Chapter 2. Innate Behavior Patterns and Habituation

Test Bank

1. In the terminology of control systems theory, the setting on a house's thermostat can be called
   a. the comparator
   b. the reference input
   c. the actual input
   d. the action system

Answer: b

2. When you quickly pull your hand away from a painful stimulus, this reflex
   a. does not involve a feedback loop
   b. is controlled by the brain's cerebral cortex
   c. involves sensory neurons, interneurons, and motor neurons
   d. all of these

Answer: c

3. In control systems theory, the action system is activated
   a. when the actual input does not match the reference input
   b. when the comparator is turned off
   c. when there is no disturbance
   d. when there is no output

Answer: a

4. Unlike a kinesis, a taxis is
   a. an example of a tropism
   b. a movement or change in orientation of the entire organism
   c. a learned behavior
   d. a directed movement

Answer: d

5. In applying the terminology of control systems theory to the humidity-seeking behavior of the wood louse, the humidity level in the creature's current location can be called
   a. the actual input
   b. the reference input
   c. a disturbance
   d. the output

Answer: a

6. In applying the terminology of control systems theory to the humidity-seeking behavior of the wood louse, the goal of finding an area with high humidity can be called
   a. the actual input
   b. the reference input
   c. a disturbance
   d. the output

Answer: b

7. A fixed-action pattern
   a. will stop immediately if the behavior is not appropriate for the situation
   b. is a sequence of behaviors that occur in a rigid order
   c. both of these
   d. neither of these

Answer: b

8. In humans, contagious yawning is an example of a
   a. kinesis
   b: taxis
   c. fixed action pattern
   d. reaction chain

Answer: c

9. A reaction chain differs from a fixed action pattern in that it
   a. is innate
   b. is a sequence of behaviors
   c. is more adaptive to the current environmental conditions
   d. may be found in only one species

Answer: c

10. A reaction chain
   a. consists of an alternating sequence of stimuli and responses
   b. is innate
   c. both of these
   d. neither of these

Answer: c

11. To support the theory that language is an innate human ability, researchers have shown that
   a. a specific part of the human brain is essential for speech
   b. a specific part of the human brain is essential for language comprehension
   c. human languages throughout the world have certain features in common
   d. all of these

Answer: d

12. Ekman's research on facial expression of emotions has found that
   a. animals and people express emotions in similar ways
   b. children learn to recognize the emotional expressions of adults in their first year of life
   c. adults can recognize emotions such as happiness or surprise in the face of a person from a different culture
   d. all of these

Answer: c

13. To qualify as a "human universal," a behavior must
    a. be innate
    b. be found in human cultures throughout the world
    c. look exactly the same in human cultures throughout the world
    d. all of these
Answer: b

14. Habituation
    a. can be observed in some one-celled organisms
    b. can occur in the orienting response
    c. can exhibit stimulus generalization
    d. all of these
Answer: d

15. The habituation of a response to a very strong stimulus
    a. will proceed rapidly
    b. will proceed slowly
    c. will not exhibit generalization
    d. will not exhibit overlearning effects
Answer: b

16. A loud noise is repeatedly presented to a rat, and after 20 trials the rat's startle reaction has completely disappeared (habituated). If a slightly different noise is now presented, it is most likely that
    a. there will be no startle reaction at all
    b. there will be no habituation to this new stimulus
    c. habituation of the startle reaction will take more than 20 trials
    d. habituation of the startle reaction will take fewer than 20 trials
Answer: d

17. Kandel's research on *Aplysia* has shown that the physiological network underlying the gill-withdrawal reflex
    a. involves single synapses between sensory neurons and motor neurons
    b. involves two synapses: between sensory neurons and interneurons, and between interneurons and motor neurons
    c. both of these
    d. neither of these
Answer: b

18. Kandel's research on *Aplysia* has shown that the habituation of the gill-withdrawal response
    a. always occurs in a single trial
    b. dissipates with time
    c. is completely different from habituation in higher organisms
    d. all of these
Answer: b

19. Kandel's research on *Aplysia* has shown that the habituation of the gill-withdrawal response
    a. is caused by a decrease in the sensitivity of the motor neurons to transmitter released by the sensory neurons
    b. is caused by a decrease in the amount of transmitter released by the sensory neurons
    c. is caused by an increase in the amount of transmitter released by the sensory neurons
    d. is caused by an increase in the activity of interneurons

Answer: b

20. Overlearning in habituation (or below-zero habituation) can occur if
    a. habituation trials continue after the response has disappeared
    b. habituation trials are widely spaced over time
    c. an intense stimulus is used
    d. several different stimuli are used

Answer: a

21. In the Solomon and Corbit opponent-process theory, the a-process is said to be
    a. a pleasant emotional reaction
    b. an unpleasant emotional reaction
    c. unaffected by repeated trials
    d. slow to reach its maximum level

Answer: c

22. In the Solomon and Corbit opponent-process theory, the b-process is said to be
    a. a pleasant emotional reaction
    b. an unpleasant emotional reaction
    c. unaffected by repeated trials
    d. slow to reach its maximum level

Answer: d

23. According to opponent-process theory, in parachute jumping the strengthening of the b-process over trials
    a. causes the individual to be less terrified with experience
    b. causes the aftereffects of a jump to last longer with experience
    c. both of these
    d. neither of these

Answer: c

24. According to opponent-process theory, opiate addiction is so difficult to end because
    a. the a-process is strengthened with repeated opiate use
    b. the aversive b-process can be temporarily reduced with another opiate injection
    c. both of these
    d. neither of these

Answer: c

<u>Short Essay Questions</u>

25. Describe the basic concepts of control systems theory, and illustrate them using a concrete example of a closed-loop feedback system, either animate or inanimate.

26. Describe the spinal reflex arc, and explain how feedback is involved in this simple reflex.

27. What properties do kineses and taxes have in common, and how do they differ? Give one example of each.

28. Describe an experiment that offers strong evidence that a squirrel's nut-burying behavior is innate, not learned.

29. In what sense are reaction chains more adaptable than fixed action patterns? Give a concrete example to illustrate this adaptability.

30. Explain how a reaction chain usually involves an alternating sequence of stimuli and responses.

31. Describe some of the evidence supporting the view that language is an innate human ability.

32. What have psychologists learned about how people's emotions are expressed in facial expressions, and how others interpret these expressions?

33. Define the concept of a "human universal," and give some examples.

34. Describe four general principles of habituation—properties that are found across a wide range of species.

35. What have psychologists discovered with children and adults about how individual differences in the rate of habituation may be related to mental functioning?

36. Explain how psychologists can use the phenomenon of habituation to study the perceptual abilities of infants.

37. Explain why some researchers have chosen to study habituation in simple creatures such as *Aplysia*.

38. Briefly describe the neural pathways involved in the gill-withdrawal response in *Aplysia*. What changes take place in this system during habituation of the gill-withdrawal response?

39. Describe the temporal pattern of a typical emotional response, according to the opponent-process theory of Solomon and Corbit. What underlying processes are hypothesized to be involved, and how do they change with repeated presentations of the same stimulus?

40. Show how the Solomon and Corbit's opponent-process theory has been applied to drug addiction. Use this theory to account for the different reactions experienced by a first-time user and an experienced user.