CHAPTER OVERVIEW

Chapter 8 explores human memory as a system that processes information in three steps. Encoding refers to the process of putting information into the memory system. Storage is the purely passive mechanism by which information is maintained in memory. Retrieval is the process by which information is accessed from memory through recall or recognition.

Chapter 8 also discusses the important role of meaning, imagery, and organization in encoding new memories, how memory is represented physically in the brain, and how forgetting may result from failure to encode or store information or to find appropriate retrieval cues. The final section of the chapter discusses the issue of memory construction. How "true" are our memories of events? A particularly controversial issue in this area involves suspicious claims of long-repressed memories of sexual abuse and other traumas that are "recovered" with the aid of hypnosis and other techniques. As you study this chapter, try applying some of the memory and studying tips discussed in the text.

NOTE: Answer guidelines for all Chapter 8 questions begin on page 201.

CHAPTER REVIEW

First, skim this section, noting headings and boldface items. After you have read the section, review each objective by completing the sentences and answering the questions that follow it. As you proceed, evaluate your performance by consulting the answers beginning on page 201. Do not continue with the next section until you understand each answer. If you need to, review or reread the section in the textbook before continuing.

The Phenomenon of Memory and Studying Memory: Information-Processing Models (pp. 327–330)

1. Learning that persists over time indicates the existence of ___________ for that learning.

Objective 1: Describe Atkinson-Shiffrin's classic three-stage processing model of memory, and explain how the concept of working memory clarifies the processing that occurs in short-term memory.

2. Both human memory and computer memory can be viewed as ___________.

    ___________ systems that perform three tasks: ___________, ___________, and ___________. The model called ___________ views memory as emerging from interconnected ___________.

3. The classic model of memory has been Atkinson and Shiffrin's ___________.

    ___________, ___________ model. According to this model, we first record information as a fleeting ___________, from which it is processed into ___________, memory, where the information is ___________ through rehearsal into ___________, and ___________ for later retrieval.

4. A modified form of this model accommodates two important new concepts. First, some information is processed ___________ and ___________ into long-term memory, without our ___________ awareness.
5. Second, the phenomenon of short-term memory has been clarified by the concept of memory, which focuses more on the processing of briefly stored information. This form of memory processes incoming as well as information retrieved from memory.

**Encoding: Getting Information In**
(pp. 330–337)

**Objective 2:** Describe the types of information we encode automatically, and contrast effortful processing with automatic processing, giving examples of each.

1. Encoding that does not require conscious attention or effort is called . Some processing requires effort at first but with it becomes effortless.

Give examples of material that is typically encoded with little or no effort.

2. Encoding that requires attention and effort is called .

3. With novel information, conscious repetition, or , boosts memory.

4. A pioneering researcher in verbal memory was . In one experiment, he found that the longer he studied a list of nonsense syllables, the (fewer/greater) the number of repetitions he required to relearn it later. Additional rehearsal (or ) increases retention.

5. Memory studies also reveal that distributed rehearsal is more effective for retention; this is called the .

6. The tendency to remember the first and last items in a list best is called the .

7. People briefly recall the last items in a list quickly and well, called the effect. Following a delay, first items are remembered (better/less well) than last items, called the effect.

**Objective 3:** Compare the benefits of visual, acoustic, and semantic encoding in remembering verbal information, and describe some memory-enhancing encoding strategies.

8. Encoding the meaning of words is referred to as encoding; encoding by sound is called encoding; encoding picture images of words is encoding.

9. Research has shown that comparing visual, acoustic, and semantic encoding showed that memory was best with encoding. We have especially good recall for information we can meaningfully relate to ourselves, called the -effect.

10. Memory that consists of mental pictures is based on the use of .

11. Concrete, high-imagery words tend to be remembered (better/less well) than abstract, low-imagery words.

12. Memory for concrete nouns is facilitated when we encode them and .

13. Our tendency to recall the high points of events such as family vacations illustrates the phenomenon of .

14. Memory aids are known as devices.

15. Using a jingle, such as the one that begins "one is a bun," is an example of the system.
16. Memory may be aided by grouping information into meaningful units called _______________. An example of this technique involves forming words from the first letters of to-be-remembered words; the resulting word is called an _______________.

17. In addition, material may be processed into _______________, which are composed of a few broad concepts divided into lesser concepts, categories, and facts.

**Storage: Retaining Information**  
(pp. 337–345)

**Objective 4:** Contrast two types of sensory memory, and describe the duration and capacity of working/short-term memory.

1. Stimuli from the environment are first recorded in _______________ memory.

2. George Sperling found that when people were briefly shown three rows of letters, they could recall _______________ (virtually all/about half) of them. When Sperling sounded a tone immediately after a row of letters was flashed to indicate which letters were to be recalled, the subjects were much _______________ (more/less) accurate. This suggests that people have a brief photographic, or _______________, memory lasting about a few tenths of a second.

3. Sensory memory for sounds is called _______________ memory. This memory fades _______________ (more/less) rapidly than photographic memory, lasting for as long as _______________.

4. Peterson and Peterson found that when _______________ was prevented by asking people to count backward, memory for letters was gone after 12 seconds. Without _______________ processing, short-term memories have a limited life.

5. Our short-term memory capacity is about _______________ chunks of information. This capacity was discovered by _______________.

6. Short-term memory for random _______________ (digits/letters) is slightly better than for random _______________ (digits/letters), and memory for information we hear is somewhat _______________ (better/worse) than that for information we see.

7. Both children and adults have short-term recall for roughly as many words as they can speak in _______________ (how many?) seconds.

**Objective 5:** Describe the capacity and duration of long-term memory, and discuss the biological changes that may underlie memory formation and storage.

8. In contrast to short-term memory—and contrary to popular belief—the capacity of permanent memory is essentially _______________.

9. Psychologist _______________ attempted to locate memory by cutting out pieces of rats' _______________ after they had learned a maze. He found that no matter where he cut, the rats _______________ (remembered/forgot) the maze.

10. Researchers believe that the physical basis of memory, or the _______________, involves a strengthening of certain neural connections, which occurs at the _______________ between neurons.

11. Kandel and Schwartz have found that when learning occurs in the sea slug *Aplysia*, the neurotransmitter _______________ is released in greater amounts, making synapses more efficient.

12. After learning has occurred, a sending neuron needs _______________ (more/less) prompting to fire, and the number of _______________ _______________ it stimulates may increase. This phenomenon, called _______________, _______________, may be the neural basis for learning and memory. Blocking this process with a specific _______________, or by genetic engineering that causes the absence of an _______________, interferes with learning.
Rats given a drug that enhances
c__________ will learn a maze
c__________ (faster/more slowly).

13. After LTP has occurred, an electric current passed
through the brain ____________ (will/will not) disrupt old memories and ____________
(will/will not) wipe out recent experiences.

14. Hormones released when we are excited or under
stress often ____________ (facilitate/impair) learning and memory.

15. Two emotion-processing clusters, the
__________, in the brain’s
__________ system increase activity in
the brain’s memory-forming areas.

16. Drugs that block the effects of stress hormones
__________ (facilitate/disrupt) memories of emotional events.

17. Memories for surprising, significant moments
that are especially clear are called
__________ memories. Like other mem-
ories, these memories ____________ (can/cannot) err.

Objective 6: Distinguish between implicit and explicit memory, and identify the main brain structure
associated with each.

18. The loss of memory is called ____________.
Studies of people who have lost their memory
suggest that there ____________ (is/is not)
a single unified system of memory.

19. Although amnesia victims typically ____________
(have/have not) lost their capacity for learning,
which is called ____________ memory, they
__________ (are/are not) able to
declare their memory, suggesting a deficit in their
__________ memory systems.

20. Amnesia patients typically have suffered damage
to the ____________ of their limbic system.
This brain structure is important in the processing and storage of
__________ memories. Damage on the left side of this struc-
ture impairs ____________ memory;
damage on the right side impairs memory for
__________ designs and locations. The
rear part of this structure processes
__________ memory.

21. The hippocampus seems to function as a zone
where the brain ____________ (temporarily/permanently)
stores the elements of a memory. However, memories
__________ (do/do not) migrate for storage elsewhere. The hip-
pocampus is active during ____________ sleep, as memories are
processed for later retrieval. Recalling past experiences activates various parts of the
__________ and ____________ lobes.

22. The cerebellum is important in the processing of
__________ memories. Humans and labo-
ratory animals with a damaged cerebellum are
incapable of simple ____________—
__________ conditioning.

23. The dual explicit-implicit memory system helps
explain ____________ amnesia. We do not have explicit memories of our first three years
because the ____________ is one of the last
brain structures to mature.

Retrieval: Getting Information Out
(pp. 345–349)

Objective 7: Contrast the recall, recognition, and relearning measures of memory, and explain how retrieval cues can help us access stored memories.

1. The ability to retrieve information not in con-
scious awareness is called ____________.

2. Bahrick found that 25 years after graduation, peo-
ple were not able to ____________ (recall/recognize) the names of their classmates
but were able to ____________ (recall/recognize) 90 percent of their names and
their yearbook pictures.

3. If you have learned something and then forgotten
it, you will probably be able to ____________ it
__________ (more/less) quickly than
you did originally.
4. The best retrieval cues come from the associations formed at the time we ___________ a memory.

5. The process by which associations can lead to retrieval is called ___________.

**Objective 8:** Describe the impact of environmental contexts and internal emotional states on retrieval.

6. Studies have shown that retention is best when learning and testing are done in ___________ (the same/different) contexts.

Summarize the text explanation of the déjà vu experience.

7. The type of memory in which emotions serve as retrieval cues is referred to as ___________.

8. Our tendency to recall experiences that are consistent with our current emotional state is called ___________.

Describe the effects of mood on memory.

9. People who are currently depressed may recall their parents as ___________. People who have recovered from depression typically recall their parents about the same as do people who ________

**Forgetting** (pp. 349–356)

**Objective 9:** Explain why we should value our ability to forget, and discuss the roles of encoding failure and storage decay in the process of forgetting.

1. Without the ability to ___________, we would constantly be overwhelmed by information.

2. Memory researcher Daniel Schacter has identified the seven sins of memory, divided into three categories that identify the ways in which our memory can fail: the three sins of ___________, the three sins of ___________, and the one sin of ___________.

3. The first type of forgetting is caused by ___________ failure.

4. This type of forgetting occurs because some of the information that we sense never actually ___________.

5. One reason for age-related memory decline is that the brain areas responsible for ___________ new information are ___________ (more/less) responsive in older adults.

6. Studies by Ebbinghaus and by Bahrick indicate that most forgetting occurs ___________ (soon/a long time) after the material is learned.

7. This type of forgetting is known as ___________, which may be caused by a gradual fading of the physical ___________.

8. When information that is stored in memory temporarily cannot be found, ___________ failure has occurred.

**Objective 10:** Explain what is meant by retrieval failure, and discuss the effects of interference and motivated forgetting on retrieval.

9. Research suggests that memories are also lost as a result of ___________, which is especially possible if we simultaneously learn similar, new material.
10. The disruptive effect of previous learning on current learning is called ________________
       ________________. The disruptive effect of learning new material on efforts to recall material
       previously learned is called ________________
       ________________.

11. Jenkins and Dallenbach found that if people went to sleep after learning, their memory for a list of
       nonsense syllables was ________________
       (better/worse) than it was if they stayed awake.

12. In some cases, old information facilitates our learning of new information. This is called
       ________________
       ________________.

13. Freud proposed that motivated forgetting, or ________________, may protect a person from
       painful memories.

14. Increasing numbers of memory researchers think that motivated forgetting is ________________
       (less/more) common than Freud believed.

**Memory Construction** (pp. 356–364)

**Objective 11:** Explain how misinformation, imagination, and source amnesia can distort our memory of
an event, and discuss why it is difficult to distinguish between true and false memories.

1. Research has shown that recall of an event is often influenced by our experiences and assumptions. The workings of these influences illustrate the process of memory
       ________________.

2. When witnesses to an event receive misleading information about it, they may experience a
       ________________ misremember the event. A number of experiments have demonstrated that false memories
       ________________ (can/cannot) be created when people are induced to imagine nonexistent events; that is, these people later experience
       ________________.
       People who believe they have recovered memories of alien abduction and child sex abuse tend to have ________________

Describe what Loftus' studies have shown about the effects of misleading postevent information on eye-
       witness reports.

3. At the heart of many false memories is
       ________________
       ________________, which occurs when we
       ________________ an event to the wrong source.

4. Because memory is reconstruction as well as reproduction, we ________________
       (can/cannot) be sure whether a memory is real by how real it feels.

5. The persistence of a memory ________________
       (does/does not) reveal whether it derives from an actual experience. Whereas real memories have
       more ________________, gist memories are
       more ________________.

6.Eyewitnesses' confidence in their memories
       ________________ (is/is not) related to the accuracy of those memories.

7. Memory construction explains why memories
       “refreshed” under ________________ are often inaccurate.

**Objective 12:** Discuss whether young children's eyewitness reports are reliable and the controversy over
reports of repressed and recovered memories.

8. Research studies of children's eyewitness recall reveal that preschoolers ________________
       (are/are not) more suggestible than older children or adults. For this reason, whether a child
       produces an accurate eyewitness memory depends heavily on how he or she is
       ________________.

9. Children are most accurate when it is a first interview with a ________________ person who asks
       ________________ questions.
10. Researchers increasingly agree that memories obtained under the influence of hypnosis or using other “memory work” techniques ____________ (are/are not) reliable.

11. Memories of events that happened before age ____________ are unreliable. This phenomenon is called ________________.

**Improve Memory** (pp. 364–365)

**Objective 13:** Explain how an understanding of memory can contribute to effective study techniques.

1. The SQ3R study technique identifies five strategies for boosting memory: ________________, ________________, ________________, ________________, and ________________.

Discuss several specific strategies for improving memory.

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**PROGRESS TEST 1**

**Multiple-Choice Questions**

Circle your answers to the following questions and check them with the answers beginning on page 203. If your answer is incorrect, read the explanation for why it is incorrect and then consult the appropriate pages of the text (in parentheses following the correct answer).

1. The three steps in memory information processing are
   a. input, processing, output.
   b. input, storage, output.
   c. input, storage, retrieval.
   d. encoding, storage, retrieval.

2. Visual sensory memory is referred to as
   a. iconic memory.
   b. echoic memory.
   c. photomemory.
   d. semantic memory.

3. Echoic memories fade after approximately
   a. 1 hour.
   b. 1 minute.
   c. 1 second.
   d. 3 to 4 seconds.

4. Which of the following is NOT a measure of retention?
   a. recall
   b. recognition
   c. relearning
   d. retrieval

5. Our short-term memory span is approximately ____________ items.
   a. 2
   b. 5
   c. 7
   d. 10

6. Memory techniques such as acronyms and the peg-word system are called
   a. consolidation devices.
   b. imagery techniques.
   c. encoding strategies.
   d. mnemonic devices.

7. One way to increase the amount of information in memory is to group it into larger, familiar units. This process is referred to as
   a. consolidating.
   b. organizing.
   c. encoding.
   d. chunking.

8. Kandel and Schwartz have found that when learning occurs, more of the neurotransmitter ____________ is released into synapses.
   a. ACh
   b. dopamine
   c. serotonin
   d. noradrenaline

9. Research on memory construction reveals that memories
   a. are stored as exact copies of experience.
   b. reflect a person’s biases and assumptions.
   c. may be chemically transferred from one organism to another.
   d. even if long term, usually decay within about five years.

10. In a study on context cues, people learned words while on land or when they were underwater. In a later test of recall, those with the best retention had
    a. learned the words on land, that is, in the more familiar context.
    b. learned the words underwater, that is, in the more exotic context.
    c. learned the words and been tested on them in different contexts.
    d. learned the words and been tested on them in the same context.
11. The spacing effect means that
   a. distributed study yields better retention than cramming.
   b. retention is improved when encoding and retrieval are separated by no more than 1 hour.
   c. learning causes a reduction in the size of the synaptic gap between certain neurons.
   d. delaying retrieval until memory has consolidated improves recall.

12. Studies demonstrate that learning causes permanent neural changes in the ______ of animals’ neurons.
   a. myelin   c. synapses
   b. cell bodies d. all of these parts

13. In Sperling’s memory experiment, research participants were shown three rows of three letters, followed immediately by a low, medium, or high tone. The participants were able to report
   a. all three rows with perfect accuracy.
   b. only the top row of letters.
   c. only the middle row of letters.
   d. any one of the three rows of letters.

14. Studies of amnesia victims suggest that
   a. memory is a single, unified system.
   b. there are two distinct types of memory.
   c. there are three distinct types of memory.
   d. memory losses following brain trauma are unpredictable.

15. Memory for skills is called
   a. explicit memory.
   b. declarative memory.
   c. prime memory.
   d. implicit memory.

16. The eerie feeling of having been somewhere before is an example of
   a. state dependency.
   b. encoding failure.
   c. priming.
   d. déjà vu.

17. When Gordon Bower presented words grouped by category or in random order, recall was
   a. the same for all words.
   b. better for the categorized words.
   c. better for the random words.
   d. improved when participants developed their own mnemonic devices.

18. The three-stage processing model of memory was proposed by
   a. Atkinson and Shiffrin.
   b. Herman Ebbinghaus.
   c. Loftus and Palmer.
   d. George Sperling.

19. Hypnotically “refreshed” memories may prove inaccurate—especially if the hypnotist asks leading questions—because of
   a. encoding failure.
   b. state-dependent memory.
   c. proactive interference.
   d. memory construction.

20. Which area of the brain is most important in the processing of implicit memories?
   a. hippocampus  c. hypothalamus
   b. cerebellum  d. amygdala

21. Which of the following terms does NOT belong with the others?
   a. misattribution
   b. blocking
   c. suggestibility
   d. bias
Matching Items

Match each definition or description with the appropriate term.

Definitions or Descriptions

1. sensory memory that decays more slowly than visual sensory memory
2. the process by which information gets into the memory system
3. mental pictures that aid memory
4. the blocking of painful memories
5. the phenomenon in which one’s mood can influence retrieval
6. memory for a list of words is affected by word order
7. “one is a bun, two is a shoe” mnemonic device
8. word that chunks to-be-remembered information into a more familiar form
9. new learning interferes with previous knowledge
10. a measure of memory
11. old knowledge interferes with new learning
12. misattributing the origin of an event
13. the fading of unused information over time
14. the lingering effects of misinformation
15. a memory sin of intrusion

Terms

a. repression
b. relearning
c. serial position effect
d. persistence
e. peg-word system
f. acronym
g. proactive interference
h. transience
i. retroactive interference
j. source amnesia
k. suggestibility
l. imagery
m. mood-congruent memory
n. echoic memory
o. encoding

PROGRESS TEST 2

Progress Test 2 should be completed during a final chapter review. Answer the following questions after you thoroughly understand the correct answers for the section reviews and Progress Test 1.

Multiple-Choice Questions

1. Which of the following best describes the typical forgetting curve?
   a. a steady, slow decline in retention over time
   b. a steady, rapid decline in retention over time
   c. a rapid initial decline in retention becoming stable thereafter
   d. a slow initial decline in retention becoming rapid thereafter

2. Jenkins and Dallenbach found that memory was better in people who were
   a. awake during the retention interval, presumably because decay was reduced.
   b. asleep during the retention interval, presumably because decay was reduced.
   c. awake during the retention interval, presumably because interference was reduced.
   d. asleep during the retention interval, presumably because interference was reduced.

3. Which of the following measures of retention is the least sensitive in triggering retrieval?
   a. recall
   b. recognition
   c. relearning
   d. They are equally sensitive.

4. Amnesia victims typically have experienced damage to the __________ of the brain.
   a. frontal lobes
   b. cerebellum
   c. thalamus
   d. hippocampus
5. According to the serial position effect, when recalling a list of words you should have the greatest difficulty with those
   a. at the beginning of the list.
   b. at the end of the list.
   c. at the end and in the middle of the list.
   d. in the middle of the list.

6. Experimenters gave people a list of words to be recalled. When the participants were tested after a delay, the items that were best recalled were those
   a. at the beginning of the list.
   b. in the middle of the list.
   c. at the end of the list.
   d. at the beginning and the end of the list.

7. Which type of word processing—visual, acoustic, or semantic—results in the greatest retention?
   a. visual
   b. acoustic
   c. semantic
   d. Acoustic and semantic processing are equally beneficial.

8. Lashley's studies, in which rats learned a maze and then had various parts of their brains surgically removed, showed that the memory
   a. was lost when surgery took place within 1 hour of learning.
   b. was lost when surgery took place within 24 hours of learning.
   c. was lost when any region of the brain was removed.
   d. remained no matter which area of the brain was tampered with.

9. The disruption of memory that occurs when football players have been knocked out provides evidence for the importance of
   a. consolidation in the formation of new memories.
   b. consolidation in the retrieval of long-term memories.
   c. nutrition in normal neural functioning.
   d. all of these things.

10. Long-term potentiation refers to
    a. the disruptive influence of old memories on the formation of new memories.
    b. the disruptive influence of recent memories on the retrieval of old memories.
    c. our tendency to recall experiences that are consistent with our current mood.
    d. the increased efficiency of synaptic transmission between certain neurons following learning.

11. Repression is an example of
    a. encoding failure.
    b. motivated forgetting.
    c. memory decay.
    d. all of these things.

12. Studies by Loftus and Palmer, in which people were quizzed about a film of an accident, indicate that
    a. when quizzed immediately, people can recall very little, due to the stress of witnessing an accident.
    b. when questioned as little as one day later, their memory was very inaccurate.
    c. most people had very accurate memories as much as 6 months later.
    d. people's recall may easily be affected by misleading information.

13. Which of the following was NOT recommended as a strategy for improving memory?
    a. active rehearsal
    b. distributed study
    c. speed reading
    d. encoding meaningful associations

14. The process of getting information out of memory storage is called
    a. encoding.
    b. retrieval.
    c. rehearsal.
    d. storage.

15. Amnesia patients typically experience disruption of
    a. implicit memories.
    b. explicit memories.
    c. iconic memories.
    d. echoic memories.

16. Information is maintained in short-term memory only briefly unless it is
    a. encoded.
    b. rehearsed.
    c. iconic or echoic.
    d. retrieved.

17. Textbook chapters are often organized into _______ to facilitate information processing.
    a. mnemonic devices
    b. chunking
    c. hierarchies
    d. recognizable units

18. Memory researchers are suspicious of long-repressed memories of traumatic events that are "recovered" with the aid of drugs or hypnosis because
    a. such experiences usually are vividly remembered.
b. such memories are unreliable and easily influenced by misinformation.
c. memories of events happening before about age 3 are especially unreliable.
d. of all these reasons.

19. It is easier to recall information that has just been presented when the information
   a. consists of random letters rather than words.
   b. is seen rather than heard.
   c. is heard rather than seen.
   d. is experienced in an unusual context.

20. The misinformation effect provides evidence that memory
   a. is constructed during encoding.
   b. is unchanging once established.
   c. may be reconstructed during recall according to how questions are framed.
   d. is highly resistant to misleading information.

21. According to memory researcher Daniel Schacter, blocking occurs when
   a. our inattention to details produces encoding failure.
   b. we confuse the source of information.
   c. our beliefs influence our recollections.
   d. information is on the tip of our tongue, but we can’t get it out.

**PSYCHOLOGY APPLIED**

Answer these questions the day before an exam as a final check on your understanding of the chapter’s terms and concepts.

**Multiple-Choice Questions**

1. Complete this analogy: Fill-in-the-blank test questions are to multiple-choice questions as
   a. encoding is to storage.
   b. storage is to encoding.
   c. recognition is to recall.
   d. recall is to recognition.

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2. The above figure depicts the recall of a list of words under two conditions. Which of the following best describes the difference between the conditions?

   a. In A, the words were studied and retrieved in the same context; in B, the contexts were different.
   b. In B, the words were studied and retrieved in the same context; in A, the contexts were different.
   c. The delay between presentation of the last word and the test of recall was longer for A than for B.
   d. The delay between presentation of the last word and the test of recall was longer for B than for A.
3. Darren was asked to memorize a list of letters that included v, q, y, and j. He later recalled these letters as e, u, i, and k, suggesting that the original letters had been encoded
   a. automatically.  c. semantically.
   b. visually.     d. acoustically.

4. After finding her old combination lock, Janice can’t remember its combination because she keeps confusing it with the combination of her new lock. She is experiencing
   a. proactive interference.
   b. retroactive interference.
   c. encoding failure.
   d. storage failure.

5. Which of the following sequences would be best to follow if you wanted to minimize interference-induced forgetting in order to improve your recall on the psychology midterm?
   a. study, eat, test
   b. study, sleep, test
   c. study, listen to music, test
   d. study, exercise, test

6. Being in a bad mood after a hard day of work, Susan could think of nothing positive in her life. This is best explained as an example of
   a. priming.
   b. memory construction.
   c. mood-congruent memory.
   d. retrieval failure.

7. In an effort to remember the name of the classmate who sat behind her in fifth grade, Martina mentally recited the names of other classmates who sat near her. Martina’s effort to refresh her memory by activating related associations is an example of
   a. priming.
   b. déjà vu.
   c. encoding.
   d. relearning.

8. Walking through the halls of his high school 10 years after graduation, Tom experienced a flood of old memories. Tom’s experience showed the role of
   a. state-dependent memory.
   b. context effects.
   c. retroactive interference.
   d. echoic memory.

9. The first thing Karen did when she discovered that she had misplaced her keys was to re-create in her mind the day’s events. That she had little difficulty in doing so illustrates
   a. automatic processing.
   b. effortful processing.
   c. state-dependent memory.
   d. priming.

10. Which of the following is the best example of a flashbulb memory?
   a. suddenly remembering to buy bread while standing in the checkout line at the grocery store
   b. recalling the name of someone from high school while looking at his or her yearbook snapshot
   c. remembering to make an important phone call
   d. remembering what you were doing on September 11, 2001, when terrorists crashed planes into the World Trade Center towers.

11. When Carlos was promoted, he moved into a new office with a new phone extension. Every time he is asked for his phone number, Carlos first thinks of his old extension, illustrating the effects of
   a. proactive interference.
   b. retroactive interference.
   c. encoding failure.
   d. storage failure.

12. Elderly Mr. Flanagan, a retired electrician, can easily remember how to wire a light switch, but he cannot remember the name of the president of the United States. Evidently, Mr. Flanagan’s _____ memory is better than his _____ memory.
   a. implicit; explicit
   b. explicit; implicit
   c. declarative; nondeclarative
   d. explicit; declarative

13. Although you can’t recall the answer to a question on your psychology midterm, you have a clear mental image of the textbook page on which it appears. Evidently, your _____ encoding of the answer was _______.
   a. semantic; automatic
   b. visual; automatic
   c. semantic; effortful
   d. visual; effortful
14. At your high school reunion you cannot remember the last name of your homeroom teacher. Your failure to remember is most likely the result of
   a. encoding failure.
   b. storage failure.
   c. retrieval failure.
   d. state-dependent memory.

15. Brenda has trouble remembering her new five-digit ZIP plus four-digit address code. What is the most likely explanation for the difficulty Brenda is having?
   a. Nine digits are at or above the upper limit of most people's short-term memory capacity.
   b. Nine digits are at or above the upper limit of most people's iconic memory capacity.
   c. The extra four digits cannot be organized into easily remembered chunks.
   d. Brenda evidently has an impaired implicit memory.

16. Lewis cannot remember the details of the torture he experienced as a prisoner of war. According to Freud, Lewis' failure to remember these painful memories is an example of
   a. repression.
   b. retrieval failure.
   c. state-dependent memory.
   d. flashbulb memory.

17. Which of the following illustrates the constructive nature of memory?
   a. Janice keeps calling her new boyfriend by her old boyfriend's name.
   b. After studying all afternoon and then getting drunk in the evening, Don can't remember the material he studied.
   c. After getting some good news, elated Kareem has a flood of good memories from his younger years.
   d. Although Mrs. Harvey, who has Alzheimer's disease, has many gaps in her memory, she invents sensible accounts of her activities so that her family will not worry.

18. Brad, who suffered accidental damage to the left side of his hippocampus, has trouble remembering
   a. visual designs.
   b. locations.
   c. all nonverbal information.
   d. verbal information.

19. During basketball practice Jan's head was painfully elbowed. If the trauma to her brain disrupts her memory, we would expect that Jan would be most likely to forget
   a. the name of her teammates.
   b. her telephone number.
   c. the name of the play during which she was elbowed.
   d. the details of events that happened shortly after the incident.

20. After suffering damage to the hippocampus, a person would probably
   a. lose memory for skills such as bicycle riding.
   b. be incapable of being classically conditioned.
   c. lose the ability to store new facts.
   d. experience all of these changes.

21. When he was 8 years old, Frank was questioned by the police about a summer camp counselor suspected of molesting children. Even though he was not, in fact, molested by the counselor, today 19-year-old Frank "remembers" the counselor touching him inappropriately. Frank's false memory is an example of which "sin" of memory?
   a. blocking
   b. transience
   c. misattribution
   d. suggestibility

Essay Question
Discuss the points of agreement among experts regarding the validity of recovered memories of child abuse. (Use the space below to list the points you want to make, and organize them. Then write the essay on a separate piece of paper.)
KEY TERMS

Writing Definitions
Using your own words, on a separate piece of paper write a brief definition or explanation of each of the following terms.

1. memory
2. encoding
3. storage
4. retrieval
5. sensory memory
6. short-term memory
7. long-term memory
8. working memory
9. automatic processing
10. effortful processing
11. rehearsal
12. spacing effect
13. serial position effect
14. visual encoding
15. acoustic encoding
16. semantic encoding
17. imagery
18. mnemonics
19. chunking
20. iconic memory
21. echoic memory
22. long-term potentiation (LTP)
23. flashbulb memory
24. amnesia
25. implicit memory
26. explicit memory
27. hippocampus
28. recall
29. recognition
30. relearning
31. priming
32. déjà vu
33. mood-congruent memory
34. proactive interference
35. retroactive interference
36. repression
37. misinformation effect
38. source amnesia