology has been relying more heavily on facts about the brain in recent years. Give an example that illustrates the importance of this trend.

Answer: Different types of information processing can lead to the same result; therefore, it is important to examine other kinds of information, such as brain activity, in order to determine how the processing takes place.
Page(s) in Text: 13
Topic: Understanding the Mind
Question Type: conceptual, difficult

84. Draw and label a neuron.

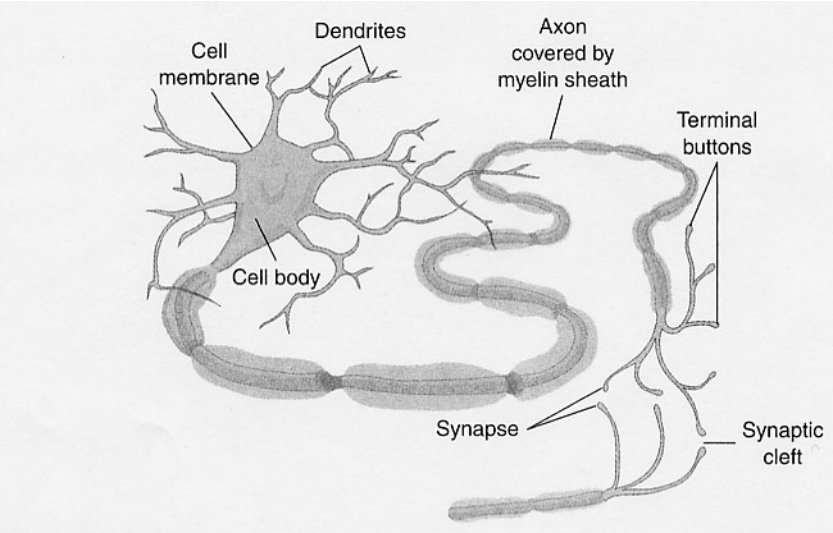


FIGURE 1–6 Structure of a neuron
Neurons have distinct parts that perform distinct roles in information processing.

Page(s) in Text: 17-18
Topic: The Cognitive Brain
Question Type: factual, easy

85. What is the role of neurotransmitters in communicating between neurons?

Answer: Neurotransmitters send information from one neuron to another across the synaptic cleft; the effect of the neurotransmitter depends on the receptors present at the post-synaptic neuron with some neurotransmitters being excitatory and some being inhibitory.
Page(s) in Text: 18
Topic: The Cognitive Brain
Question Type: factual, moderate

86. Name the four lobes of the brain and state the major functions associated with each.

Answer: frontal – speech production, fine motor movements, planning and reasoning, emotions, personality; parietal – representation of space, somatosensory processing, consciousness, attention, mathematical thinking; temporal – visual memory, auditory processing, language comprehension, memory, emotion; occipital – vision
Page(s) in Text: 20-22
Topic: The Cognitive Brain
Question Type: factual, moderate

87. Briefly state the difference between cognitive psychology and cognitive neuroscience.

Answer: Cognitive psychology focuses on information processing while cognitive neuroscience focuses on the brain and the different parts of the brain involved in information processing.
Page(s) in Text: 24-25
Topic: Studying Cognition
Question Type: conceptual, moderate

88. What is the difference between spatial and temporal resolution?

Answer: Spatial resolution deals with how precisely an area in the brain producing a signal can be localized. Temporal resolution refers to how well changes in brain activity can be tracked.
Page(s) in Text: 29
Topic: Studying Cognition
Question Type: conceptual, easy

89. Your authors make a distinction between correlational neural methods and causal neural methods. Briefly state the basis for this distinction.

Answer: Correlational neural methods (e.g., MRI) associate a brain location with a function. Causal neural methods (e.g., lesion) allow for a causal connection between a brain area and function.
Page(s) in Text: 29-37
Topic: A Brief History
Question Type: conceptual, moderate

Essay

90. Describe the contributions of the different schools of psychology (e.g., functionalists) to the current state of cognitive psychology.

Answer: Descartes – mind-body problem; Locke – thought is a series of mental images; Berkeley – some concepts are too abstract for mental images; Wundt and Tichner (structuralism) – mental activity can be broken down into basic operations and these could be studied objectively; James (functionalism) – focused on the function of mental activity; behaviorism – experimental techniques; computer science – computer as a model and a research tool
Page(s) in Text: 3-7
Topic: A Brief History
Question Type: conceptual, moderate

91. The computer has proven to be a helpful analogy for understanding the mind and brain. Provide an overview of this important analogy in cognitive psychology. Be sure to include both hardware and software in your description.

Answer: Both the computer and brain are information processors. Although computer hardware can be loosely likened to the brain and software to mental activity, both may be more accurately examined on a physical and functional level. Additionally, the hard drive is like long-term memory, etc.
Page(s) in Text: 9-13
Topic: Understanding the Mind
Question Type: conceptual, moderate

92. What dilemma is created by structure-process trade-offs and can facts about the brain impact cognitive theories to deal with the dilemma?

Answer: A structure-process trade-off occurs when we change a theory of a representation and then compensate for that change by modifying the theory of the process. This makes theories somewhat arbitrary. However, theories should be consistent with the properties of the brain.
Page(s) in Text: 13-16
Topic: Understanding the Mind
Question Type: conceptual, difficult

93. Explain why artificial intelligence researchers are interested in designing complex processing systems that perform human tasks. What are some of the strengths and weaknesses of this approach?

Answer: AI researchers believe that human cognition is so complex that creating a processing system that performs similar tasks can provide insight into human cognition. While the AI approach can lead to important insights, AI research often ignores how processing takes place in the brain.
Page(s) in Text: 25
Topic: Studying Cognition

Question Type: conceptual, moderate

94. What is meant by "converging evidence"? Explain why it is important for developing our understanding of cognitive processing.

Answer: Converging evidence is provided when different types of results point to the same conclusion. Converging evidence is important because all methodologies have limitations or weaknesses.
Page(s) in Text: 26
Topic: Studying Cognition
Question Type: conceptual, moderate

95. What is a dissociation? What information does it tell us about cognitive processing? How does a double dissociation improve upon this information?

Answer: A dissociation means that an activity or a variable affects performance on one task. In double dissociation, an activity or variable affects one process (P1) but not another (P2) while a second activity or variable has the opposite affect (impairs P2 but not P1). Double dissociations provide strong evidence for two processes.
Page(s) in Text: 26
Topic: Studying Cognition
Question Type: conceptual, moderate

96. You are interested in studying the effects of music on memory. Outline an experiment being sure to specify the conditions and measures you will use. Also, indicate a potential problem you might encounter in the study and state how you will attempt to control for it.

Answer: Answers will vary but should focus on behavioral methods. Problems to address could include ceiling effects, floor effects, speed-accuracy trade-off, experimental expectancy effects, and task demands.
Page(s) in Text: 27-29
Topic: Studying Cognition
Question Type: applied, moderate

97. Five different neuroimaging methods were presented in the text. Select and compare three of these methods.

Answer: EEG and ERP have poor spatial resolution but excellent temporal resolution, low invasiveness, and are relatively low cost. MEC have good spatial resolution (for sulci only) and excellent temporal resolution; their invasiveness is low but cost is high. PET has good spatial resolution but poor temporal resolution. PET is highly invasive and costly. MRI and fMRI have excellent spatial resolution and marginal temporal resolution. Invasiveness is low but the cost is high. Optical imaging has poor spatial resolution and marginal temporal resolution. It is moderately invasive but the cost is low.
Page(s) in Text: 29-36
Topic: Studying Cognition

Question Type: conceptual, moderate

98. Discuss the pros and cons of using electroencephalography (EEG) or event-related potentials (ERP).

Answer: Pros – high temporal resolution, low invasiveness, and low cost; Cons – disrupted by slight movements, poor spatial resolution
Page(s) in Text: 30-31
Topic: Studying Cognition
Question Type: conceptual, moderate

99. In what ways are neural-network models superior to process models?

Answer: There are several limitations to process models. Process models typically involve serial processing, provide feedback only after each processing step is complete, and do not learn. Neural-network models, on the other hand, do not have these limitations plus they emphasize the difference between a neural code and a mental representation.
Page(s) in Text: 40-43
Topic: Studying Cognition
Question Type: conceptual, difficult

Name: _____

Chapter 1 – Quick Quiz

1. The cognitive process responsible for entering new information into memory is _____.
   a. executive processing
   b. encoding
   c. attention
   d. representation in long-term memory

2. _____ allows you to hold information in awareness and to think about it.
   a. Working memory
   b. Attention
   c. Mental simulation
   d. Executive processing

3. Consequences are important for behaviorist theories because consequences establish _____ between stimuli and behavior.
   a. testable outcomes
   b. associations
   c. specific laws
   d. observable events

4. One of the reasons the cognitive revolution was successful is that technology allowed the mind to be compared to a(n) _____.
   a. flow chart
   b. computing machine
   c. artificial organ
   d. Turing machine

5. A set of processes that use and create mental representations as needed is a(n) _____.
   a. algorithm
   b. mental representation
   c. processing system
   d. modular system

6. The basic parts of the neuron include the _____.
   a. axon, dendrites, and cell body
   b. axon, terminal buttons, and synapse
   c. dendrites, axon, and synapse
   d. dendrite, synaptic cleft, and cell body

7. The four major lobes of the brain are:
   a. ventral, dorsal, medial, lateral
   b. occipital, parietal, temporal, frontal
   c. visual, auditory, somatosensory, decisional
   d. cortical, ventricle, meninges, cerebral

8. To control seizures, a patient has part of his hippocampus removed. In which cognitive function would you anticipate seeing impairments?
   a. motivation
   b. visual recognition
   c. motor coordination
   d. memory

9. A variety of research methods can be used in cognitive psychology. Unfortunately, limitations can be found for all of them. This is one reason why _____ is (are) important.
   a. association
   b. converging evidence
   c. dissociation
   d. behavioral methods

10. A(n) _____ can be used to determine the part of the brain damaged after a stroke and _____ can be used to determine the extent of cognitive deficits caused by the stroke.
   a. ERP, TMS
   c. ERP, transcranial magnetic stimulation

b. MRI, self-reports

d. MRI, neuropsychological studies

Answer Key
Chapter 1 – Quick Quiz

1. Answer: b
   Page(s) in Text: 2
   Topic: Introductory Terms
   Question Type: factual, easy

2. Answer: a
   Page(s) in Text: 2
   Topic: Introductory Terms
   Question Type: factual, easy

3. Answer: b
   Page(s) in Text: 6
   Topic: A Brief History
   Question Type: factual, easy

4. Answer: b
   Page(s) in Text: 8
   Topic: A Brief History
   Question Type: factual, easy

5. Answer: c
   Page(s) in Text: 12
   Topic: Understanding the Mind
   Question Type: factual, moderate

6. Answer: a
   Page(s) in Text: 17-18
   Topic: The Cognitive Brain
   Question Type: factual, easy

7. Answer: b
   Page(s) in Text: 20
   Topic: The Cognitive Brain
   Question Type: factual, easy

8. Answer: d
   Page(s) in Text: 23
   Topic: The Cognitive Brain
   Question Type: applied, moderate

9. Answer: b
Page(s) in Text: 26
Topic: Studying Cognition
Question Type: conceptual, easy

10. Answer: d
Page(s) in Text: 29-37
Topic: Studying Cognition
Question Type: applied, moderate

Multiple Choice

1. When we search for an object, we only see fine details _____.
   a. up close
   b. at fixation
   c. at the center of the scene
   d. they are important to us

Answer: b
Page(s) in Text: 52
Topic: What It Means to Perceive
Question Type: conceptual, easy

*2. Processing part of a sensory input for additional details at the expense of others parts involves _____.
   a. search
   b. signal separation
   c. selective attention
   d. shifting where you are looking

Answer: c
Page(s) in Text: 52
Topic: What It Means to Perceive
Question Type: factual, easy

3. Perception provides information concerning _____ and _____.
   a. what, how
   b. where, how
   c. what, when
   d. what, where

Answer: d
Page(s) in Text: 53
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, easy

4. Ultimately, our perceptions lead to _____.
   a. recognition
   b. attention
   c. action
   d. awareness

Answer: c
Page(s) in Text: 53
Topic: How It Works: The Case of Visual Perception
Question Type: factual, easy

*5. Which set below is in the proper order for visual processing?
a. retina, optic nerve, LGN
b. LGN, optic nerve, V1
c. ganglion cells, photoreceptors, LGN
d. optic nerve, striate cortex, ganglion cells

Answer: a
Page(s) in Text: 53
Topic: How It Works: The Case of Visual Perception
Question Type: factual, moderate

6. In vision, the dorsal pathway::ventral pathway as _____.
a. frontal lobes::temporal lobes
b. occipital lobes::parietal lobes
c. LGN::striate cortex
d. parietal lobes::temporal lobes

Answer: d
Page(s) in Text: 53-55
Topic: How It Works: The Case of Visual Perception
Question Type: factual, difficult

*7. Where an item is located and how it might be acted upon in space is processed in the _____ pathway.
a. visual
b. dorsal
c. ventral
d. caudal

Answer: b
Page(s) in Text: 53
Topic: How It Works: The Case of Visual Perception
Question Type: factual, moderate

*8. Recognition and identification of an object occurs in the _____ pathway.
a. visual
b. superior
c. ventral
d. dorsal

Answer: c
Page(s) in Text: 55
Topic: How It Works: The Case of Visual Perception
Question Type: factual, moderate

*9. _____ processes are driven by sensory information while _____ processes are driven by knowledge, beliefs, expectations, and goals.
a. External, internal
b. Bottom-up, top-down
c. Top-down, bottom-up
d. Passive, active

Answer: b
Page(s) in Text: 55
Topic: How It Works: The Case of Visual Perception
Question Type: factual, easy

10.  If you see six vertical lines to the left, you are likely engaged in _____ processing.

a. top-down
b. external
c. bottom-up
d. passive

Answer: c
Page(s) in Text: 55
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, moderate

11.  If you see three pairs of two lines to the left, you are likely engaged in _____ processing.

a. internal
b. active
c. top-down
d. bottom-up

Answer: c
Page(s) in Text: 55
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, moderate

12. Perceptions are _____ of what we see.

a. mental copies
b. interpretations
c. mental images
d. neural codes

Answer: b
Page(s) in Text: 56
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, easy

13. Perceptions are formed by _____ processing.

a. bottom-up
b. bottom-up and top-down
c. passive and active
d. internal

Answer: b
Page(s) in Text: 56
Topic: How It Works: The Case of Visual Perception
Question Type: factual, easy

14. Our interpretations of the world are influenced by our _____ and _____.
a. bottom-up, top-down processing c. environment, experience
b. motivation, goals d. biological structure, experience

Answer: d
Page(s) in Text: 56
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, moderate

15. An experiment in which a kitten is placed in an environment with only vertical lines for a period of time and then has difficulty moving about an environment with only horizontal lines demonstrates _____.
a. the importance of the environment c. the importance of a critical period
b. the importance of research ethics d. the importance of both vertical and horizontal lines

Answer: c
Page(s) in Text: 56-57
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, difficult

16. Sensory information from all modalities appears to _____.
a. be processed equally c. be processed serially with vision first
b. compete for cortical resources d. be processed according to "first in - first out"

Answer: b
Page(s) in Text: 57
Topic: How It Works: The Case of Visual Perception
Question Type: factual, easy

17. _____ refers to a cell that responds to a certain area in the physical world at a particular moment.
a. Visual field c. Ganglion
b. Receptive field d. Receptor

Answer: b
Page(s) in Text: 58
Topic: Building from the Bottom Up: From Features to Objects
Question Type: conceptual, moderate

18. A collection of photoreceptors organized in such a way that a light excites the photoreceptors in the middle but inhibits photoreceptors toward the outside is also known as a(n) _____.

a. basic receptive field
b. excitatory receptive field
c. center-surround receptive field
d. complex receptive field

Answer: c
Page(s) in Text: 58-59
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, moderate

19. A light and dark bar are side by side. When you look at the bars, a portion of the light bar looks lighter next to the dark bar and a portion of the dark bar looks darker next to the light bar. This phenomenon is referred to a _____.

a. lateral inhibition
b. ganglion interactions
c. edge detection
d. Mach bands

Answer: d
Page(s) in Text: 62
Topic: Building From the Bottom Up: From Features to Objects
Question Type: conceptual, easy

20. To process detail, you need a _____ receptive field.

a. large
b. medium
c. center-surround
d. small

Answer: d
Page(s) in Text: 62-63
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, easy

21. Part of the visual pathway that is easy to recognize because it looks like an "X" is the _____.

a. lateral geniculate nucleus
b. superior colliculus
c. optic tract
d. optic chiasm

Answer: d
Page(s) in Text: 63
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, easy

22. Cells in the visual cortex that are organized according to their sensitivity to certain aspects of a visual feature are referred to as _____.

a. receptive fields
b. hypercolumns
c. extrastriate cortex
d. V1

Answer: b
Page(s) in Text: 63
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, moderate

23. The tilt aftereffect is an example in which some cells are _____ in order to provide evidence for the type of information processed by other cells.

a. removed
b. excited
c. inhibited
d. fatigued

Answer: d
Page(s) in Text: 64
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, moderate

24. Damage to this area of the extrastriate cortex results in akinetopsia.

a. V2
b. V4
c. V5
d. V1

Answer: c
Page(s) in Text: 65
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, difficult

25. Achromatopsia results from damage to _____.

a. V2
b. V4
c. V5
d. V1

Answer: d
Page(s) in Text: 65
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, difficult

26. Mark sustained a head injury during a car accident. After the accident, Mark had no memory of color. He is most likely suffering from which of the following?

a. akinestopia
b. amnesia
c. achromatopsia
d. agnosia

Answer: c
Page(s) in Text: 65
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, moderate

27. John had a stroke. After the stroke he reported only being able to see a series of still images – no fluid motion. You order an MRI to look for damage to area _____.

a. V1
b. V5
c. V2
d. V4

Answer: b
Page(s) in Text: 65
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, moderate

28. Akinetopsia is also known as _____.

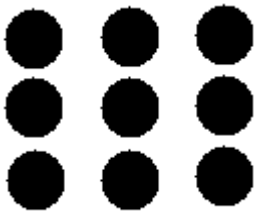
a. cortical color blindness
b. prosopagnosia
c. motion deficit syndrome
d. motion blindness

Answer: d
Page(s) in Text: 65
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, moderate

29. Grouping principles were discovered by _____.

a. Tichner
b. Gestalt psychologists
c. Wundt
d. functionalist psychologists

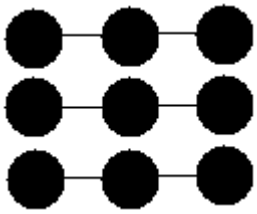
Answer: b
Page(s) in Text: 65
Topic: Building From the Bottom Up: From Features to Objects
Question Type: factual, easy



30. Which Gestalt grouping principle explains why the nine dots to the left look like three columns of three dots each?

a. good continuation
b. similarity
c. uniform connectedness
d. proximity

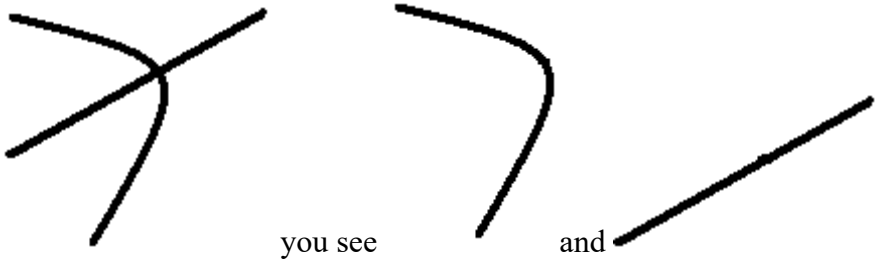
Answer: d
Page(s) in Text: 65-66
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, easy



31. _____ explains why these dots are seen as three rows of three dots.

a. Good continuation
b. Similarity
c. Uniform connectedness
d. Proximity

Answer: c
Page(s) in Text: 65-66
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, easy



32. When you look at you see and instead of some other configuration due to which Gestalt grouping principle?

a. closure
c. similarity
b. uniform connectedness
d. good continuation

Answer: d
Page(s) in Text: 66
Topic: Building from the Bottom Up: From Features to Objects

Question Type: applied, easy

33. Why might you perceive this  as an O instead of a C?

a. good continuation
b. closure
c. uniform connectedness
d. familiarity

Answer: b
Page(s) in Text: 66
Topic: Building from the Bottom Up: From Features to Objects
Question Type: applied, easy

*34. Sometimes you can see a shape that is not really present because your visual system fills in parts of the shape. When this happens, we see a(n) _____.

a. pseudo-shape
b. subjective illusion
c. illusory context
d. subjective contour

Answer: d
Page(s) in Text: 68
Topic: Building from the Bottom Up: From Features to Objects
Question Type: factual, moderate

35. Objects that are occluded are seen as _____ objects.

a. complete
b. unrecognizable
c. fragmented
d. missing

Answer: a
Page(s) in Text: 67-68
Topic: Building from the Bottom Up: From Features to Objects
Question Type: conceptual, easy

36. Agnosia results from damage to _____.

a. sensory organs
b. part of the brain
c. sensory nerves
d. the spinal cord

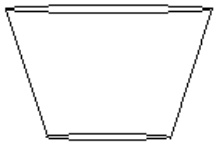
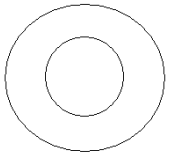
Answer: b
Page(s) in Text: 70
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, easy

37. If you are diagnosing someone with potential agnosia, you need to rule out _____.
a. cortical damage
b. damage to the sense organs
c. environmental conditions
d. genetic factors

Answer: b
Page(s) in Text: 70
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: applied, moderate

*38. After a stroke, Steve is unable to recognize his wife's face can but recognize her by her voice. Steve's inability to recognize his wife's face may be due to _____.
a. selective memory loss
b. multi-sensory interference
c. post-stroke syndrome
d. visual agnosia

Answer: d
Page(s) in Text: 70-71
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: applied, easy

39. When you look at a bucket from the side, you see something like this 
However, when you look down from above the bucket you see looks something like this 
Why are these two images of the same object so different?
a. object perspective
b. unusual vantage point
c. observer perspective
d. viewpoint dependence

Answer: d
Page(s) in Text: 71-72
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: applied, moderate

*40. Template-matching models :: Feature-matching models as
a. part :: whole
b. pattern :: corresponding
c. whole :: part
d. identical :: characteristic

Answer: c
Page(s) in Text: 72-73
Topic: Achieving Visual Recognition: Have I Seen You Before?

Question Type: conceptual, easy

41. Recognizing a golden retriever, poodle, and husky as dogs represents _____.
a. template matching c. exemplar variation
b. viewpoint dependence d. feature matching

Answer: c
Page(s) in Text: 72
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: conceptual, moderate

42. Research has shown that there are neurons in the visual cortex that are tuned to all of the following visual features except _____.
a. color c. letters
b. shape d. eyes of a face

Answer: c
Page(s) in Text: 76
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, moderate

43. Geons are _____.
a. viewpoint dependent c. configural models
b. viewpoint invariant d. templates

Answer: b
Page(s) in Text: 79
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, moderate

*44. _____ are simple three-dimensional geometric shapes that are combined to form the objects we see.
a. Icons c. Vertices
b. Cubicles d. Geons

Answer: d
Page(s) in Text: 79
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, easy

45. Configural models take into account _____.
a. the types of geons present c. viewpoints
b. spatial relations d. feature matching

Answer: b
Page(s) in Text: 79
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, moderate

46. Describing a suspicious person as having eyes too close together is consistent with which model of object recognition?

a. template-matching models
b. configural models
c. feature-matching models
d. recognition-by-components model

Answer: b
Page(s) in Text: 81
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: applied, difficult

*47. Prosopagnosia refers to the inability to recognize different _____.

a. objects
b. colors
c. geons
d. faces

Answer: d
Page(s) in Text: 83
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, moderate

48. The four types of models of object recognition include all of the following <u>except</u> _____.

a. template-matching models
b. recognition-by-context models
c. feature-matching models
d. configural models

Answer: b
Page(s) in Text: 71-83
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, moderate

49. Face recognition has been linked to what area in the brain?

a. fusiform gyrus
b. central sulcus
c. thalamus
d. medial temporal area

Answer: a
Page(s) in Text: 84
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, difficult

50. Illusions of brightness and size show us that _____ can influence our perceptions.

a. confusion c. context
b. errors d. uncertainty

Answer: c
Page(s) in Text: 85
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: applied, easy

51. If you visit a plastic surgeon to discuss a nose job, you should look at pictures of different noses on a face instead of pictures of individual noses because of the _____.
a. face superiority effect c. size illusion
b. face perception adaptation d. interactive processing

Answer: a
Page(s) in Text: 90
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: applied, moderate

52. Network feedback models include _____.
a. recognition monitoring c. parallel processing
b. confirmation monitoring d. bottom-up and top-down processing

Answer: d
Page(s) in Text: 81
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: factual, moderate

53. _____ use information from previous experiences to make inferences about the environment.
a. Bayesian approaches c. Superiority effects
b. Context effects d. Network feedback models

Answer: a
Page(s) in Text: 92-93
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: conceptual, moderate

54. There are two young children. One lives on a farm and has seen dogs, cats, horses, cows, and pigs. The other child lives in the suburbs and has only seen different types of dogs. If both children are shown a new breed of dog that they had no prior exposure to, according to Bayes's theorem, which child would recognize the new animal as a dog faster?
a. the child from the suburbs c. neither child would have an advantage
b. it depends on motor ability d. the child from the farm

Answer: a
Page(s) in Text: 92-93
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: applied, difficult

55. _____ processing is determined by information from the external environment.
a. Bottom-up
b. Top-down
c. Middle-out
d. Network

Answer: a
Page(s) in Text: 94
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, easy

56. _____ processing is guided by knowledge, beliefs, goals, and expectations.
a. Top-down
b. Network
c. Middle-out
d. Bottom-up

Answer: a
Page(s) in Text: 94
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, easy

57. Bottom-up and top-down processing tend to _____.
a. be processed serially
b. be modular
c. be processed in parallel
d. interact

Answer: d
Page(s) in Text: 94
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: conceptual, easy

58. Neural evidence supports the idea that the visual perception is an interactive system since _____ sends more projects back to _____ than it receives.
a. V2, V1
c. V1, LGN
b. the fusiform gyrus, V2
d. inferior temporal cortex, V2

Answer: c
Page(s) in Text: 94
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, difficult

59. The Necker cube is an example of _____.
a. a size illusion
b. adaptation
c. bistable perception
d. figure-ground

Answer: c
Page(s) in Text: 95
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, moderate

60. The face-vase illusion is an example of _____.
a. a size illusion
b. adaptation
c. bistable perception
d. figure-ground

Answer: d
Page(s) in Text: 95
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, moderate

61. With the face-vase illusion, it is impossible to see _____.
a. the face and vase simultaneously
b. the vase
c. the face
d. alternating faces and vase

Answer: a
Page(s) in Text: 95-96
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: conceptual, difficult

62. The _____ is active during the spontaneous reversals of ambiguous figures.
a. posterior parietal cortex
b. ventral extrastriate cortex
c. prefrontal cortex
d. ventral temporal cortex

Answer: b
Page(s) in Text: 96
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, difficult

63. Spatial processing relies on the _____ pathway.
a. occipital
b. temporal
c. ventral
d. dorsal

Answer: d
Page(s) in Text: 97
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, difficult

64. Object recognition processing relies on the _____ pathway.
a. dorsal
c. ventral
b. parietal
d. occipital

Answer: c
Page(s) in Text: 97
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, difficult

65. George had a stroke which damaged part of his temporal lobe. With which perceptual function is George most likely to experience difficulties?
a. locating objects
b. binocular rivalry
c. bistable perception
d. recognizing objects

Answer: d
Page(s) in Text: 97
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: applied, difficult

66. Gracie had a stroke which damaged part of her parietal lobe. With which perceptual function is Gracie most likely to experience difficulties?
a. locating objects
b. binocular rivalry
c. bistable perception
d. recognizing objects

Answer: a
Page(s) in Text: 97
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: applied, difficult

67. Ventral pathway :: dorsal pathway as _____.
a. location :: recognition
b. where :: what
c. competition :: adaptation
d. what :: where

Answer: d
Page(s) in Text: 97
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: conceptual, difficult

68. Apperceptive agnosia refers to the inability to _____.
a. judge the form of objects
b. resolve bistable images
c. locate objects in space
d. know what to do with an object

Answer: a
Page(s) in Text: 98
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, difficult

69. Apraxia refers to the inability to _____.
a. describe objects from memory
b. report orientation of objects
c. judge the form of objects
d. make voluntary movements

Answer: d
Page(s) in Text: 99
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, difficult

70. The Rubin face-vase illusion is an example of a(n) _____.
a. ambiguous figure
b. bottom-up processing
c. binocular rivalry
d. Dutch impressionism

Answer: a
Page(s) in Text: 96
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: factual, easy

71. You suspect that an individual, who is having difficulty describing the forms and shapes of objects, has apperceptive agnosia. You want to conduct an MRI to determine if, in fact, damage to the brain has occurred. Considering you think she has apperceptive agnosia, what part of the brain would you look at first?
a. visual cortex
b. ventral pathway
c. LGN
d. dorsal pathway

Answer: b
Page(s) in Text: 98
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: applied, difficult

72. Sam has difficulties making voluntary movements. You suspect that he may have apraxia. If you were able to perform an MRI on Sam, what area of the brain would you look for damage to support your suspicion?
a. visual cortex
b. ventral pathway
c. LGN
d. dorsal pathway

Answer:
Page(s) in Text: 99
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: applied, difficult

73. The difference between the “what” and “where” pathways provide (a) _____.
a. double dissociation
b. independent perceptual paths
c. dual processing system
d. binocular rivalry

Answer: a
Page(s) in Text: 99
Topic: In Models and Brains: The Interactive Nature of Perception
Question Type: conceptual, difficult

Short Answer

74. Briefly describe two reasons why sensory input is often ambiguous.

Answer: (1) sensory information does not contain enough information to explain our perceptions and (2) the world has too much sensory input to include into our coherent perceptions at any single given moment
Page(s) in Text: 51
Topic: What It Means to Perceive
Question Type: conceptual, moderate

75. Describe two ways in which visual processing is narrowed to eliminate the problem of having too much sensory information to process at any given time.

Answer: (1) detailed processing only occurs in the fovea or at fixation and (2) selective attention
Page(s) in Text: 52
Topic: What It Means to Perceive
Question Type: conceptual, moderate

76. Distinguish between bottom-up and top-down processing.

Answer: Bottom-up processing is sensory driven. Top-down processing is driven by knowledge, beliefs, expectations, and goals.
Page(s) in Text: 55
Topic: How It Works: The Case of Visual Perception
Question Type: factual, easy

77. Colinearity was described in your text as a special case of relatability. What is relatability and why is it important for grouping and perceiving contours in the world?

Answer: Relatability refers to how well contours relate to each other. The basic question in addressing relatability is how likely are two parts to be part of the same contour.
Page(s) in Text: 66-67
Topic: How It Works: The Case of Visual Perception
Question Type: conceptual, difficult

78. Describe the binding problem.

Answer: The binding problem focuses on how we associate different sensory and perceptual features (e.g., size, shape, color) to ultimately perceive a single object. This problem arises because we appear to process different features in different areas of the brain, indicating that these individual features must be combined at some point to form a single object.
Page(s) in Text: 69
Topic: Building from the Bottom Up: From Features to Objects
Question Type: conceptual, moderate

79. A current debate in visual perception is whether or not perception occurs as a result of a number of specialized subsystems or if it is the result of a single general-purpose recognition system. Present evidence that supports both sides of this debate. Which side of the debate do you favor? Explain your decision

Answer: Damage to the ventral temporal cortex is associated with difficulties in recognizing all types of objects. This suggests that recognition is a single process distributed across the brain. However, research also indicates that the fusiform gyrus is primarily responsive to faces in upright orientations and that damage to this part of the brain is associated with the inability to recognize faces. In contrast, damage to portions of the ventral temporal cortex is associated with the inability to recognize objects. The double dissociation between face and object recognition suggests that perception is specialized to particular areas of the brain indicative of the modular perspective.
Page(s) in Text: 83-84
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: factual, difficult

80. The physical context of a stimulus is not the only thing that can influence perception. What are some other factors that can influence how we perceive objects? Give an example.

Answer: Knowledge, beliefs, goals, and expectations also influence perception. [partial answer]
Page(s) in Text: 85-90
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: conceptual, moderate

81. Briefly explain how the feature net model of word recognition accounts for the word superiority effect.

Answer: Bottom-up processing occurs as features are processed and combined to activate different letters. Additionally, the letters are combined to activate possible words. Top-down processing occurs as the possible words are used to fill in the missing pieces of the letters.
Page(s) in Text: 90-93
Topic: Interpreting from the Top Down: What You Know Guides What You See
Question Type: factual, difficult

Essay

82. Describe how the visual system detects edges.

Answer: If there are light and dark surfaces next to each other forming an edge separating the surfaces, center-surround receptive fields are excited by the light surface but inhibited by the darker surface. Additionally, the center-surround receptive fields on the border between the light and dark surfaces respond differently since these receptive fields startle both the light and dark sides. On the light side, the center of these receptive fields is excited by the light and a portion of the surround is excited by the dark, producing a heightened response. Conversely, on the dark side, the center is inhibited by the dark and a portion of the surround is inhibited by the light,

producing a more negative response. The resulting perception is an edge but one with Mach bands.
Page(s) in Text: 59-62
Topic: Building from the Bottom Up: From Features to Objects
Question Type: conceptual, moderate

83. An object that is occluded can still be recognized. Explain why we can still recognize an object that is occluded. Also describe a potential perceptual error that can arise when something is occluded.

Answer: An occluded object is perceived as a complete object because the portion of the object that is occluded is filled in by the visual system. Relatability is one factor that contributes to this completion process. However, we can sometimes perceive a stimulus inaccurately when we fill in information that is not present in reality.
Page(s) in Text: 66-69
Topic: Building from the Bottom Up: From Features to Objects
Question Type: conceptual, difficult

84. Differentiate between viewpoint dependence and viewpoint invariance. Speculate as to the advantages and disadvantages of each.

Answer: Viewpoint dependence refers to the different orientations or views we see objects from. Each view can produce a unique image of the object. Dealing with viewpoint dependence within a template matching account, for example, would require a tremendous number of templates corresponding to all of the objects we have seen from all the different orientations we can see them from. This tremendous number of templates would result in a cumbersome matching process. Viewpoint invariance is the opposite of viewpoint dependence and suggests that viewpoint-invariant properties are seen as part of an object regardless of the point of view. The invariant properties of geons, for instance, are useful for determining the general category of an object but are not as well suited for detecting individual differences.
Page(s) in Text: 71-81
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: conceptual, difficult

85. Four models of recognition were presented in the text. Briefly describe how each of the four models work. Choose two of the four models and provide an example of how the two models could interact together leading to the recognition of objects.

A current debate in visual perception is whether or not perception occurs as a result of a number of specialized subsystems or if it is the result of a single general-purpose recognition system. Present evidence that supports both sides of this debate. Which side of the debate do you favor? Explain your decision

Answer: Template-matching models compare objects to a standard. A match between the two results in recognition. Feature-matching models match characteristic features instead of the whole object. The recognition-by-components model combines geons to form objects.

Configural models take into account the spatial relations between features and how these relations deviate from a prototype. [partial answer]
Page(s) in Text: 73-83
Topic: Achieving Visual Recognition: Have I Seen You Before?
Question Type: applied, difficult

Name: _____

Chapter 2 – Quick Quiz

1. Processing part of a sensory input for additional details at the expense of others parts involves _____.

a. search
c. selective attention
b. signal separation
d. shifting where you are looking

2. Which set below is in the proper order for visual processing?

a. retina, optic nerve, LGN
c. ganglion cells, photoreceptors, LGN
b. LGN, optic nerve, V1
d. optic nerve, striate cortex, ganglion cells

3. Where an item is located and how it might be acted upon in space is processed in the _____ pathway.

a. visual
c. ventral
b. dorsal
d. caudal

4. Recognition and identification of an object occurs in the _____ pathway.

a. visual
c. ventral
b. superior
d. dorsal

5. _____ processes are driven by sensory information while _____ processes are driven by knowledge, beliefs, expectations, and goals.

a. External, internal
c. Top-down, bottom-up
b. Bottom-up, top-down
d. Passive, active

6. Sometimes you can see a shape that is not really present because your visual system fills in parts of the shape. When this happens, we see a(n) _____.

a. pseudo-shape
c. illusory context
b. subjective illusion
d. subjective contour

7. After a stroke, Steve is unable to recognize his wife's face can but recognize her by her voice. Steve's inability to recognize his wife's face may be due to _____.

a. selective memory loss
c. post-stroke syndrome
b. multi-sensory interference
d. visual agnosia

8. Template-matching models :: Feature-matching models as _____.

a. part :: whole
c. whole :: part
b. pattern :: corresponding
d. identical :: characteristic

9. _____ are simple three-dimensional geometric shapes that are combined to form the objects we see.

a. Icons
c. Vertices
b. Cubicles
d. Geons

10. Prosopagnosia refers to the inability to recognize different _____.

a. objects
b. color
c. geons
d. faces