

Answer Key

Motivation and Emotion

- 1. C**—The Yerkes–Dodson law is an empirical relationship between arousal and performance. The law dictates that performance increases with physiological or mental arousal, but only up to a point. When levels of arousal become too high, performance decreases. Research has found that different tasks require different levels of arousal for optimal performance. For example, difficult or intellectually demanding tasks may require a lower level of arousal (to facilitate concentration), whereas tasks demanding stamina or persistence may be performed better with higher levels of arousal (to increase motivation). Additionally, we tend to perform newly learned tasks better at a lower level of arousal, but we tend to perform well-learned tasks at a higher level of arousal.
- 2. A**—The experimental results suggest that autonomic responses were dissociated with emotional experiences. The basic premise of the James-Lange theory is that physiological arousal instigates the experience of emotion. Instead of feeling an emotion and subsequent physiological (bodily) response, the theory proposes that the physiological change is primary, and emotion is then experienced when the brain reacts to the information received via the body's nervous system.
- 3. C**—The overjustification effect occurs when an expected external incentive such as money or prizes decreases a person's intrinsic motivation to perform a task. The overall effect of offering a reward for a previously unrewarded activity is a shift to extrinsic motivation and the undermining of pre-existing intrinsic motivation. Once rewards are no longer offered, interest in the activity is lost; prior intrinsic motivation does not return, and extrinsic rewards must be continuously offered as motivation to sustain the activity.
- 4. A**—According to such theorists as Clark Hull and Kenneth Spence, drive reduction is a major cause of learning and behavior. Primary drives are innate drives (e.g. thirst, hunger, and sex), whereas secondary drives are learned by conditioning (e.g. money).
- 5. C**—Among its many effects, angiotensin II increases thirst sensation (dipsogen) through the subfornical organ of the brain (a circumventricular organ), decreases the response of the baroreceptor reflex, and increases the desire for salt. Circumventricular organs are structures in the brain that are characterized by their extensive vasculature and lack of a normal blood brain barrier.
- 6. C**—Physiologists define stress as how the body reacts to a stressor, real or imagined, a stimulus that causes stress. Acute stressors affect an organism in the short term; chronic stressors over the longer term. General Adaptation Syndrome (GAS), developed by Hans Selye, is a profile of how organisms respond to stress. GAS is characterized by three phases: a nonspecific mobilization phase, which promotes sympathetic nervous system activity; a resistance phase, during which the organism makes efforts to cope with the threat; and an exhaustion phase, which occurs if the organism fails to overcome the threat and depletes its physiological resources.
- 7. C**—The passage describes a famous study conducted by Stanley Schachter and Jerome E. Singer in 1962 testing how people use clues in their environment to explain physiological changes. Schachter-Singer theory is also called two-factor theory. Choices I, II, and III were the hypotheses upheld by the experiment. In two-factor theory, an emotional state is the result of the individual's cognitive interpretation of an aroused bodily state.
- 8. A**—In Cannon–Bard theory the physiological changes and subjective feeling of an emotion in response to a stimulus are separate and independent. Arousal does not have to occur before

the emotional changes. In two-factor theory (Schachter-Singer) an emotional state is the result of the individual's cognitive interpretation of an aroused bodily state. In James-Lange theory, emotions follow physical reactions. In Miller's theory, emotion is produced in approach-avoidance situations.

9. **A**—Leptin, the “satiety hormone,” is a hormone made by adipose cells that helps to regulate energy balance by inhibiting hunger. Leptin is opposed by the actions of the hormone ghrelin, the “hunger hormone”. Both hormones act on receptors in the the hypothalamus to regulate appetite to achieve energy homeostasis. Insulin and cholecystikinin also function as satiety signals. Among its many functions, insulin promotes the release of leptin from adipose cells.
10. **A**—Aphagia is the inability or refusal to swallow. The lateral hypothalamus is the brain's hunger center. In experimental studies, rats with lateral hypothalamic lesions refuse to eat or drink and waste away unless force fed. (Note that the ventromedial hypothalamus is the brain's satiety center. Lesions to the ventromedial hypothalamus are likely to result in over-eating.)
11. **B**—All of the choices represent behaviors to satisfy primary or secondary drives under drive reduction theory except thrill seeking. Arousal theory provides a basis to understand the motivations underlying thrill seeking and other similar behavior patterns while also able to encompass the claims of drive reduction theory. In arousal theory, humans are motivated to maintain an optimal level of arousal.
12. **B**—The Schachter-Singer two-factor theory of emotion, states that emotion is based on two factors: physiological arousal and cognitive label. Choice ‘A’ reflects opponent-process theory. Choice ‘C’ is somewhat along the lines of Cannon-Bard theory. Choice ‘D’ reflects Lazarus’ cognitive appraisal theory.
13. **C**—The third stage of the general adaptation syndrome could be either exhaustion or recovery. In exhaustion, all of the body's resources are eventually depleted and the body is unable to maintain normal function. The initial autonomic nervous system symptoms may reappear (sweating, raised heart rate, etc.). If stage three is extended, long-term damage may result (prolonged vasoconstriction results in ischemia which in turn leads to cell necrosis), as the body's immune system becomes exhausted, and bodily functions become impaired. What is occurring is decompensation, choice ‘D’, the symptomatic effects of exhaustion.
14. **A**—The Holmes and Rahe social readjustment rating scale is sometimes simply called the Holmes and Rahe stress scale. Subjects are asked to tally a list of 43 life events based on a relative score. A positive correlation of 0.118 was found between the score on the scale and incidence of stress related illnesses.
15. **D**—The basal ganglia have a limbic sector whose components are assigned distinct names: the nucleus accumbens, ventral pallidum, and ventral tegmental area (VTA). There is considerable evidence that this limbic portion plays a central role in reward learning, particularly a pathway from the VTA to the nucleus accumbens that uses the neurotransmitter dopamine.
16. **A**—Extrinsic motivation refers to the performance of an activity in order to attain a desired outcome. Extrinsic motivation comes from influences outside of the individual. Common extrinsic motivations are rewards (for example money or grades) for showing the desired behavior, and the threat of punishment following misbehavior. Competition is an extrinsic motivator because it encourages the performer to win and to beat others, not simply to enjoy the intrinsic rewards of the activity.
17. **A**—The overjustification effect occurs when an expected external incentive such as money or

prizes decreases a person's intrinsic motivation to perform a task. The overall effect of offering a reward for a previously unrewarded activity is a shift to extrinsic motivation and the undermining of pre-existing intrinsic motivation. Once rewards are no longer offered, interest in the activity is lost. Prior intrinsic motivation does not return, and extrinsic rewards must be continuously offered as motivation to sustain the activity.

18. **B**—Flow and hyperfocus are similar states. However, hyperfocus contains in its meaning an element of possible dysfunction. In some circumstances both flow and hyperfocus can be an aid to achievement, but in circumstance or situations, where the same focus and behavior could be a liability, distracting from the task at hand, hyperfocus is the better usage. Perseveration is a related term in which hyperfocus is symptomatic of a psychiatric condition where there is an inability or impairment in switching tasks or activities. A stereotypy is a repetitive or ritualistic movement, posture, or utterance.
19. **A**—Within the framework of behaviorism, drive theory involves negative reinforcement. Task reinforcement is associated with the removal of an aversive stimulus—the lack of homeostasis in the body.
20. **B**—William James argued that feelings and emotions were secondary to physiological phenomena. In his theory, James proposed that the perception of what he called an “exciting fact” directly led to a physiological response, known as “emotion.”
21. **C**—The hypothesis is that the speed with which affective and non-affective information gets activated varies with context. So neither Affective Primacy nor Cognitive Primacy should hold at all times. In other words, physiological arousal may occur first or cognitive labeling may occur first.
22. **A**—Choices ‘A’ and ‘C’ both represent correct

usage of the term, but the question refers to the specific usage of valence in classifying an emotion (not a stimulus).

23. **D**—Hyperphagia is excessive hunger or increased appetite. Ghrelin, the “hunger hormone” is a peptide hormone produced by ghrelinergic cells in the gastrointestinal tract which functions as a neuropeptide in the central nervous system. Ghrelin signaling mediates appetite through lateral hypothalamic orexin pathways
24. **C**—This is the equilibrium point where, as the goal is approached, the relative strengths of approach and avoidance are about equal, and activity stops. Double approach-avoidance is not relevant to the experiment. Double approach-avoidance describes a situation, common in real life, where an individual is faced with having to choose between two or more goals, each of which has both attracting and aversive aspects.
25. **C**—In the avoidance-avoidance conflict, the individual is faced with two goals, both of which are aversive.
26. **A**—Approach-approach conflict may lead to a state of unstable equilibrium. When one of the two goals is approached, its desirability increases. In other words, the choice becomes easier as soon as one moves towards either goal.
27. **D**—Display rules are a social group's informal norms about when, where, and how one should express emotions. They can be described as culturally prescribed rules that people learn early on in their lives by interactions and socializations with other people. The results of one particular study showed that Japanese display rules allowed the expressions of strong emotions (either positive or negative) such as anger, contempt, disgust, happiness, or surprise far less than either American or Canadian display rules.

28. **D**—The limbic system is not separate system but a collection of structures from the telencephalon, diencephalon, and mesencephalon. It includes the olfactory bulbs, hippocampus, hypothalamus, amygdala, anterior thalamic nuclei, and cingulate gyrus (a partial list of limbic system structures). The limbic system supports a variety of functions including emotion, behavior, motivation, long-term memory, and olfaction. Emotional life is largely housed in the limbic system, and it has a great deal to do with the formation of memories.
29. **A**—First impressions and evaluations of trustworthiness are functions of social processing. However, the other choices do also represent functions involving participation of the amygdala.
30. **C**—The study suggests that Maslow's hierarchy may be limited as a theory for developmental sequence. For example, Maslow's hierarchy places the need for esteem at a higher position, but according to the age progression in the question-stem, the sequence of the need for love and the need for self-esteem are reversed. Furthermore, elderly people should be focused on self-actualization instead of security if Maslow's hierarchy truly represented a developmental sequence.
31. **A**—The ventromedial hypothalamus is involved with the recognition of the feeling of fullness. It is the primary satiety center in the hypothalamus. The VMH responds to leptin, made by adipose cells to assist in the regulation of energy balance by inhibiting hunger.
32. **B**—Ghrelin is the 'hunger hormone' and leptin is the 'satiety hormone'. Overproduction of ghrelin and underproduction of leptin lead to over-eating.
33. **D**—Priming is an implicit memory effect in which exposure to one stimulus (i.e., perceptual pattern) influences the response to another stimulus. The particular type of priming described here is known as affect priming.
34. **A**—The amygdala plays a central role in interpreting facial awareness and other social processing functions. Bilateral amygdala damage impairs recognition of emotions in facial expressions, especially fear. Impairment has been shown to occur regarding other negative emotions in addition to fear.
35. **B**—The two-factor theory of emotion, states that emotion is based on two factors: physiological arousal and cognitive label. The theory was created by researchers Stanley Schachter and Jerome E. Singer. According to the theory, when an emotion is felt, a physiological arousal occurs and the person uses the immediate environment to search for emotional cues to label the physiological arousal. This can sometimes cause misinterpretations of emotions based on the body's physiological state. When the brain does not know why it feels an emotion it relies on external stimulation for cues on how to label the emotion.
36. **B**—The periovulatory period of the female menstrual cycle is often associated with increased female receptivity and sexual motivation. During this stage in the cycle, estrogens are elevated in the female and progesterone levels are low. Ovulating heterosexual females also display preferences toward masculine faces and report greater sexual attraction to males other than their current partner.
37. **A**—The first step in cognitive mood repair is recognizing emotional upset. Gaining a better understand of the source of the negative mood can give the individual a sense of control of his or her mood. The other choices represent strategies which subsequently may be employed.
38. **C**—Answering this question correctly is easy if you know the meaning of the term 'alexithymia'. One purpose of the question is to teach you that term if you don't already know the meaning. Alexithymia is a personality con-

struct characterized by the subclinical inability to identify and describe emotions in the self. The core characteristics of alexithymia are marked dysfunction in emotional awareness, social attachment, and interpersonal relating. Alternatively, you could answer this question by ruling out the wrong answer choices based on neurotransmitter functions. For example, dopamine, not serotonin, is responsible for reward-seeking.

39. **D**—Emotions are complex and activate many brain regions. However, one aspect of emotion processing is the asymmetrical nature of emotional control and processing in the brain. A simplified, general rule is that the two hemispheres have a complementary specialization for control of different aspects of emotion. The left hemisphere primarily process “positive” emotions and right hemisphere primarily process “negative” emotions. There is also a reciprocal relationship between prefrontal cortex activity and amygdala activity. The left prefrontal cortex plays a role in approach behaviors (positively valenced emotions), while the left amygdala plays a role in withdrawal behaviors (negatively valenced emotions). When the left prefrontal cortex is activated the left amygdala shows a decrease in activation.
40. **D**—The strict definition of concordance is the probability that a pair of individuals will both have a certain characteristic, given that one of the pair has the characteristic.
41. **A**—Increasing levels of cholecystikinin, insulin, and leptin are all signals of satiety. Decreasing levels of ghrelin also act as a satiety signal. Ghrelin is the ‘hunger hormone’. Its target is the lateral hypothalamus. Ghrelin is produced by ghrelinergic cells in the gastrointestinal tract. When the stomach is empty, ghrelin is secreted. When the stomach is stretched, secretion stops.
42. **A**—Operationalization is a process of defining the measurement of a phenomenon that is not directly measurable, though its existence

is indicated by other phenomena. Operationalization is thus the process of defining a fuzzy concept so as to make it clearly distinguishable, measurable, and understandable in terms of empirical observations. Ekman and Friesen operationalized facial expressions and by extension, as well, emotional expression, although the latter is controversial.

43. **C**—The research is one of a number of studies supporting the hypothesis that there are independent neural systems in the brain, each handling a specific basic emotion. Fear and disgust are qualitatively different basic emotions. Evidence suggests that the insular cortex is the main neural structure involved in the emotion of disgust. (The insular cortex is a portion of the cerebral cortex folded deep within the lateral sulcus, the fissure separating the temporal lobe from the parietal and frontal lobes). On the other hand, the brain structure that is the center of most neurobiological events associated with fear is the amygdala.
44. **C**—Motive is the psychological state underlying the arousal of an organism to action toward a desired goal.
45. **A**—Although the passage cites additional evidence suggestive of a different conclusion, within the context of the discussion the downstream position of the FFA in emotional processing is given as evidence to support the position that the FFA plays little role in emotional processing. This position is posited using this evidence but then ultimately discredited in the passage.
46. **C**—In Plutchik’s model the basic emotions are conceptualized as pairs of polar opposites. He suggested 8 primary bipolar emotions: joy versus sadness; anger versus fear; trust versus disgust; and surprise versus anticipation
47. **A**—In Lazarus’ cognitive appraisal theory, emotion is a disturbance that occurs in the following order: 1) Cognitive appraisal—The in-

dividual assesses the event cognitively, which cues the emotion. 2) Physiological changes—The cognitive reaction starts biological changes such as increased heart rate or pituitary adrenal response. 3) Action—The individual feels the emotion and chooses how to react.

48. **B**—Premack’s principle, or the relativity theory of reinforcement, states that more probable behaviors will reinforce less probable behaviors. In other words, you can use easier, more enjoyable tasks to reinforce more difficult, arduous tasks.
49. **B**—The adrenal medulla releases the catecholamines epinephrine and norepinephrine. The adrenal cortex releases cortisol.
50. **B**—The results of the experiment can be explained in terms of cognitive dissonance, the mental stress (discomfort) experienced by a person who simultaneously holds two or more contradictory beliefs, ideas, or values. A person who experiences inconsistency tends to become psychologically uncomfortable, and so is motivated to try to reduce the cognitive dissonance that occurs. When making a difficult decision, there are always aspects of the rejected choice that one finds appealing and these features are dissonant with choosing something else. In other words, the cognition, “I chose X” is dissonant with the cognition, “There are some things I like about Y.”