CHAPTER OVERVIEW

Emotions are responses of the whole individual, involving physiological arousal, expressive behaviors, and conscious experience. Chapter 13 first discusses several theoretical controversies concerning the relationship and sequence of the components of emotion, primarily regarding whether the body’s response to a stimulus causes the emotion that is felt and whether thinking is necessary to and must precede the experience of emotion. After describing the physiology of emotion and emotional expressiveness, it examines the components of emotion in detail, particularly as they relate to the emotions of fear, anger, and happiness.

NOTE: Answer guidelines for all Chapter 13 questions begin on page 347.

CHAPTER REVIEW

First, skim each section, noting headings and boldface items. After you have read the section, review each objective by answering the fill-in and essay-type questions that follow it. As you proceed, evaluate your performance by consulting the answers beginning on page 347. 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.

Theories of Emotion (pp. 513–515)

Objective 1: Identify the three components of emotions, and contrast the James-Lange, Cannon-Bard, and two-factor theories of emotion.

1. Emotions have three components: __________________________ , __________________________ , and __________________________ .

2. According to the James-Lange theory, emotional states __________________________ (precede/follow) body arousal.

Describe two problems that Walter Cannon identified with the James-Lange theory.

3. Cannon proposed that emotional stimuli in the environment are routed simultaneously to the __________________________ , which results in awareness of the emotion, and to the __________________________ nervous system, which causes the body’s reaction. Because another scientist concurrently proposed similar ideas, this theory has come to be known as the __________________________ theory.

4. The two-factor theory of emotion proposes that emotion has two components: __________________________ arousal and a __________________________ label. This theory was proposed by __________________________ .

David Myers at times uses idioms that are unfamiliar to some readers. If you do not know the meaning of any of the following expressions from the introduction and this section in the context in which they appear in the text, refer to page 354 for an explanation: add color to your life; arousal of dread . . . elation of ecstasy; lash out.
Embody Emotion (pp. 516–523)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 354–355 for an explanation: your stomach develops butterflies; shooting free throws; clutching, sinking sensation; peppy left hemisphere...perky disposition; Pinocchio...telltale sign; weeping, lumps in the throat...Which is the chicken and which the egg?; white lie; testy; hijack; The heart is not always subject to the mind.

Objective 2: Describe the role of the autonomic nervous system during emotional arousal.

1. Describe the major physiological changes that each of the following undergoes during emotional arousal:
   a. heart: ______________________________
   b. muscles: ______________________________
   c. liver: ______________________________
   d. breathing: ______________________________
   e. digestion: ______________________________
   f. pupils: ______________________________
   g. blood: ______________________________
   h. skin: ______________________________

2. The responses of arousal are activated by the ______________________________ nervous system. In response to its signal, the ______________________________ glands release the hormones ______________________________ and ______________________________, which increase heart rate, blood pressure, and blood sugar.

3. When the need for arousal has passed, the body is calmed through activation of the ______________________________ nervous system.

Objective 3: Discuss the relationship between arousal and performance.

4. People usually perform best when they feel ______________________________ aroused.

5. The level of arousal for optimal performance ______________________________ (varies/is the same) for different tasks.

6. For tasks that are ______________________________, peak performance comes with relatively ______________________________ (high/low) arousal. For tasks that are ______________________________, optimal arousal is ______________________________ (higher/lower).

Objective 4: Name three emotions that involve similar physiological arousal.

7. The various emotions are associated with ______________________________ (similar/different) forms of physiological arousal. In particular, the emotions ______________________________, ______________________________, and ______________________________ are difficult to distinguish physiologically.

Objective 5: Describe some physiological and brain pattern indicators of specific emotions.

8. The emotions ______________________________ and ______________________________ are accompanied by differing ______________________________ temperatures and ______________________________ secretions.

9. The emotions ______________________________ and ______________________________ stimulate different facial muscles.

10. The brain circuits underlying different emotions ______________________________ (are/are not) different. For example, seeing a fearful face elicits greater activity in the ______________________________ than seeing a(n) ______________________________ face. People who have generally negative personalities, and those who are prone to ______________________________, show more activity in the ______________________________ ______________________________ of the brain.

11. When people experience positive moods, brain scans reveal more activity in the ______________________________ ______________________________.

12. Individuals with more active ______________________________ (right/left) ______________________________ lobes tend to be more cheerful than those in whom this pattern of brain activity is reversed. This may be due to the rich supply of ______________________________ receptors in this area of the brain.
13. Electrical areas of the brain’s ________________
______________ can trigger smiling and laughter.

14. (Thinking Critically) The technical name for the “lie detector” is the ________________.
(Thinking Critically) Explain how lie detectors supposedly indicate whether a person is lying.

15. (Thinking Critically) How well the lie detector works depends on whether a person exhibits ________________ while lying.

16. (Thinking Critically) Those who criticize lie detectors feel that the tests are particularly likely to err in the case of the ________________
(innomoent/guilty), because different ________________ all register as ________________.

17. (Thinking Critically) By and large, experts ________________ (agree/do not agree) that lie detector tests are highly accurate.

18. (Thinking Critically) A test that assesses a suspect’s knowledge of details of a crime that only the guilty person should know is the ________________
______________ .

19. For victims with severed spinal cords who have lost all feeling below the neck, the intensity of emotions tends to ________________ . This result supports the ________________ theory of emotion.

20. Most researchers ________________
(agree/disagree) with Cannon and Bard’s position that emotions involve ________________
as well as arousal.

Objective 6: Explain how the spillover effect influences our experience of emotions.

21. The spillover effect refers to occasions when our ________________ response to one event carries over into our response to another event.

22. Schachter and Singer found that physically aroused college men told that an injection would cause arousal ________________ (did/did not) become emotional in response to an accomplice’s aroused behavior. Physically aroused volunteers not expecting arousal ________________
(did/did not) become emotional in response to an accomplice’s behavior.

23. Arousal ________________ emotion; cognition ________________ emotion.

Objective 7: Distinguish the two alternative pathways that sensory stimuli may travel when triggering an emotional response.

24. Robert Zajonc believes that the feeling of emotion ________________
(can/cannot) precede our cognitive labeling of that emotion.
Cite two pieces of evidence that support Zajonc’s position.

25. A pathway from the ________________ via the ________________ to the
______________ enables us to experience emotion before ________________ . For more complex emotions, sensory input is routed through the ________________ for interpretation.
26. The researcher who disagrees with Zajonc and argues that most emotions require cognitive processing is _________________. According to this view, emotions arise when we _________________ an event as beneficial or harmful to our well-being.

27. Complex emotions arise from our _______________ and _______________. Highly emotional people tend to _________________ events as being directed at them. They also tend to _________________ their experiences by blowing them out of proportion.

Express some general conclusions that can be drawn about cognition and emotion.

**Expressed Emotion** (pp. 524–532)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to page 355 for an explanation: good enough at reading; Fidgeting; Ditto; sneer; Fake a big grin.

**Objective 8:** Describe some of the factors that affect our ability to decipher nonverbal cues.

1. Researchers have found that people who _________________ (suppress/express) their emotions while watching a distressing film showed impaired _________________ for details in the film. Emotions may be communicated in words and/or through body expressions, referred to as _________________ communication.

2. Most people are especially good at interpreting nonverbal _______________. We read fear and _________________ mostly from the _________________, and happiness from the _________________.

**Objective 9:** Describe some gender differences in perceiving and communicating emotions.

3. Introverts are _________________ (better/worse) at reading others' emotions, whereas extraverts are themselves _________________ (easier/harder) to read.

4. Experience can _________________ people to particular emotions, as revealed by the fact that children who have been physically abused are quicker than others at perceiving _________________.

5. Women are generally _________________ (better/worse) than men at detecting nonverbal signs of emotion and in spotting _________________. Women possess greater emotional _________________ than men, as revealed by the tendency of men to describe their emotions in _________________ terms. This gender difference may be a by-product of traditional _________________ and may contribute to women's greater emotional _________________.

6. Although women are _________________ (more/less) likely than men to describe themselves as empathic, physiological measures reveal a much _________________ (smaller/larger) gender difference. Women are _________________ (more/less) likely than men to express empathy.

7. Women are also better at conveying _________________ (which emotion?), whereas men surpass women in conveying their _________________.

**Objective 10:** Discuss the research on reading and misreading facial and behavioral indicators of emotion.

8. Various emotions may be linked with hard-to-control _________________. Most people _________________ (are/are not) very accurate at detecting lying. Accuracy varies, however, with a person's _________________ and training. For example, _________________
(people in which professions?) seem to be especially good at detecting lying.

9. The absence of nonverbal cues to emotion is one reason that communications sent as _______________ are easy to misread.

**Objective 11:** Discuss the culture-specific and culturally universal aspects of emotional expression, and explain how emotional expressions could enhance survival.

10. Gestures have _______________ (the same/different) meanings in different cultures.

11. Studies of adults indicate that in different cultures facial expressions have _______________ (the same/different) meanings. Studies of children indicate that the meaning of their facial expressions _______________ (varies/does not vary) across cultures. The emotional facial expressions of blind children _______________ (are/are not) the same as those of sighted children.

12. According to _______________, human emotional expressions evolved because they helped our ancestors communicate before language developed. It has also been adaptive for us to _______________ faces in particular _______________.

13. In cultures that encourage _______________, emotional expressions are often intense and prolonged. Cultures such as that of Japan _______________ (also show intense emotion/hide their emotions). This points to the importance of realizing that emotions are not only biological and psychological but also _______________.

**Objective 12:** Discuss the facial feedback and behavior feedback phenomena, and give an example of each.

14. Darwin believed that when an emotion is accompanied by an outward facial expression, the emotion is _______________ (intensified/diminished).

15. In one study, students who were induced to smile _______________ (found/did not find) cartoons more humorous.

16. The _______________ effect occurs when expressions amplify our emotions by activating muscles associated with specific states.

17. Studies have found that imitating another person’s facial expressions _______________ (leads/does not lead) to greater empathy with that person’s feelings.

18. Similarly, moving our body as we would when experiencing a particular emotion causes us to feel that emotion. This is the _______________ _______________ effect.

**Experienced Emotion** (pp. 532–544)

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If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 355–356 for an explanation: poisonous; Stone Age fears; hostile outbursts; drain off some of their tension; contradictory maxims; rush of euphoria; lob a bombshell; run amuck; Off your duffs, couch potatoes.

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**Objective 13:** Name several basic emotions, and describe two dimensions psychologists use to differentiate emotions.

1. Izard believes that there are _______________ basic emotions, most of which _______________ (are/are not) present in infancy. Although others claim that emotions such as pride and love should be added to the list, Izard contends that they are _______________ of the basic emotions.

2. Throughout the world, people place emotions along two dimensions: _______________, which refers to whether a feeling is _______________ or _______________, and high versus low _______________.

**Objective 14:** State two ways we learn our fears.

3. Fear can by and large be seen as a(n) _______________ (adaptive/maladaptive) response.
4. Most human fears are acquired through __________________________.
5. In addition, some fears are acquired by __________________________ parents and friends.

Objective 15: Discuss some of the biological components of fear.

Explain why researchers think that some fears are biologically predisposed.

6. A key to fear learning lies in the __________________________, a neural center in the __________________________ system. Following damage to this area, humans who have been conditioned to fear a loud noise will __________________________ the conditioning but show no __________________________ effect of it.

7. The amygdala receives input from the __________________________, a higher-level center for processing emotion.

8. People who have suffered damage to the __________________________ will show the __________________________ but __________________________ (will/will not) be able to remember why.

9. Patients who have lost use of the __________________________ are unusually trusting of scary-looking people.

10. Fears that fall outside the average range are called __________________________. Fearfulness is shaped by both our __________________________ and our __________________________.

Objective 16: Identify some common triggers and consequences of anger, and assess the catharsis hypothesis.

11. In studying why we become angry, Averill has found that most people become angry several times per week and especially when another person’s act seemed __________________________, __________________________, and __________________________.

12. The belief that expressing pent-up emotion is adaptive is most commonly found in cultures that emphasize __________________________. This is the __________________________ hypothesis. In cultures that emphasize __________________________, such as those of __________________________ or __________________________, expressions of anger are less common.

13. Psychologists have found that when anger has been provoked, retaliation may have a calming effect under certain circumstances. List the circumstances.
   a. __________________________
   b. __________________________
   c. __________________________

Identify some potential problems with expressing anger.

14. List two suggestions offered by experts for handling anger.
   a. __________________________
   b. __________________________

15. Researchers have found that students who mentally rehearsed times they __________________________ someone who had hurt them had lower bodily arousal than when they thought of times when they did not.

Objective 17: Describe how the feel-good, do-good phenomenon works, and discuss the importance of research on subjective well-being.

16. Happy people tend to perceive the world as __________________________.
17. Happy people are also _______________ (more/less) willing to help others. This is called the _______________ - _______________ phenomenon.

18. An individual’s self-perceived happiness or satisfaction with life is called his or her _______________.

Research on this subject helps us sift reality from all the contradictory beliefs.

Objective 18: Discuss some of the daily and longer-term variations in the duration of emotions.

19. Positive emotions _______________ (rise/fall) early in the day and _______________ (rise/fall) during the later hours.

20. Most people tend to _______________ (underestimate/overestimate) the long-term emotional consequences of very bad news.

21. After experiencing tragedy or dramatically positive events, people generally _______________ (regain/do not regain) their previous degree of happiness.

Objective 19: Summarize the findings on the relationship between affluence and happiness.

22. Researchers have found that levels of happiness _______________ (do/do not) mirror differences in standards of living.

23. Generally speaking, losses have a _______________ (stronger/weaker) emotional impact than gains.

24. During the last four decades, spendable income in the United States has more than doubled; personal happiness has _______________ (increased/decreased/remained almost unchanged).

25. Research has demonstrated that people generally experience a higher quality of life and greater well-being when they strive for _______________.

Objective 20: Describe how adaptation and relative deprivation affect our appraisals of our achievements.

26. The idea that happiness is relative to one’s recent experience is stated by the _______________ - _______________ phenomenon.

Explain how this principle accounts for the fact that, for some people, material desires can never be satisfied.

27. The principle that one feels worse off than others is known as _______________. This helps to explain why the middle- and upper-income people who compare themselves with the relatively poor are _______________ (slightly more/slightly less/equally) satisfied with life.

Objective 21: Summarize the ways that we can influence our own levels of happiness.

28. List six factors that have been shown to be positively correlated with feelings of happiness.

29. List five factors that are evidently unrelated to happiness.
30. Research studies of identical and fraternal twins have led to the estimate that percent of the variation in people’s happiness ratings is heritable.

31. (Close-Up) State several research-based suggestions for increasing your satisfaction with life.

PROGRESS TEST 1

Multiple-Choice Questions

Circle your answers to the following questions and check them with the answers beginning on page 349. 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. Which of the following is correct regarding the relationship between arousal and performance?
   a. Generally, performance is optimal when arousal is low.
   b. Generally, performance is optimal when arousal is high.
   c. On easy tasks, performance is optimal when arousal is low.
   d. On easy tasks, performance is optimal when arousal is high.

2. Which division of the nervous system is especially involved in bringing about emotional arousal?
   a. somatic nervous system
   b. peripheral nervous system
   c. sympathetic nervous system
   d. parasympathetic nervous system

3. Concerning emotions and their accompanying body responses, which of the following appears to be true?
   a. Each emotion has its own body response and underlying brain circuit.
   b. All emotions involve the same body response as a result of the same underlying brain circuit.
   c. Many emotions involve similar body responses but have different underlying brain circuits.
   d. All emotions have the same underlying brain circuits but different body responses.

4. The Cannon-Bard theory of emotion states that:
   a. emotions have two ingredients: physical arousal and a cognitive label.
   b. the conscious experience of an emotion occurs at the same time as the body’s physical reaction.
   c. emotional experiences are based on an awareness of the body’s responses to an emotion-arousing stimulus.
   d. emotional ups and downs tend to balance in the long run.

5. Electrical stimulation of which brain region can produce terror or rage in cats?
   a. limbic system
   b. hypothalamus
   c. cortex
   d. cerebellum

6. The body’s response to danger is triggered by the release of ______ by the ______ gland(s).
   a. acetylcholine; adrenal
   b. epinephrine and norepinephrine; adrenal
   c. acetylcholine; pituitary
   d. epinephrine and norepinephrine; pituitary

7. Which of the following was not raised as a criticism of the James-Lange theory of emotion?
   a. The body’s responses are too similar to trigger the various emotions.
   b. Emotional reactions occur before the body’s responses can take place.
   c. The cognitive activity of the cortex plays a role in the emotions we experience.
   d. People with spinal cord injuries at the neck typically experience less emotion.

8. (Thinking Critically) Current estimates are that the polygraph is inaccurate approximately ______ of the time.
   a. three-fourths
   b. one-half
   c. one-third
   d. one-fourth

9. In the Schachter-Singer experiment, which college men reported feeling an emotional change in the presence of the experimenter’s highly emotional confederate?
   a. those receiving epinephrine and expecting to feel physical arousal
   b. those receiving a placebo and expecting to feel physical arousal
   c. those receiving epinephrine but not expecting to feel physical arousal
   d. those receiving a placebo and not expecting to feel physical arousal
10. Which of the following is true regarding happiness?
   a. People with more education tend to be happier.
   b. Beautiful people tend to be happier than plain people.
   c. Women tend to be happier than men.
   d. People who are socially outgoing or who exercise regularly tend to be happier.

11. Catharsis will be most effective in reducing anger toward another person if:
   a. you wait until you are no longer angry before confronting the person.
   b. the target of your anger is someone you feel has power over you.
   c. your anger is directed specifically toward the person who angered you.
   d. the other person is able to retaliate by also expressing anger.

12. Emotions consist of which of the following components?
   a. physiological reactions
   b. behavioral expressions
   c. conscious feelings
   d. all of the above

13. Law enforcement officials sometimes use a lie detector to assess a suspect's responses to details of the crime believed to be known only to the perpetrator. This is known as the:
   a. inductive approach.
   b. deductive approach.
   c. guilty knowledge test.
   d. screening examination.

14. Research on nonverbal communication has revealed that:
   a. it is easy to hide your emotions by controlling your facial expressions.
   b. facial expressions tend to be the same the world over, while gestures vary from culture to culture.
   c. most authentic expressions last between 7 and 10 seconds.
   d. most gestures have universal meanings; facial expressions vary from culture to culture.

15. In laboratory experiments, fear and joy:
   a. result in an increase in heart rate.
   b. stimulate different facial muscles.
   c. increase heart rate and stimulate different facial muscles.
   d. result in a decrease in heart rate.

16. Research suggests that people generally experience the greatest well-being when they strive for:
   a. wealth.
   b. modest income increases from year to year.
   c. slightly higher status than their friends, neighbors, and co-workers.
   d. intimacy and personal growth.

17. Research indicates that a person is most likely to be helpful to others if he or she:
   a. is feeling guilty about something.
   b. is happy.
   c. recently received help from another person.
   d. recently offered help to another person.

18. With regard to emotions, Darwin believed that:
   a. the expression of emotions helped our ancestors to survive.
   b. all humans express basic emotions using similar facial expressions.
   c. human facial expressions of emotion retain elements of animals' emotional displays.
   d. all of the above are true.

19. A graph depicting the course of positive emotions over the hours of the day since waking would:
   a. start low and rise steadily until bedtime.
   b. start high and decrease steadily until bedtime.
   c. remain at a stable, moderate level throughout the day.
   d. rise over the early hours and dissipate during the day's last several hours.

20. Evidence that changes in facial expression can directly affect people's feelings and body states has convinced Robert Zajonc that:
   a. the heart is always subject to the mind.
   b. emotional reactions involve deliberate rational thinking.
   c. cognition is not necessary for emotion.
   d. the interpretation of facial expressions is a learned skill.
**Matching Items**

Match each definition or description with the appropriate term.

<table>
<thead>
<tr>
<th>Definitions or Descriptions</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. the tendency to react to changes on the basis of recent experience</td>
<td>a. adaptation-level phenomenon</td>
</tr>
<tr>
<td>2. an individual's self-perceived happiness</td>
<td>b. two-factor theory</td>
</tr>
<tr>
<td>3. emotional release</td>
<td>c. catharsis</td>
</tr>
<tr>
<td>4. the tendency to evaluate our situation negatively against that of other people</td>
<td>d. sympathetic nervous system</td>
</tr>
<tr>
<td>5. emotions consist of physical arousal and a cognitive label</td>
<td>e. James-Lange theory</td>
</tr>
<tr>
<td>6. an emotion-arousing stimulus triggers cognitive and body responses simultaneously</td>
<td>f. polygraph</td>
</tr>
<tr>
<td>7. the division of the nervous system that calms the body following arousal</td>
<td>g. Cannon-Bard theory</td>
</tr>
<tr>
<td>8. the division of the nervous system that activates arousal</td>
<td>h. parasympathetic nervous system</td>
</tr>
<tr>
<td>9. a device that measures the physiological correlates of emotion</td>
<td>i. relative deprivation principle</td>
</tr>
<tr>
<td>10. the tendency of people to be helpful when they are in a good mood</td>
<td>j. feel-good, do-good phenomenon</td>
</tr>
<tr>
<td>11. we are sad because we cry</td>
<td>k. subjective well-being</td>
</tr>
</tbody>
</table>

**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 most accurately describes emotional arousal?
   a. Emotions prepare the body to fight or flee.
   b. Emotions are voluntary reactions to emotion-arousing stimuli.
   c. Because all emotions have the same physiological basis, emotions are primarily psychological events.
   d. Emotional arousal is always accompanied by cognition.

2. Schachter's two-factor theory emphasizes that emotion involves both:
   a. the sympathetic and parasympathetic divisions of the nervous system.
   b. verbal and nonverbal expression.
   c. physical arousal and a cognitive label.
   d. universal and culture-specific aspects.

3. When students studied others who were worse off than themselves, they felt greater satisfaction with their own lives. This is an example of the principle of:
   a. relative deprivation.
   b. adaptation level.
   c. behavioral contrast.
   d. opponent processes.

4. Which theory of emotion emphasizes the simultaneous experience of body response and emotional feeling?
   a. James-Lange theory
   b. Cannon-Bard theory
   c. two-factor theory
   d. valence theory

5. Izard believes that there are _______ basic emotions.
   a. 3
   b. 5
d. 10
6. (Thinking Critically) The polygraph measures:
   a. lying.
   b. brain rhythms.
   c. chemical changes in the body.
   d. physiological indexes of arousal.

7. People who are exuberant and persistently cheerful show increased activity in the brain’s ________, which is rich in receptors for the neurotransmitter ________.
   a. right frontal lobe; dopamine
   b. left frontal lobe; dopamine
   c. amygdala; serotonin
   d. thalamus; serotonin

8. Which of the following is true regarding gestures and facial expressions?
   a. Gestures are universal; facial expressions, culture-specific.
   b. Facial expressions are universal; gestures, culture-specific.
   c. Both gestures and facial expressions are universal.
   d. Both gestures and facial expressions are culture-specific.

9. Which theory of emotion implies that every emotion is associated with a unique physiological reaction?
   a. James-Lange theory
   b. Cannon-Bard theory
   c. two-factor theory
   d. valence theory

10. For which of the following fears do humans appear to be biologically prepared?
    a. fear of electricity   c. fear of flowers
    b. fear of cliffs   d. fear of flying

11. Which of the following was not presented in the text as evidence that some emotional reactions involve no deliberate, rational thinking?
    a. Some of the neural pathways involved in emotion are separate from those involved in thinking and memory.
    b. Emotional reactions are sometimes quicker than our interpretations of a situation.
    c. People can develop an emotional preference for visual stimuli to which they have been unknowingly exposed.
    d. Arousal of the sympathetic nervous system will trigger an emotional reaction even when artificially induced by an injection of epinephrine.

12. Concerning the catharsis hypothesis, which of the following is true?
    a. Expressing anger can be temporarily calming if it does not leave one feeling guilty or anxious.
    b. The arousal that accompanies unexpressed anger never dissipates.
    c. Expressing one’s anger always calms one down.
    d. Psychologists agree that under no circumstances is catharsis beneficial.

13. In an emergency situation, emotional arousal will result in:
    a. increased rate of respiration.
    b. increased blood sugar.
    c. a slowing of digestion.
    d. all of the above.

14. A relatively high level of arousal would be most likely to facilitate:
    a. remembering the lines of a play.
    b. shooting free throws in basketball.
    c. sprinting 100 meters.
    d. taking a final exam in introductory psychology.

15. Several studies have shown that physical arousal can intensify just about any emotion. For example, when people who have been physically aroused by exercise are insulted, they often misattribute their arousal to the insult. This finding illustrates the importance of:
    a. cognitive labels of arousal in the conscious experience of emotions.
    b. a minimum level of arousal in triggering emotional experiences.
    c. the simultaneous occurrence of physical arousal and cognitive labeling in emotional experience.
    d. all of the above.

16. (Thinking Critically) Many psychologists are opposed to the use of lie detectors because:
    a. they represent an invasion of a person’s privacy and could easily be used for unethical purposes.
    b. there are often serious discrepancies among the various indicators such as perspiration and heart rate.
    c. polygraphs cannot distinguish the various possible causes of arousal.
    d. they are accurate only about 50 percent of the time.
17. Most human fears are:
   a. universal.
   b. biologically determined.
   c. present at birth.
   d. learned.

18. In studying what makes people angry, James Averill found that most people become angry:
   a. once a day.
   b. once a week.
   c. several times a week.
   d. several times a month.

19. Which of these factors have researchers not found to correlate with happiness?
   a. a satisfying marriage or close friendship
   b. high self-esteem
   c. religious faith
   d. education

20. In cultures that emphasize social interdependence:
   a. emotional displays are typically intense.
   b. emotional displays are typically prolonged.
   c. negative emotions are rarely displayed.
   d. all of the above are true.

True-False Items

Indicate whether each statement is true or false by placing T or F in the blank next to the item.

1. For easy tasks, the optimal level of arousal is higher than for difficult tasks.  
2. Men are generally better than women at detecting nonverbal emotional expression.
3. The sympathetic nervous system triggers physiological arousal during an emotion.
4. The adrenal glands produce the hormones epinephrine and norepinephrine.
5. When one imitates an emotional facial expression, the body may experience physiological changes characteristic of that emotion.
6. People who have lost sensation only in their lower bodies experience a considerable decrease in the intensity of their emotions.
7. Wealthy people tend to be much happier than middle-income people.
8. Physical arousal can intensify emotion.
9. All emotions involve conscious thought.
10. The two-factor theory states that emotions are given a cognitive label before physical arousal occurs.

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. You are on your way to school to take a big exam. Suddenly, on noticing that your pulse is racing and that you are sweating, you feel nervous. With which theory of emotion is this experience most consistent?
   a. Cannon-Bard theory
   b. James-Lange theory
   c. relative deprivation theory
   d. adaptation-level theory

2. When Professor Simon acquired a spacious new office, he was overjoyed. Six months later, however, he was taking the office for granted. His behavior illustrates the:
   a. relative deprivation principle.
   b. adaptation-level phenomenon.
   c. valence theory.
   d. optimum arousal principle.

3. After Brenda scolded her brother for forgetting to pick her up from school, the physical arousal that had accompanied her anger diminished. Which division of her nervous system mediated her physical relaxation?
   a. sympathetic division
   b. parasympathetic division
   c. somatic division
   d. peripheral nervous system

4. Two years ago Maria was in an automobile accident in which her spinal cord was severed, leaving her paralyzed from her neck down. Today, Maria finds that she experiences emotions less intensely than she did before her accident. This tends to support which theory of emotion?
   a. James-Lange theory
   b. Cannon-Bard theory
   c. adaptation-level theory
   d. relative deprivation theory

5. The candidate stepped before the hostile audience, panic written all over his face. It is likely that the candidate's facial expression caused him to experience:
   a. a lessening of his fear.
   b. an intensification of his fear.
   c. a surge of digestive enzymes in his body.
   d. increased body temperature.
6. Jane was so mad at her brother that she exploded at him when he entered her room. That she felt less angry afterward is best explained by the principle of:
   a. adaptation level.
   b. physiological arousal.
   c. relative deprivation.
   d. catharsis.

7. After hitting a grand-slam home run, Mike noticed that his heart was pounding. Later that evening, after nearly having a collision while driving on the freeway, Mike again noticed that his heart was pounding. That he interpreted this reaction as fear, rather than as ecstasy, can best be explained by the:
   a. James-Lange theory.
   b. Cannon-Bard theory.
   c. two-factor theory.
   d. adaptation-level theory.

8. As part of her job interview, Jan is asked to take a lie-detector test. Jan politely refuses and points out that:
   a. a guilty person can be found innocent by the polygraph.
   b. an innocent person can be found guilty.
   c. these tests err one-third of the time.
   d. all of the above are true.

9. A student participating in an experiment concerned with physical responses that accompany emotions reports that her mouth is dry, her heart is racing, and she feels flushed. Can the emotion she is experiencing be determined?
   a. Yes, it is anger.
   b. Yes, it is fear.
   c. Yes, it is ecstasy.
   d. No, it cannot be determined from the information given.

10. Who will probably be angrier after getting a parking ticket?
    a. Bob, who has just awakened from a nap
    b. Veronica, who has just finished eating a big lunch
    c. Dan, who has just completed a tennis match
    d. Alicia, who has been reading a romantic novel

11. Children in New York, Nigeria, and New Zealand smile when they are happy and frown when they are sad. This suggests that:
    a. the Cannon-Bard theory is correct.
    b. some emotional expressions are learned at a very early age.
    c. the two-factor theory is correct.
    d. facial expressions of emotion are universal and biologically determined.

12. Who is the least likely to display negative emotions openly?
    a. Paul, a game warden in Australia
    b. Niles, a stockbroker in Belgium
    c. Deborah, a physicist in Toronto
    d. Yoko, a dentist in Japan

13. Nine-month-old Nicole’s left frontal lobe is more active than her right frontal lobe. We can expect that, all other things being equal, Nicole:
    a. may suffer from mild depression for most of her life.
    b. may have trouble “turning off” upsetting feelings later in her life.
    c. may be more cheerful than those with more active right frontal lobes.
    d. may have trouble expressing feelings later in her life.

14. Julio was extremely angry when he came in for a routine EEG of his brain activity. When he later told this to the doctor, she was no longer concerned about the:
    a. increased electrical activity in Julio’s right hemisphere.
    b. increased electrical activity in Julio’s left hemisphere.
    c. decreased electrical activity in Julio’s amygdala.
    d. increased electrical activity in Julio’s amygdala.

15. When the scientist electrically stimulated one area of a monkey’s brain, the monkey became enraged. When another electrode was activated, the monkey cowered in fear. The electrodes were most likely implanted in the:
    a. pituitary gland.
    b. adrenal glands.
    c. limbic system.
    d. right hemisphere.

16. As elderly Mr. Hooper crosses the busy intersection, he stumbles and drops the packages he is carrying. Which passerby is most likely to help Mr. Hooper?
    a. Drew, who has been laid off from work for three months
    b. Leon, who is on his way to work
    c. Bonnie, who graduated from college the day before
17. Expressing anger can be adaptive when you:
   a. react immediately.
   b. have mentally rehearsed all the reasons for your anger.
   c. count to ten, then blow off steam.
   d. first wait until the anger subsides, then deal with the situation in a civil manner.

18. Cindy was happy with her promotion until she found out that Janice, who has the same amount of experience, receives a higher salary. Cindy's feelings are best explained according to the:
   a. adaptation-level phenomenon.
   b. valence theory.
   c. catharsis hypothesis.
   d. principle of relative deprivation.

19. I am an emotionally literate person who is very accurate at reading others' nonverbal behavior, detecting lies, and describing my feelings. Who am I?
   a. an introvert
   b. an extravert
   c. a woman
   d. a man

20. Margaret is a finalist in the U.S. Ice Skating Championship. She is very excited about the competition and is feeling energized. More than likely, the two dimensions of her current emotion would be a ______ and ______.
   a. positive valence; low arousal
   b. negative valence; low arousal
   c. positive valence; high arousal
   d. negative valence; high arousal

Essay Question
Discuss biological and cultural influences on emotions. (Use the space below to list the points you want to make, and organize them. Then write the essay on a separate sheet 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. emotion
2. James-Lange theory
3. Cannon-Bard theory
4. two-factor theory
5. polygraph
6. catharsis
7. feel-good, do-good phenomenon
8. subjective well-being
9. adaptation-level phenomenon
10. relative deprivation
Cross-Check

As you learned in the Prologue, reviewing and overlearning of material are important to the learning process. After you have written the definitions of the key terms in this chapter, you should complete the crossword puzzle to ensure that you can reverse the process—recognize the term, given the definition.

ACROSS
1. Device that measures several of the physiological responses accompanying emotion.
6. Phenomenon in which people tend to be helpful when they are in a good mood.
8. Theory that the subjective experience of an emotion occurs at the same time as the body’s physical reaction.

DOWN
2. Principle that we are worse off relative to those with whom we compare ourselves.
3. Theory that emotions have two ingredients: physical arousal and a cognitive label.
4. A response of the whole organism involving physical arousal, expressive behaviors, and conscious experience.
5. Phenomenon referring to our tendency to judge things relative to our prior experience.
7. Theory that emotional experiences are based on an awareness of the body’s responses to emotion-arousing stimuli.

ANSWERS

Chapter Review

Theories of Emotion

1. physiological arousal; expressive behaviors; conscious experience
2. follow
Cannon argued that the body’s responses were not sufficiently distinct to trigger the different emotions and, furthermore, that physiological changes occur too slowly to trigger sudden emotion.
3. cortex; sympathetic; Cannon-Bard
4. physiological; cognitive; Schachter

Embodied Emotion

1. a. Heart rate increases.
   b. Muscles become tense.

C. The liver pours extra sugar into the bloodstream.
D. Breathing rate increases.
E. Digestion slows.
F. Pupils dilate.
G. Blood tends to clot more rapidly.
H. Skin perspires.

2. sympathetic; adrenal; epinephrine (adrenaline); norepinephrine (noradrenaline)
3. parasympathetic
4. moderately
5. varies
6. easy; high; difficult; lower
7. similar; fear; anger; sexual arousal
8. fear; rage; finger; hormone
9. fear; joy
10. are; amygdala; angry; depression; right prefrontal cortex
11. left frontal lobe
12. left; frontal; dopamine
13. nucleus accumbens
14. polygraph
The polygraph measures several of the physiological responses that accompany emotion, such as changes in breathing, pulse rate, blood pressure, and perspiration. The assumption is that lying is stressful, so a person who is lying will become physiologically aroused.

- 15. anxiety
- 16. innocent; emotions; arousal
- 17. do not agree
- 18. guilty knowledge test
- 19. decrease; James-Lange
- 20. agree; cognition
- 21. arousal
- 22. did not; did
- 23. fuels; channels
- 24. can

First, experiments on subliminal perception indicate that although stimuli are not consciously perceived, people later prefer these stimuli to others they have never been exposed to. Second, there is some separation of the neural pathways involved in emotion and cognition.

- 25. eye or ear; thalamus; amygdala; cognition; cortex
- 26. Lazarus; appraise
- 27. interpretations; expectations; personalize; generalize

It seems that some emotional responses—especially simple likes, dislikes, and fears—involve no conscious thinking. Other emotions are greatly affected by our interpretations and expectations.

**Expressed Emotion**

1. suppress; memory; nonverbal
2. threats; anger; eyes; mouth
3. better; easier
4. sensitize; anger
5. better; lies; literacy; simpler; gender roles; responsiveness
6. more; smaller; more
7. happiness; anger
8. facial muscles; are not; experience; law enforcement (U.S. Secret Service agents and federal law officers, mostly CIA agents)
9. e-mail
10. different
11. the same; does not vary; are
12. Darwin; interpret; contexts
13. individuality; hide their emotions; social-cultural
14. intensified

- 15. found
- 16. facial feedback
- 17. leads
- 18. behavior feedback

**Experienced Emotion**

1. 10; are; combinations
2. valence; pleasant (positive valence); unpleasant (negative valence); arousal
3. adaptive
4. learning (conditioning)
5. observing

The fact that humans quickly learn and slowly unlearn to fear snakes, spiders, and cliffs—fears that were presumably very useful to our ancestors—suggests that these are biologically predisposed fears that develop with little or no learning.

- 6. amygdala; limbic; remember; emotional
- 7. anterior cingulate cortex
- 8. hippocampus; emotional reaction; will not
- 9. amygdala
- 10. phobias; experience; genes
- 11. willful; unjustified; avoidable
- 12. individuality; catharsis; interdependence; Tahiti; Japan

13. a. Retaliation must be directed against the person who provoked the anger.
   b. Retaliation must be justifiable.
   c. The target of the retaliation must not be someone who is intimidating.

One problem with expressing anger is that it breeds more anger, in part because it may trigger retaliation. Expressing anger can also magnify anger and reinforce its occurrence.

- 14. a. Wait to calm down.
   b. Deal with anger in a way that involves neither chronic anger nor passive sulking.

- 15. forgave
- 16. safer
- 17. more; feel-good, do-good
- 18. subjective well-being
- 19. rise; fall
- 20. overestimate
- 21. regain
- 22. do not
- 23. stronger
- 24. remained almost unchanged
- 25. intimacy, personal growth, and contribution to the community; wealth
26. adaptation-level

If we acquire new possessions, we feel an initial surge of pleasure. But we then adapt to having these new possessions, come to see them as normal, and require other things to give us another surge of happiness.

27. relative deprivation; slightly more

28. high self-esteem; satisfying marriage or close friendships; meaningful religious faith; optimistic outgoing personality; good sleeping habits and regular exercise; having work and leisure that engage our skills

29. age; gender; education; parenthood; physical attractiveness

30. 50


Progress Test 1

Multiple-Choice Questions

1. d. is the answer. Generally speaking, performance is optimal when arousal is moderate; for easy tasks, however, performance is optimal when arousal is high. For difficult tasks, performance is optimal when arousal is low. (p. 517)

2. c. is the answer. (p. 516)
   a. The somatic division of the peripheral nervous system carries sensory and motor signals to and from the central nervous system.
   b. The peripheral nervous system is too general an answer, since it includes the sympathetic and parasympathetic divisions, as well as the somatic division.
   c. The parasym pathetic nervous system restores the body to its unaroused state.

3. c. is the answer. Although many emotions have the same general body arousal, resulting from activation of the sympathetic nervous system, they appear to be associated with different brain circuits. (p. 518)

4. b. is the answer. (p. 514)
   a. This expresses the two-factor theory.
   c. This expresses the James-Lange theory.
   d. This theory was not discussed.

5. a. is the answer. (p. 518)
   b. The hypothalamus is involved in eating, thirst, and sexual motivation.

   c. The cortex is the center of higher cognitive functions, such as memory and thinking.
   d. The cerebellum is involved in motor coordination.

6. b. is the answer. (p. 516)
   a. & c. Acetylcholine, a neurotransmitter involved in motor responses, is not a hormone and therefore is not secreted by a gland.

7. d. is the answer. The finding that people whose brains can’t sense the body’s responses experience considerably less emotion in fact supports the James-Lange theory, which claims that experienced emotion follows from body responses. (pp. 518–519)
   a., b., & c. All these statements go counter to the theory’s claim that experienced emotion is essentially just an awareness of the body’s response.

8. c. is the answer. (p. 520)

9. c. is the answer. The men who received epinephrine without an explanation felt arousal and experienced this arousal as whatever emotion the experimental confederate in the room with them was displaying. (pp. 519–520)
   a. Epinephrine recipients who expected arousal attributed their arousal to the drug and reported no emotional change in reaction to the confederate’s behavior.
   b. & d. In addition to the two groups discussed in the text, the experiment involved placebo recipients; these subjects were not physically aroused and did not experience an emotional change.

10. d. is the answer. Education level, parenthood, gender, and physical attractiveness seem unrelated to happiness. (p. 544)

11. c. is the answer. (p. 536)
   a. This would not be an example of catharsis, since catharsis involves releasing, rather than suppressing, aggressive energy.
   b. Expressions of anger in such a situation tend to cause the person anxiety and thus tend not to be effective.
   d. One danger of expressing anger is that it will lead to retaliation and an escalation of anger.

12. d. is the answer. These are the three components of emotions identified in the text. (p. 513)

13. c. is the answer. If the suspect becomes physically aroused while answering questions about details only the perpetrator of the crime could know, it is presumed that he or she committed the crime. (p. 521)

14. b. is the answer. (p. 524)
   a. The opposite is true; relevant facial muscles are hard to control voluntarily.
c. Authentic facial expressions tend to fade within 4 or 5 seconds.

d. Facial expressions are generally universal; many gestures vary from culture to culture.

15. c. is the answer. Both fear and joy increase heart rate but stimulate different facial muscles. (p. 518)

16. d. is the answer. (p. 541)

17. b. is the answer. (p. 537)

a, c, & d. Research studies have not found these factors to be related to altruistic behavior.

18. d. is the answer. (pp. 528, 529)

19. d. is the answer. (p. 538)

20. c. is the answer. (p. 521)

a & b. These answers imply that cognition always precedes emotion.

d. That changes in facial expression can directly affect people’s feelings and body states does not imply a learned ability to interpret facial expressions. In fact, facial expressions apparently speak a universal language, which implies that the ability to interpret them is inborn.

Matching Items

1. a (p. 542)  5. b (p. 514)  9. f (p. 520)
2. k (p. 538)  6. g (p. 514)  10. j (p. 537)
3. c (p. 536)  7. h (p. 516)  11. e (p. 514)
4. i (p. 543)  8. d (p. 516)

Progress Test 2

Multiple-Choice Questions

1. a. is the answer. Emotional arousal activates the sympathetic nervous system, causing the release of sugar into the blood for energy, pupil dilation, and the diverting of blood from the internal organs to the muscles, all of which help prepare the body to meet an emergency. (p. 516)

b. Being autonomic responses, most emotions are involuntary reactions.

c. All emotions do not have the same physiological basis.

d. Some emotions occur without cognitive awareness.

2. c. is the answer. According to Schachter, the two factors in emotion are (1) physical arousal and (2) conscious interpretation of the arousal. (p. 514)

3. a. is the answer. The principle of relative deprivation states that happiness is relative to others’ attainments. This helps explain why those who are relatively well off tend to be slightly more satisfied than the relatively poor, with whom the better-off can compare themselves. (p. 543)

b. Adaptation level is the tendency for our judgments to be relative to our prior experience.

c. This phenomenon has nothing to do with the interpretation of emotion.

d. Opponent processes are not discussed in the text in relation to emotion.

4. b. is the answer. (p. 514)

a. The James-Lange theory states that the experience of an emotion is an awareness of one’s physical response to an emotion-arousing stimulus.

c. The two-factor theory states that to experience emotion one must be physically aroused and attribute the arousal to an emotional cause.

d. There is no such theory, although valence is one dimension of emotion.

5. d. is the answer. (p. 532)

6. d. is the answer. No device can literally measure lying. The polygraph measures breathing, pulse rate, blood pressure, and perspiration for changes indicative of physiological arousal. (p. 520)

7. b. is the answer. (p. 518)

8. b. is the answer. Whereas the meanings of gestures vary from culture to culture, facial expressions seem to have the same meanings around the world. (pp. 524–525)

9. a. is the answer. If, as the theory claims, emotions are triggered by physiological reactions, then each emotion must be associated with a unique physiological reaction. (p. 514)

b. According to the Cannon-Bard theory, the same general body response accompanies many emotions.

c. The two-factor theory states that the cognitive interpretation of a general state of physical arousal determines different emotions.

d. There is no such theory, although valence is one dimension of emotion.

10. b. is the answer. The fears for which humans seem biologically prepared are fears that probably were useful to our ancestors. (p. 534)

11. d. is the answer. As the Schachter-Singer study indicated, physical arousal is not always accompanied by an emotional reaction. Only when arousal was attributed to an emotion was it experienced as such. The results of this experiment, therefore, support the viewpoint that conscious interpretation of arousal must precede emotion. (pp. 519–520)

a, b, & c. Each of these was presented as a supporting argument in the text.

12. a. is the answer. (p. 536)

b. The opposite is true. Any emotional arousal will simmer down if you wait long enough.
c. Catharsis often magnifies anger, escalates arguments, and leads to retaliation.
d. When counterattack is justified and can be directed at the offender, catharsis may be helpful.

13. d. is the answer. (p. 516)

14. c. is the answer. Easy or well-rehearsed tasks, such as sprinting, are best performed when arousal is high; more difficult tasks are best performed when arousal is lower. (p. 517)

15. a. is the answer. That physical arousal can be misattributed demonstrates that it is the cognitive interpretation of arousal, rather than the intensity or specific nature of the body’s arousal, that determines the conscious experience of emotions. (p. 520)
b. & c. The findings of these studies do not indicate that a minimum level of arousal is necessary for an emotional experience nor that applying a cognitive label must be simultaneous with the arousal.

16. c. is the answer. As heightened arousal may reflect feelings of anxiety or irritation rather than of guilt, the polygraph, which simply measures arousal, may easily err. (p. 520)
a. Misuse and invasion of privacy are valid issues, but Lykken primarily objects to the use of lie detectors because of their inaccuracy.
b. Although there are discrepancies among the various measures of arousal, this was not what Lykken objected to.
d. The lie detector errs about one-third of the time.

17. d. is the answer. (p. 533)
a. Because most fears are acquired through learning, people acquire highly individual fears.
b. & c. Only a few basic fears are biologically determined and present at birth.

18. c. is the answer. (p. 535)

19. d. is the answer. (p. 544)

20. c. is the answer. (p. 529)
a. & b. These are true of cultures that emphasize individuality rather than interdependence.

**Psychology Applied**

**Multiple-Choice Questions**

1. b. is the answer. The James-Lange theory proposes that the experienced emotion is an awareness of a prior body response: Your pulse races, and so you feel nervous. (p. 514)
a. According to the Cannon-Bard theory, your body’s reaction would occur simultaneously with, rather than before, your experience of the emotion.
c. Relative deprivation refers to our sense that we are worse off than others with whom we compare ourselves.
d. The adaptation-level phenomenon concerns our tendency to judge stimuli on the basis of recent experience.

2. b. is the answer. Professor Simon’s judgment of his office is affected by his recent experience: When that experience was of a smaller office, his new office seemed terrific; now, however, it is commonplace. (p. 542)
a. Relative deprivation is the sense that one is worse off than those with whom one compares oneself.
b. There is no such theory, although valence is one dimension of emotion.
c. This is the principle that there is an inverse relationship between the difficulty of a task and the optimum level of arousal.
d. The principle is that there is an inverse relationship between the difficulty of a task and the optimum level of arousal.

3. b. is the answer. The parasympathetic division is involved in calming arousal. (p. 516)
a. The sympathetic division is active during states of arousal and hence would not be active in the situation described.
b. The somatic division is involved in transmitting sensory information and controlling skeletal muscles; it is not involved in arousing and calming the body.
d. This answer is too general, since the peripheral nervous system includes not only the parasympathetic division but also the sympathetic division and the somatic division.

4. a. is the answer. According to the James-Lange theory, Maria’s emotions should be greatly diminished since her brain is unable to sense physical arousal. (p. 519)
b. Cannon and Bard would have expected Maria to experience emotions normally because they
believed that the experiencing of emotions occurs separately from the body’s responses.

5. b. is the answer. Expressions may amplify the associated emotions. (pp. 530–531)
   a. Laboratory studies have shown that facial expressions intensify emotions.
   c. Arousal of the sympathetic nervous system, such as occurs when one is afraid, slows digestive function.
   d. Increased body temperature accompanies anger but not fear.

6. d. is the answer. In keeping with the catharsis hypothesis, Jane feels less angry after releasing her aggression. (p. 536)
   a. Adaptation level is our tendency to judge things relative to our experiences.
   b. This is not a specific theory.
   c. Relative deprivation is the sense that one is worse off relative to those with whom one compares oneself.

7. c. is the answer. According to the two-factor theory, it is cognitive interpretation of the same general physiological arousal that distinguishes the two emotions. (p. 514)
   a. According to the James-Lange theory, if the same physical arousal occurred in the two instances, the same emotions should result.
   b. The Cannon-Bard theory argues that conscious awareness of an emotion and body reaction occur at the same time.
   d. Adaptation level concerns our tendency to judge things relative to our experiences.

8. d. is the answer. (pp. 520–521)
9. d. is the answer. (p. 517)

10. c. is the answer. Because physical arousal tends to intensify emotions, Dan (who is likely to be physically aroused after playing tennis) will probably be angrier than Bob or Veronica, who are in more relaxed states. (p. 520)

11. d. is the answer. (p. 528)
    a. & c. The Cannon-Bard and two-factor theories of emotion do not address the universality of emotional expressions.
    b. Even if it is true that emotional expressions are acquired at an early age, this would not necessarily account for the common facial expressions of children from around the world. If anything, the different cultural experiences of the children might lead them to express their feelings in very different ways.

12. d. is the answer. In Japan and other Asian cultures that emphasize human connections and interdependence, negative emotional displays are rare and typically brief. (p. 529)
    a., b., & c. In cultures that encourage individuality, as in Western Europe, Australia, and North America, emotional displays often are intense and prolonged.

13. c. is the answer. (p. 518)
    a. Individuals with more active right frontal lobes tend to be less cheerful and are more likely to be depressed.
    b. In fact, just the opposite is true: people with greater left frontal activity tend to be better able to turn off upsetting feelings.
    d. The text does not suggest that greater left or right frontal activity influences a person’s ability to express his or her feelings.

14. a. is the answer. As people experience negative emotions, such as anger, the right hemisphere becomes more electrically active. (p. 518)
    c. & d. The EEG measures electrical activity on the surface of the cortex, not at the level of structures deep within the brain, such as the amygdala.

15. c. is the answer. (p. 518)
    a., b., & d. Direct stimulation of these brain areas will not trigger fear or rage.

16. c. is the answer. People who are in a good mood are more likely to help others. Bonnie, who is probably pleased with herself following her graduation from college, is likely to be in a better mood than Drew, Leon, or Nancy. (p. 537)

17. d. is the answer. (p. 536)
    a. Venting anger immediately may lead you to say things you later regret and/or may lead to retaliation by the other person.
    b. Going over the reasons for your anger merely prolongs the emotion.
    c. Counting to ten may give you a chance to calm down, but “blowing off steam” may rekindle your anger.

18. d. is the answer. Cindy is unhappy with her promotion because she feels deprived relative to Janice. (p. 543)
    a. The adaptation-level phenomenon would predict that Cindy’s raise would cause an increase in her happiness, since her most recent experience was to earn a lower salary.
    b. There is no such theory, although valence is one dimension of emotion.
c. The catharsis hypothesis maintains that venting one's anger may relieve aggressive urges.

19. c. is the answer. (p. 525)
20. c. is the answer. (p. 533)

Essay Question

All emotions involve some degree of physiological arousal of the sympathetic nervous system. Although the arousal that occurs with different emotions is in most ways undifferentiated, there may be subtle differences in the brain pathways and hormones associated with different emotions.

Other examples of the influence of biological factors on emotion are the universality of facial expressions of emotion and the fact that humans seem biologically predisposed to learn some fears more quickly than others.

Unlike facial expressions of emotion, the meaning of many gestures is culturally determined. Culture also influences how people express their feelings. In cultures that encourage individuality, for example, emotional displays often are intense and prolonged. In cultures that emphasize human interdependence, negative emotions that might disrupt group harmony are rarely expressed, while displays of "othersensitive" emotions such as sympathy, respect, and shame are more common than in the West.

KEY TERMS

Writing Definitions

1. Emotion is a response of the whole organism involving three components: (1) physical arousal, (2) expressive behaviors, and (3) conscious experience. (p. 513)
2. The James-Lange theory states that emotional experiences are based on an awareness of the body's responses to emotion-arousing stimuli: a stimulus triggers the body's responses that in turn trigger the experienced emotion. (p. 514)
3. The Cannon-Bard theory states that the subjective experience of an emotion occurs at the same time as the body's physical reaction. (p. 513)
4. The two-factor theory of emotion proposes that emotions have two ingredients: physical arousal and a cognitive label. Thus, physical arousal is a necessary, but not a sufficient, component of emotional change. For an emotion to be experienced, arousal must be attributed to an emotional cause. (p. 514)
5. The polygraph, or lie detector, is a device that measures several of the physiological responses accompanying emotion. (p. 520)
6. Catharsis is emotional release; according to the catharsis hypothesis, by expressing our anger, we can reduce it. (p. 536)
7. The feel-good, do-good phenomenon is the tendency of people to be helpful when they are in a good mood. (p. 537)
8. Subjective well-being refers to a person's sense of satisfaction with his or her life. (p. 538)
9. The adaptation-level phenomenon refers to our tendency to judge things relative to our prior experience. (p. 542)
10. The principle of relative deprivation is the perception that we are worse off relative to those with whom we compare ourselves. (p. 543)

Cross-Check

ACROSS
1. polygraph
6. feel-good-do-good
8. Cannon-Bard

DOWN
2. relative deprivation
3. two-factor
4. emotion
5. adaptation level
7. James-Lange
8. catharsis
FOCUS ON VOCABULARY AND LANGUAGE

Page 513: No one needs to tell you that feelings add color to your life. . . . Without emotions we would experience a very dull and uninteresting existence; we would have no feelings of intense happiness or excitement nor would we experience depression and sadness. Thus, emotions add a variety of interesting qualities (color) to our lives.

Page 513: In an instant, the arousal of dread spilled into the elation of ecstasy. When Dr. Myers finally located his lost child (toddler) in the store, his apprehension and fear (the arousal of dread) transformed into a heightened and intense feeling of happiness (the elation of ecstasy) and he was overcome with positive emotions (awash with joy). This story illustrates the various components of emotion—physiological arousal, expressive behavior, and conscious experience.

Theories of Emotion

Page 514: Common sense tells most of us that we cry because we are sad, lash out because we are angry, tremble because we are afraid. The James-Lange theory states that physiological arousal precedes the experience of emotion. Thus, we cry first, then feel sad; we strike someone (lash out), then experience the anger; we shiver and shake (tremble), then feel fear. The Cannon-Bard theory proposes that physiological arousal and the experience of emotion occur at the same time but separately. One does not cause the other.

Embodied Emotion

Page 516: . . . your stomach develops butterflies . . . When you are apprehensive, fearful, and nervous, you have visceral (internal) sensations that may feel as though small flying insects (butterflies) are fluttering around in your stomach (it develops butterflies).

Page 517: Basketball players shooting free throws—a less automatic skill—may not perform quite as well if a packed fieldhouse makes them hyperaroused (Sokoll & Mynatt, 1984). When a basketball player is allowed (without interference) to throw the ball through the hoop (shooting free throws), it requires a lot of concentration because it is not a usual part of the game. If the player gets anxious and is over-aroused (hyperaroused) because of the attention of a large crowd (packed fieldhouse), he is more likely to make a mistake. A high level of arousal is beneficial for the performance of easy, routine tasks.

Page 517: If afraid, you may feel a clutching, sinking sensation in your chest and a knot in your stomach. Different emotions (anger, fear, sadness) feel and look different. Someone who is extremely afraid may have certain visceral (internal) reactions such as tightness in the upper abdomen (a clutching, sinking sensation) and a feeling of a lump (knot) in the stomach. An angry person may experience an increase in temperature and sweating (may feel "hot under the collar"). There is some evidence of different physiological or brain patterns corresponding to each emotion.

Page 518: The left frontal lobe’s rich supply of dopamine receptors may help explain why a peppy left hemisphere predicts a perky disposition. For some people, the left frontal lobe has more lively electrical activity (it is peppy), compared to the right, and these particular individuals tend to have more cheerful and happier personalities (perky dispositions).

Page 518 (Margin quote): Given the physical indicators of emotion, might we, like Pinocchio, give some telltale sign whenever we lie? Pinocchio is a fictional character in a children’s story whose nose grows longer every time he tells a lie. The polygraph, or lie detector, does not detect lies; rather, it measures a number of physiological reactions (heart rate, blood pressure, and perspiration) (telltale signs) which indicate a change in emotional state. Unlike Pinocchio, people display no reliable or valid indicators of whether they are lying or telling the truth.

Page 519: Virtually all the men Holmann interviewed reported increases in weeping, lumps in the throat, and getting choked up when saying good-bye, worshipping, or watching a touching movie. For emotions expressed mostly in body areas above the neck, people with high spinal cord injuries reported more intense reactions, such as crying (weeping), becoming inarticulate (lumps in the throat), and being overcome emotionally (choked up) when parting company (saying good-bye), participating in religious ceremonies (worshipping), or viewing a sentimental film (watching a touching movie). On the other hand, emotional intensity for most other feelings decreased substantially, especially if they involved body areas below the neck. This provides partial support for the James-Lange theory (breathed new life into it), which proposes that physical reactions are important in the experience of emotions.

Page 519: Which is the chicken and which the egg? The old riddle asks, “Which came first, the chicken or the egg?” Myers asks which comes first, our cognitions or our emotions? The two-factor theory suggests that physiological arousal has to be cognitively interpreted in order for one to experience different emotions. Stanley Schachter’s research showed that the same arousal (stirred-up state) can be experienced
as two very different emotional states (e.g., euphoria or irritation) depending on how we interpret and label it. Thus, thinking comes before feeling.

Page 520 (Box) . . . a white lie . . . When we tell a rather harmless or benign falsehood (a white lie), we are failing to reveal the truth about something relatively trivial. The polygraph can detect the physiological arousal that results from falsely answering control questions; this level of arousal is compared to reactions to the critical questions. Myers makes it clear that inferring guilt or innocence on the basis of these comparisons is fraught with problems. The innocent are more often labeled guilty than the guilty innocent; as Myers suggests, you should “never take a lie detector test if you are innocent.”

Page 520: . . . testy . . . This means to be ill-tempered or irritable. Those subjects who were physiologically aroused but did not know why were affected by (“caught”) the apparent emotional state of the person they were with. They made different attributions about their aroused (stirred-up) state (“I’m happy” or “I’m feeling testy”) on the basis of whether the accomplice acted in a euphoric or irritated way.

Page 522: This makes it easier for our feelings to hijack our thinking than for our thinking to rule our feelings . . . Some neural pathways go from the ear or eye via the thalamus to the amygdala, an emotional control center, and detour around (bypass) the cortical areas involved in thinking. This makes it possible to have extremely rapid (greased-lightning) emotional responses before cognitive factors become involved. Thus, our feelings can take over (hijack) our thinking, instead of our thinking controlling (ruling) our emotions.

Page 522: The heart is not always subject to the mind. Robert Zajonc proposed that some emotional states are not preceded by cognitions. The emotions (heart) are not determined by our thoughts (mind). We can have some feelings, at least, without thinking first.

Expressed Emotion

Page 524: Most of us are good enough at reading nonverbal cues to decipher the emotions in an old silent film. We communicate our feelings with words (verbally) and through body language (nonverbally). Without hearing a single word, as in a movie with no soundtrack (silent film), we can discern much about someone’s emotional state by observing (reading) his or her bodily actions and facial expressions. As Myers notes, when we look at a large group of faces, a single angry one will be extremely noticeable (it will “pop out”) and will be detected more quickly than a single happy one.

Page 527: Fidgeting, for example, may reveal anxiety or boredom. Many popular books and articles suggest what to look for in body language during interviews, business meetings, and so on. However, specific interpretations of gestures or posture cannot be made accurately or reliably. For example, restlessness, accompanied by frequent small movements (fidgeting), may be indicative of either disinterest (boredom) or extreme nervousness (anxiety).

Page 528: Ditto for anger, and to a lesser extent the other basic expressions. There is a great deal of consistency across cultures in the interpretation of different emotional expressions. In tests, people the world over could reliably tell which face expressed happiness; this result was found over and over again (ditto), and similar results were found for other fundamental expressions (e.g., anger and fear).

Page 529: A sneer, for example, retains elements of an animal’s baring its teeth in a snarl. Darwin believed that all humans have inherited the ability to express emotions through very similar facial expressions. Thus, a person’s scornful or contemptuous grimace (sneer) has many aspects of the fierce growl with teeth showing (a snarl) typical of dogs and other animals. Emotional expressions are one form of social communication.

Page 530: Fake a big grin. Now scowl. Can you feel the smile therapy difference? Clearly, our moods affect how we look, but Myers is inviting you to test the idea that your facial expression can affect your mood. Make a large, false smile (fake a grin). Next, wrinkle or furrow your brow, frown and look sullen (scowl). Subjects in numerous experiments felt different emotions under these conditions. Smile and inside you feel happy, scowl and you may see the world as more miserable than it is.

Experienced Emotion

Page 533: Fear can be poisonous. To be very afraid is an adaptive emotion (it prepares our bodies for fight or flight, it creates cohesion in groups, it can protect us from harm, and it can constrain us from behaving badly). On the other hand, fear can obsess us, keep us awake at night, and keep us constantly worried. It can be a destructive and toxic reaction (a poisonous emotion).

Page 534: But our Stone Age fears leave us unprepared for high-tech dangers. Because of our evolutionary past we seem to be biologically inclined to learn
some fears much more easily and quickly than others. Fear of heights, snakes, spiders, and so forth is easier to condition than fear of furniture, appliances, cars, electricity, and so on. Fears that were adaptive in the past (Stone Age fears) are not necessarily beneficial in today’s technological era.

Page 536: Popular books and articles on aggression at times advise that even releasing angry feelings as hostile outbursts can be better than internalizing them. The idea is that expressing your anger openly (hostile outbursts or “vent” your anger”) provides some form of emotional release (catharsis) and that this is better than not expressing your feelings and holding your anger inside (internalizing it). Under certain circumstances, this may provide temporary relief, but the evidence also suggests that expressing anger can increase or magnify (breed more) anger.

Page 536: If stressed managers find they can drain off some of their tension by berating an employee . . . Myers notes that if a supervisor severely and angrily scolds (berates) a worker this can increase or amplify the supervisor’s hostile emotions, but, in addition, it may also be reinforcing because it releases some of the frustration (it drains of some of the tension). Consequently, the next time these feelings arise, the more likely it is that the hostile behavior will be repeated (he or she will be more likely to explode).

Page 538: We have inherited many contradictory maxims concerning happiness. . . . Over the centuries, wise people have passed on to us a variety of principles (maxims) on the topic of happiness. Most of these are inconsistent and often in opposition to each other (contradictory). As Myers points out, to sort out (sift) the real predictors of happiness from the seemingly believable guesses (plausible hunches) requires research.

Page 539: Once their rush of euphoria wears off, state lottery winners typically find their overall happiness unchanged. . . . We probably all dream of winning large amounts of money through gambling (state lottery winners) and then living happily ever after. However, once the initial feelings of excitement (rush of euphoria) diminish, most winners discover that they are no happier. Myers puts it succinctly: “Wealth is like health. Its utter absence breeds misery, yet having it is no guarantee of happiness.”

Page 541: Such findings lob a bombshell at modern materialism. . . . The contemporary tendency to accumulate wealth and possessions (modern materialism) in industrialized and affluent countries has not resulted in greater happiness. This finding challenges and destroys (lobs a bombshell at) the myth that riches (affluence) bring happiness and social well-being.

Page 542: When the victor belongs to the spoils and the possessor is possessed by possessions, adaptation level has run amuck. An old adage states that “to the victor belongs the spoils of the enemy.” Myers has humorously and alliteratively rephrased this piece of wisdom. He points out that when we no longer own our belongings (possessions) but are owned (possessed) by them, then adaptation level is totally out of control (has run amuck). The adaptation-level principle states that happiness is relative to our prior experience.

Page 545 (Close-Up): Off your duffs, couch potatoes. This Close-Up, How to be Happier, lists a number of research-based suggestions for elevating our moods and for creating more contentment and fulfillment with life. One recommendation is to become more physically active (join the “movement” movement). A vast amount (an avalanche) of research shows very clearly the benefits of regular aerobic exercise in terms of better overall health, higher levels of energy, and lower levels of anxiety and depression. Myers advises sedentary people (couch potatoes) to get out of the sitting position (get off your duffs) and start exercising regularly.