Chapter 1: The Science of the Mind

MULTIPLE CHOICE

1. Which of the following topics is NOT commonly studied within cognitive psychology?
   a. dreaming
   b. decision making
   c. memory
   d. attention

   ANS: A DIF: Easy REF: The Scope of Cognitive Psychology
   OBJ: Applied TOP: IA

2. Cognitive processes are NOT necessary for which daily activity?
   a. reading a newspaper
   b. studying for a test
   c. talking on the phone
   d. breathing

   ANS: D DIF: Easy REF: The Scope of Cognitive Psychology
   OBJ: Applied TOP: IA

3. Patients suffering from clinical amnesia are characterized by a disorder in their
   a. memory.
   b. ability to recognize patterns.
   c. speech.
   d. ability to comprehend language.

   ANS: A DIF: Easy REF: The Scope of Cognitive Psychology
   OBJ: Factual TOP: IB

4. Which of the following statements is LEAST likely to apply to patient H.M.?
   a. “He cannot remember what he did earlier today, including events that took place just an hour ago.”
   b. “He read this story last month, but he was still surprised by how the story turned out.”
   c. “Even though he has encountered the nurse many times, he is still unable to recognize her.”
   d. “He has gradually adjusted over the last few months to the news of his uncle’s death.”

   ANS: D DIF: Medium REF: The Scope of Cognitive Psychology
   OBJ: Applied TOP: IB

5. H.M. provides an illustration for which major theme of the chapter?
   a. Introspection is not sufficient evidence in and of itself.
   b. Cognition is interested in mental processes, as well as activities that depend on these processes.
   c. Memory is not very important.
   d. Damage to a small part of the brain can have a big effect on behavior.

   ANS: B DIF: Medium REF: The Scope of Cognitive Psychology
   OBJ: Conceptual TOP: IB

6. The term “introspection” refers to the
   a. process by which one individual seeks to infer the thoughts of another individual.
   b. procedure of examining thought processing by monitoring the brain’s electrical activity.
   c. process of each person looking within, to observe his or her own thoughts and ideas.
   d. technique of studying thought by interpreting the symbols used in communication.

   ANS: C DIF: Easy REF: The Years of Introspection
   OBJ: Factual TOP: IIA

7. A participant is asked to look within him- or herself and report on his or her own mental processes. This method is called
   a. self-reflection.
   b. self-monitoring.
   c. introspection.
   d. mentalistic study.

   ANS: C DIF: Easy REF: The Years of Introspection
   OBJ: Factual TOP: IIA

8. Introspection CANNOT be used to study
   a. topics that are strongly colored by emotion.
   b. mental events that are unconscious.
   c. processes that involve conceptual knowledge.
   d. events that take a long time to unfold.

   ANS: B DIF: Easy REF: The Years of Introspection
   OBJ: Applied TOP: IIA

9. Which of the following statements about introspection is NOT true?
   a. It is based on opinions, not facts.
   b. It is subjective.
   c. It provides a testable hypothesis.
   d. It was an early form of evidence.

   ANS: C DIF: Medium REF: The Years of Introspection
   OBJ: Factual TOP: IIA

10. Genie wonders why she can never remember the names of new acquaintances. In search of an answer, she analyzes her mental behaviors and feelings about meeting new people. Genie is engaged in which process?
    a. subvocal rehearsal
    b. introspection
    c. learning history analysis
    d. goal retrieval

    ANS: B DIF: Medium REF: The Years of Introspection
    OBJ: Applied TOP: IIA

11. Introspection is considered the first step toward cognitive psychology as a science because
    a. it was the first systematic attempt to observe and record the content of mental processes.
    b. interpretation of our mental lives requires training.
    c. conscious events are just as important as unconscious events.
    d. it provided the first testable claims.

    ANS: A DIF: Medium REF: The Years of Introspection
    OBJ: Conceptual TOP: IIA1

12. Which of the following statements is NOT a concern about the use of introspection as a research tool?
    a. A verbal report based on introspection may provide a distorted picture of mental processes that were nonverbal in nature.
    b. Different participants use different terms to describe similar experiences.
    c. At present, there is enormous uncertainty about the relationship between the activity in the brain and the ideas and thoughts available to introspection.
    d. Participants' motivation may influence what they choose to disclose.

    ANS: C DIF: Medium REF: The Years of Introspection
    OBJ: Conceptual TOP: IIA2

13. Which of the following statements provides the MOST serious obstacle to the use of introspection as a source of scientific evidence?
    a. When facts are provided by introspection, we have no way to assess the facts themselves, independent of the reporter's particular perspective on them.
    b. Introspection requires an alert, verbally expressive investigator; otherwise, the evidence provided by introspection will be of poor quality.
    c. Introspection provides evidence about some mental events but cannot provide evidence about unconscious processes or ideas.
    d. The process of reporting on one's own mental events can take a lot of time and can slow down the processes under investigation.

    ANS: A DIF: Difficult REF: The Years of Introspection
    OBJ: Conceptual TOP: IIA2

14. The process of taking observable information and inferring a cause is known as
    a. mentalistic inference.
    b. the transcendental method.
    c. cause and effect.
    d. introspection.

    ANS: B DIF: Medium REF: The Years of Introspection
    OBJ: Factual TOP: IIC1

15. An elderly woman has suffered a stroke in her left temporal lobe and consequently can no longer name common nouns. This provides evidence that language is located in the left hemisphere for most people. What kind of evidence is this?
    a. introspection
    b. unique population
    c. neuroscience
    d. behavioral

    ANS: C DIF: Medium REF: The Years of Introspection
    OBJ: Applied TOP: IIID2

16. Historically, the movement known as behaviorism was encouraged by scholars' concerns regarding
    a. psychotherapy.
    b. an exaggerated focus on participants' responses.
    c. research based on introspection.
    d. a focus on brain mechanisms and a corresponding inattention to mental states.

    ANS: C DIF: Easy REF: The Years of Behaviorism
    OBJ: Applied TOP: IIB

17. One important difference between classical behaviorism and cognitive psychology is that cognitive psychology
    a. argues that unobservable mental states can be scientifically studied.
    b. rejects the use of human participants.
    c. insists on studying topics that can be directly and objectively observed.
    d. emphasizes the evolutionary roots of human behavior.

    ANS: A DIF: Medium REF: The Years of Behaviorism
    OBJ: Applied TOP: IIB

18. Behaviorists study organisms'
    a. expectations.
    b. desires and motivations.
    c. dreams.
    d. responses.

    ANS: D DIF: Easy REF: The Years of Behaviorism
    OBJ: Factual TOP: IIB1

19. Behaviorists argued that _____ were most important in analyzing behavior.
    a. expectations
    b. beliefs
    c. wishes
    d. learning histories

    ANS: D DIF: Easy REF: The Years of Behaviorism
    OBJ: Factual TOP: IIB1

20. Which of the following would a classical behaviorist be LEAST likely to study?
    a. a participant's response to a particular situation
    b. a participant's beliefs
    c. changes in a participant's behavior that follow changes in the environment
    d. principles that apply equally to human behavior and to the behavior of other species

    ANS: B DIF: Medium REF: The Years of Behaviorism
    OBJ: Applied TOP: IIB1

21. Modern psychology turned away from behaviorism in its classic form because
    a. human behavior is routinely determined by our understanding of stimuli.
    b. humans are more similar to computers than to other species studied in the laboratory.
    c. psychology rejected behaviorism's emphasis on an organism's subjective states.
    d. an organism's behavior can be changed by learning.

    ANS: A DIF: Medium REF: The Years of Behaviorism
    OBJ: Conceptual TOP: IIB2

22. If Sheila says, "Pass the salt, please," you are likely to pass her the salt. You'll probably respond in the same way if Sheila (a chemistry major) instead asks, "Could you please hand me the sodium chloride crystals?" This observation seems to indicate that our behavior is
    a. primarily controlled by the physical characteristics of the stimuli we encounter.
    b. shaped by the literal meanings of the stimuli we encounter.
    c. determined by simple associations among the stimuli we encounter.
    d. governed by what the stimuli we encounter mean to us.

    ANS: D DIF: Difficult REF: The Years of Behaviorism
    OBJ: Conceptual TOP: IIB2

23. Cognitive psychology often relies on the transcendental method, in which
    a. mental events are explained by referring to events in the central nervous system.
    b. information from introspection transcends behavioral data.
    c. researchers seek to infer the properties of unseen events on the basis of the observable effects of those events.
    d. theories are tested via computer models.

    ANS: C DIF: Easy REF: The Roots of the Cognitive Revolution
    OBJ: Factual TOP: IIC

24. Alyssa wants to be a psychologist but is unsure which topic within psychology most interests her. Which of the following topics would be least likely to lead her into cognitive psychology?
    a. amnesia
    b. language acquisition
    c. depression
    d. problem-solving strategies

    ANS: C DIF: Easy REF: The Roots of the Cognitive Revolution
    OBJ: Applied TOP: IIC1

25. The philosopher Immanuel Kant based many of his arguments on transcendental inferences. A commonplace example of such an inference is a

a. physicist inferring what the attributes of the electron must be on the basis of visible effects that it causes.
b. computer scientist inferring what the attributes of a program must be on the basis of his or her long-range goals for the program's functioning.
c. biologist inferring how an organism is likely to behave in the future on the basis of assessment of past behaviors.
d. behaviorist inferring how a behavior was learned on the basis of a deduction from well-established principles of learning.

ANS: A DIF: Medium REF: The Roots of the Cognitive Revolution
OBJ: Applied TOP: IIC1

26. Cognitive psychologists try to make inferences about causes, based on the observed effects. In this way, cognitive psychologists are most like
a. crime scene investigators.
b. garbage collectors.
c. chefs.
d. construction workers.

ANS: A DIF: Medium REF: The Roots of the Cognitive Revolution
OBJ: Applied TOP: IIC1

27. The "cognitive revolution" is named as such because:
a. the focus changed from behaviors to the processes underlying those behaviors.
b. the change was accompanied by violence.
c. the focus changed from animals to humans.
d. philosophers such as Kant were strongly opposed to the change.

ANS: A DIF: Easy REF: The Roots of the Cognitive Revolution
OBJ: Applied TOP: IIC2

28. In cognition, as in other sciences, we first develop _____ and then _____ them.
a. tests; prove
b. theories; test
c. hypotheses; prove
d. hypotheses; test

ANS: D DIF: Medium REF: The Roots of the Cognitive Revolution
OBJ: Applied TOP: IIC2

29. The multicomponent model of working memory shows that
a. cognitive theories must be accompanied by a model.
b. we can only test things we can physically see.
c. theories are built around testable predictions.
d. evidence from multiple sources often leads to confusion.

ANS: C DIF: Medium REF: The Roots of the Cognitive Revolution
OBJ: Conceptual TOP: IIIC

30. Working memory acts to
a. store an unlimited amount of information.
b. store a limited amount of information for an unlimited amount of time.
c. keep relevant information active for a short period of time.
d. store irrelevant information so it does not influence long-term memory.

ANS: C DIF: Easy REF: Working Memory: Some Initial Observations
OBJ: Factual TOP: IIIA1

31. Imagine a friend is giving you her new phone number. You have nothing with which to write the number down, so you try to remember it. Which cognitive process will you engage in to accomplish this task?
    a. amnesia
    b. long-term memory
    c. introspection
    d. working memory

    ANS: D DIF: Easy REF: Working Memory: Some Initial Observations
    OBJ: Applied TOP: IIIA1

32. Consider the sentence, "Sam, tired from hours of reading and working on his term paper, fell into bed at last." When you reach the sentence's 13th word ("fell"), you need to remember how the sentence began; otherwise, you won't know who fell into bed. The memory used for this task is called
    a. episodic memory.
    b. working memory.
    c. generic memory.
    d. long-term memory.

    ANS: B DIF: Medium REF: Working Memory: Some Initial Observations
    OBJ: Applied TOP: IIIA2

33. You want to order a pizza and need to pay with a credit card. You glance at your credit card number and then put the card back into your wallet. When it comes time to pay, you can only remember the first four numbers. Which of the following provides the BEST explanation as to why?
    a. Working memory is limited to 15 items, and your card has 16 digits.
    b. Your credit card number is mostly 4's and 2's and you get confused.
    c. The pizza delivery guy keeps talking while you are rehearsing the digits.
    d. Working-memory capacity is reduced because you have to hold the phone.

    ANS: C DIF: Medium REF: Working Memory: Some Initial Observations
    OBJ: Applied TOP: IIIA3

34. Span tests measure
    a. the size of the phonological buffer.
    b. working-memory capacity.
    c. whether there is a central executive.
    d. articulatory loop processing.

    ANS: B DIF: Easy REF: Working Memory: Some Initial Observations
    OBJ: Factual TOP: IIIA4

35. In an experimental procedure, participants hear a sequence of letters and then, a moment later, are required to repeat back the sequence. The longest sequence for which participants can easily do this is likely to contain approximately _____ letters.
    a. 3
    b. 5
    c. 7
    d. 12

    ANS: C DIF: Easy REF: Working Memory: Some Initial Observations
    OBJ: Factual TOP: IIIA4

36. You give your friend a series of lists of letters to remember. With each perfectly recalled list, you increase the list length by one or two items, until he begins to make errors. This sort of test examines
    a. working-memory span.
    b. the limits of concurrent articulation.
    c. brain activity.
    d. memory for abstract objects.

    ANS: A DIF: Easy REF: Working Memory: Some Initial Observations
    OBJ: Applied TOP: IIIA4

37. Subvocalization is also known as
    a. the reading buffer.
    b. the inner voice.
    c. the inner ear.
    d. memory speech.

    ANS: B DIF: Easy REF: Working Memory: A Proposal
    OBJ: Factual TOP: IIIB2

38. The technical term for talking to yourself when rehearsing verbal material is
    a. vocal memory.
    b. schizophrenia.
    c. subvocalization.
    d. subconscious reading.

    ANS: C DIF: Easy REF: Working Memory: A Proposal
    OBJ: Factual TOP: IIIB2

39. Within the working-memory system, mental "assistants" are available to allow the storage of information soon to be needed but not currently in use. A crucial "scratch pad" is the
    a. output buffer.
    b. executive assistant.
    c. response-planning system.
    d. articulatory rehearsal loop.

    ANS: D DIF: Medium REF: Working Memory: A Proposal
    OBJ: Factual TOP: IIIB2 | IIIB3

40. In using the articulatory rehearsal loop, the central executive temporarily relies on storage in
    a. a phonological buffer.
    b. episodic memory.
    c. a subvocal bank.
    d. a visual form in visual memory.

    ANS: A DIF: Easy REF: Working Memory: A Proposal
    OBJ: Factual TOP: IIIB3

41. A participant hears the sequence "*F, D, P, U, G, Q, R*," and then, a moment later, must repeat the sequence aloud. If errors occur in this procedure, they are likely to involve
    a. sound-alike confusions; for example, "*T* " instead of "*D*."
    b. look-alike confusions; for example, "*O* " instead of "*Q*."
    c. confusions with near neighbors in the alphabet; for example, "*G* " instead of "*F*."
    d. confusions because of strong associations; for example, "*I* " instead of "*Q* " because of the familiarity of "IQ."

    ANS: A DIF: Medium REF: Working Memory: A Proposal
    OBJ: Applied TOP: IIIC2a

42. We know the articulatory rehearsal loop is separate from the other components of working memory because
    a. the multicomponent model is true.
    b. manipulations like concurrent articulation compromise the loop but do not affect the other components.
    c. it is used for storage and the other components are not.
    d. problem solving does not require the rehearsal loop.

    ANS: B DIF: Difficult REF: Evidence for the Working-Memory System
    OBJ: Applied TOP: IIIB

43. Theorists have proposed that working memory is best understood as a system involving multiple components. The activities of this system are controlled by a resource called the
    a. buffer.
    b. supervisor.
    c. central processor.
    d. central executive.

ANS: D DIF: Easy REF: Evidence for the Working-Memory System
OBJ: Factual TOP: IIIB1

44. Bert has sustained damage to a part of his left temporal lobe, which is important for language production. Which of the following problems would we expect to see if Bert were given a WM test?
    a. He would not be able to memorize visual shapes.
    b. He would have difficulty rehearsing items with verbal labels.
    c. His WM would be entirely nonexistent.
    d. No WM problems would be observed.

    ANS: B DIF: Difficult REF: Evidence for the Working-Memory System
    OBJ: Applied TOP: IIIC

45. The task of saying, "tah, tah, tah," while taking a span test to assess working memory is known as
    a. concurrent articulation.
    b. working-memory speech.
    c. subvocalization.
    d. the phonological buffer.

    ANS: A DIF: Easy REF: Evidence for the Working-Memory System
    OBJ: Factual TOP: IIIC1

46. Participants in an experiment are shown a series of digits and then asked to repeat them back a moment later. While being shown the sequence, the participants are required to say, "tah, tah, tah," out loud, over and over again. The evidence indicates that the recitation of "tah, tah, tah" will
    a. have no effect on participants' memory performance.
    b. provide a rhythm that helps organize participants' rehearsal of the digits, thereby improving their memory performance.
    c. block participants from using their inner voice to rehearse the digits, thereby interfering with the memory task.
    d. force participants to rely on the central executive rather than on a less powerful lower-level assistant, thereby improving memory performance.

    ANS: C DIF: Medium REF: Evidence for the Working-Memory System
    OBJ: Applied TOP: IIIC1

47. Participants are shown a series of complex shapes (that are not easily named) and asked to draw them from memory after they have been taken away. Which of the following statements about this exercise is TRUE?
    a. On average, participants can correctly draw ten of the shapes from memory.
    b. Participants can use the process of subvocalization to help them remember the shapes.
    c. Concurrent articulation decreases performance dramatically.
    d. Saying, "tah, tah, tah," out loud while doing this task should not affect performance.

    ANS: D DIF: Difficult REF: Evidence for the Working-Memory System
    OBJ: Applied TOP: IIIC2b

48. Which of the following kinds of evidence is least likely to be used in cognitive psychology?
    a. case studies of patients with brain damage
    b. behavioral findings such as response times
    c. brain activity in the form of fMRI
    d. self-reported dreams

    ANS: D DIF: Easy REF: The Nature of the Working-Memory Evidence
    OBJ: Applied TOP: IIC2

49. Even though the articulatory loop cannot be seen directly, we are confident it exists because

a. it is the only possible explanation.
b. without it, we could not remember phone numbers.
c. people with anarthria show deficits in the phonological buffer.
d. behavioral manipulations, like articulatory suppression, suggest it is a distinct component.

ANS: D DIF: Medium REF: The Nature of the Working-Memory Evidence
OBJ: Applied TOP: IIIC

50. Which of the following is NOT central to research in neuropsychology?
a. the use of introspection
b. how brain dysfunctions affect performance
c. brain development
d. brain-imaging technology

ANS: A DIF: Medium REF: The Nature of the Working-Memory Evidence
OBJ: Applied TOP: IIID2

51. Evidence from anarthric (speechless) patients suggests that
a. the muscles necessary for speech are also needed for subvocalization.
b. subvocalization does not use words.
c. the muscles needed for speech are not needed for subvocalization.
d. these patients are unable to subvocalize.

ANS: C DIF: Medium REF: The Nature of the Working-Memory Evidence
OBJ: Applied TOP: IIID2a

52. Recent developments in brain-imaging technology can help us in cognitive psychology. For example, we can now tell exactly which parts of the brain are especially engaged in working-memory rehearsal. These techniques are the central sources of data for
a. modeling.
b. neuropsychology.
c. developmental imaging.
d. cognitive neuroscience.

ANS: D DIF: Medium REF: The Nature of the Working-Memory Evidence
OBJ: Factual TOP: IIID2b

53. Evidence from neuroimaging studies suggests that subvocalization is MOST closely related to
a. speaking out loud, because the same muscles are used.
b. remembering a feeling.
c. visual imagery.
d. planning to speak, because some of the same brain regions are active, as in normal speech planning.

ANS: D DIF: Difficult REF: The Nature of the Working-Memory Evidence
OBJ: Factual TOP: IIID2b

54. Cognitive psychology relies on evidence from multiple domains (behavioral, neuroscience, trauma, etc.) because
a. we cannot see the cognitive processes directly.
b. all evidence is good evidence.
c. converging evidence provides additional opportunities for predictions.
d. other sciences require evidence from many places.

ANS: A DIF: Difficult REF: The Nature of the Working-Memory Evidence
OBJ: Applied TOP: IIID4

55. Working memory provides one example of how

a. important memory is to cognition.
b. cognitive processes are essential to most daily tasks.
c. children develop memory.
d. we could not function without a multicomponent system.

ANS: B DIF: Easy REF: Working Memory in a Broader Context
OBJ: Applied TOP: IIIE

ESSAY

1. Compare and contrast the introspection, behaviorist, and cognitive approaches to studying mental activities. Which approach do you find most compelling, and why?

   ANS:
   Will Vary

   DIF: Difficult REF: A Brief History OBJ: Conceptual
   TOP: II

2. Mikey is four years old and has begun acting out. Every time he throws a tantrum, his mother rushes over to console him. In analyzing this behavior, what sort of factors would most interest a behaviorist? On what factors would a cognitive psychologist using the transcendental method focus? What conclusions will each psychologist reach?

   ANS:
   Will Vary

   DIF: Difficult REF: The Years of Behaviorism | The Roots of the Cognitive Revolution
   OBJ: Conceptual TOP: IIB | IIC

3. Describe how cognitive psychologists arrive at knowledge by answering the following questions about working memory.
   a. Describe the multicomponent model of WM.
   b. What is anarthia? What are the implications of this disorder for the multicomponent model of WM?
   c. Describe one other source of knowledge, besides special populations, that can be used to evaluate the multicomponent model of WM.

   ANS:
   Will Vary

   DIF: Difficult REF: Research in Cognitive Psychology: An Example
   OBJ: Conceptual TOP: III

4. Imagine you are briefly presented with, and asked to memorize, the following letters for an immediate recall test: *Q, R, T, B, O, W, A*. How would you go about remembering those items? (Make sure you use appropriate terminology.) Now, imagine that you are given the same memory task but asked to say the word "the" while the letters are being presented. How would this second condition influence your mental behavior? What effect would it have on your performance?

   ANS:
   Will Vary

DIF: Difficult REF: Evidence for the Working-Memory System
OBJ: Conceptual TOP: IIIC

5. Dr. Mnemonic conducted a study in which neural activity was measured (with fMRI) while participants were presented with either digits or abstract images to memorize. He found that the left temporal lobe was active when the digits were presented, and the right parietal lobe was active for the abstract images. Interpret these results in terms of the multicomponent model. Does it support this model or refute it? Why?

   ANS:
   Will Vary

   DIF: Difficult REF: The Nature of the Working-Memory Evidence
   OBJ: Conceptual TOP: IIID