

## Chapter 1: Introduction: Learning to Change

### Multiple Choice

1. The quotation, "Change is the only constant," is attributed to \_\_\_\_\_.

- a. Buckminster Fuller
- b. Virgil
- c. Lucretius
- d. Einstein

Ans: C      Ref: 1

2. Work on selective breeding in \_\_\_\_\_ over a period of 40 years shows that behavioral characteristics can be selectively bred so that the descendants behave more like a different species than like their own ancestors.

- a. ants
- b. foxes
- c. horses
- d. rabbits

Ans: B      Ref: 5

3. Darwin was influenced by the book, *An Essay on the Principle of Population*, by

- a. Aldous Huxley.
- b. Robert FitzRoy.
- c. Thomas Huxley.
- d. Thomas Malthus.

Ans: D      Ref: 5

4. Variation and natural selection are the foundations of \_\_\_\_\_.

- a. genetics
- b. evolution
- c. learning
- d. adaptation

Ans: B      Ref: 6

5. Darwin suggested that natural selection is analogous to

- a. breeding.
- b. chemical synthesis.
- c. history.
- d. learning.

Ans: A      Ref: 6

6. Evolution is widely accepted except in

- a. America.
- b. Asia.
- c. Europe.
- d. Antarctica.

Ans: A      Ref: 6

7. Natural selection is illustrated by changes in the coloration of the Peppered Moth resulting from \_\_\_\_\_.

- a. industrial pollution
- b. drought
- c. loss of habitat
- d. long term changes in the hydraulic cycle

Ans: A      Ref: 9

8. The gollypod, a fictitious aquatic animal, breaks out in a cold sweat whenever exposed to the sun. This reaction is most likely \_\_\_\_\_.

- a. a reflex
- b. a fixed action pattern
- c. a general behavior trait
- d. the result of learning

Ans: A      Ref: 11

9. A reflex is \_\_\_\_\_.

- a. any very simple behavior
- b. a simple response to a simple event
- c. a relationship between an event and a simple response
- d. a purely physiological phenomenon

Ans: C      Ref: 11

10. Modal action patterns are induced by events called \_\_\_\_\_.

- a. genes
- b. stimuli
- c. releasers
- d. reflexes

Ans: C      Ref: 13

11. The person who demonstrated that the marching of tropical army ants is not intelligent behavior is \_\_\_\_\_.

- a. Schneirla
- b. Schneider
- c. Schneidman
- d. Schneirman

Ans: A      Ref: 13

12. The cowbird deposits its eggs in the nests of other birds. This is most likely a \_\_\_\_\_.  
a. reflex  
b. modal action pattern  
c. general behavior trait  
d. learned behavior

Ans: B      Ref: 14

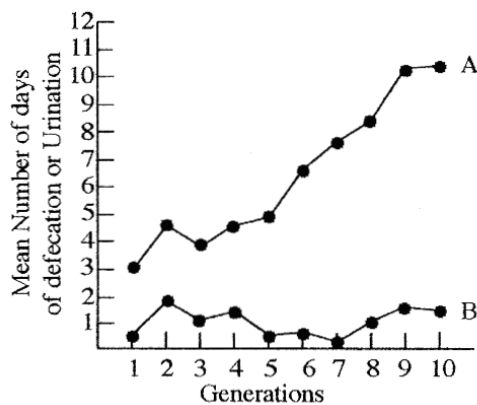
13. The rooting of pigs (for worms, larvae, and truffles) is an example of a  
a. MAP.  
b. reflex.  
c. general behavior trait.  
d. learned behavior.

Ans: A      Ref: 14

14. The list of alleged human instincts \_\_\_\_\_.  
a. has gotten shorter over the years  
b. has gotten longer over the years  
c. has remained about the same over the years  
d. is longer for pre-industrialized peoples than for those living in industrialized nations

Ans: A      Ref: 15

15. The best title for the figure below is \_\_\_\_\_.  
a. diet and heredity  
b. fearfulness and heredity  
c. addiction and heredity  
d. aggressiveness and heredity



Ans: B      Ref: 17

16. The chief advantage of learning over natural selection as a means of adapting to change is that learning \_\_\_\_\_.  
a. is faster  
b. is more enduring  
c. is less enduring  
d. does not affect all members of a species

Ans: A      Ref: 19

17. Lee Cronk wrote an article on how evolved behavior can prove nonadaptive when the environment changes. The article was called \_\_\_\_\_.  
a. Old Dogs, Old Tricks  
b. The Once and Future King  
c. Murder Most Fowl  
d. History Recalled

Ans: A      Ref: 19

18. Natural selection is often \_\_\_\_\_.  
a. ahead of the times  
b. behind the times  
c. up with the times  
d. under the times

Ans: B      Ref: 19

19. Most mutations \_\_\_\_\_.  
a. are not helpful to survival  
b. contribute to survival in important ways  
c. cause monsterism  
d. occur in one-celled organisms

Ans: A      Ref: 20

20. Learning is evolved \_\_\_\_\_.  
a. selectivity  
b. modifiability  
c. biology  
d. karma

Ans: B      Ref: 21

21. The author of your text evidently believes that \_\_\_\_\_.  
a. change is a good thing  
b. behavior is best accounted for by nature  
c. adaptation occurs slowly  
d. learning is a way of adapting to change

Ans: D      Ref: 21

22. \_\_\_\_\_ changes when learning occurs.

- a. Behavior
- b. Skill level
- c. Understanding
- d. Perception

Ans: A      Ref: 22    Note: A case can be made for any of the above answers, but the answer that fits all instances of learning is *behavior*.

23. Behavior refers to anything a person or animal does that can be

- a. changed.
- b. described.
- c. measured.
- d. photographed, tape recorded, or filmed.

Ans: C      Ref: 22

24. Steven says that he was very nervous when he first attended college classes, but now he feels quite relaxed. Steven's loss of anxiety is most likely an example of \_\_\_\_\_.

- a. learning
- b. disease
- c. maturation
- d. fatigue

Ans: A      Ref: 22

25. Teenagerus Americanus, a two-legged ape indigenous to North America, breaks out in a cold sweat whenever exposed to elevator music. This reaction is most likely \_\_\_\_\_.

- a. a reflex
- b. a fixed action pattern
- c. a general behavior trait
- d. learned behavior

Ans: D      Ref: 23

26. Experience refers to \_\_\_\_\_.

- a. mental states
- b. our surroundings
- c. changes in the environment
- d. practice

Ans: C      Ref: 24

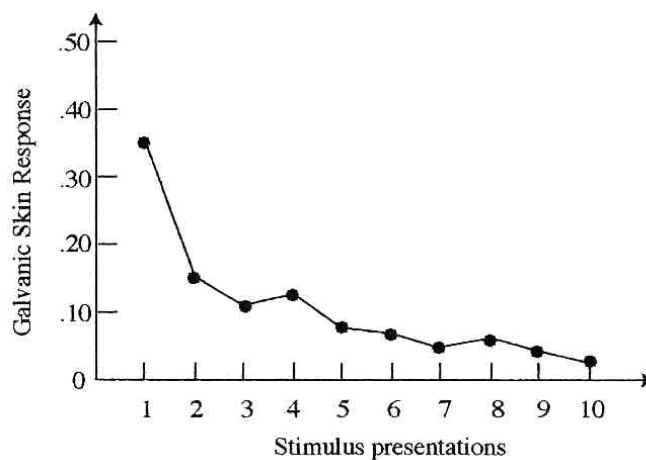
27. A thumbtack stuck in a bulletin board several feet away is less likely to affect your behavior than a thumbtack placed on the chair on which you are sitting. Even though both examples involve a thumbtack, the second is more likely to qualify as a \_\_\_\_\_.

- a. stimulus
- b. contiguous relation
- c. contingency
- d. response

Ans: A      Ref: 24

28. The figure below most likely illustrates \_\_\_\_\_.

- a. habituation
- b. sensitization
- c. a MAP
- d. insurgence



Ans: A      Ref: 26

29. Zing Yang Kuo found that 86% of kittens that saw their mothers kill rats later killed rats themselves. He found that \_\_\_\_\_ of kittens that never saw their mothers kill rats later killed rats themselves.

- a. 87%
- b. 73%
- c. 65%
- d. 45%

Ans: D      Ref: 29

30. Hart and Risley did a longitudinal study of the influence of the home verbal environment on children from different socioeconomic backgrounds. They found that \_\_\_\_\_.  
a. children whose parents talked to them a lot later scored lower on IQ tests  
b. children whose parents talked to them a lot later scored higher on IQ tests  
c. the amount of parental talk was unrelated to later IQ scores  
d. the influence of parental language depended on parental income.

Ans: B      Ref: 29

#### True/False

31. Learning is a biological mechanism. T (1)  
32. Malthus' book, *An Essay on the Principle of Population*, had a strong influence on Darwin. T (5)  
33. In Darwin's day, the laws governing inheritance were not generally known. T (6)  
34. The evolution of most species is now complete. F (inferred, but see p.10)  
35. All reflexes contribute to survival. F (13)  
36. Reflexes are generally less variable than modal action patterns. T (13)  
37. Darwin believed that there were no human instincts. F (15)  
38. A major problem with natural selection as an adaptive mechanism is that it is slow. T (19)  
39. Natural selection helps the individual adapt to changes in its environment. F (19)  
40. Natural selection helps the species adapt to change, not the individual. T (20)  
41. The cross-breeding of closely related species is called hybridization. T (20).  
42. Some people have genes from *Homo neanderthalensis*. T (20).  
43. Your text views learning as a change in the brain that is represented in behavior. F (22)  
44. It is sometimes difficult to say whether an event is behavior or physiology. T (22)  
45. The author of your text excludes thoughts and feelings from the realm of behavior. F (23)  
46. The word stimulus always refers to events in an organism's surroundings. F (24)  
47. Learning always involves the acquisition of new behaviors. F (25)

#### Completion

48. The evidence from biology suggests that the first "eyes" were not eyes at all, but \_\_\_\_\_.  
Ans: light-sensitive cells (7)  
49. The brown-headed cowbird puts its eggs in other birds' nests. This is an example of a \_\_\_\_\_.  
Ans: modal action pattern/fixed action pattern/instinct (14)  
50. The chief limitation of natural selection as a means of adapting to change is that \_\_\_\_\_.  
Ans: it is slow/takes place over generations/helps the species but not the individual (19)  
51. \_\_\_\_\_, like natural selection, is a biological mechanism for adapting to change.  
Ans: Learning (inferred, but see pp.1, 21)  
52. Learning is a change in behavior due to \_\_\_\_\_. Ans: experience (21)  
53. A stimulus is an environmental event that is capable of affecting \_\_\_\_\_. Ans: behavior (24)  
54. Repeated exposure to a stimulus that evokes a reflex response results in \_\_\_\_\_.  
Ans: habituation (26)  
55. The dispute over the relative importance of genetics and learning is often called the \_\_\_\_\_ debate. Ans: nature-nurture (28)

### Short Essay

Note: It should be possible to answer most short essay questions within 100 words.

56. The phrase “survival of the fittest” is often interpreted to mean that natural selection is the result of a kind of combat. What would be a more accurate interpretation of the phrase? (inferred mainly from pp.4-11)

*This question is hinted at in review question number 3 about the field mouse. The “fittest” individuals are those most likely to produce young that survive and reproduce. Survival of the fittest does not mean survival of the strongest or most savage, but those most likely to produce offspring that reach reproductive age.*

57. Some people reject evolution because some organs are too complex to have appeared abruptly by chance. What is wrong with this argument? (6)

*Answers should point out that organs do not appear overnight. Their evolution is a **very** slow process that takes many generations. Students should give examples, such as the eye and brain.*

58. How are reflexes, modal action patterns, and general behavior traits alike? How are they different? (11-18)

*Answers should note that all three are “hard wired” or “programmed” into the genes, and differ chiefly in the degree to which they vary and in the degree to which they are elicited by specific environmental events. For example, reflexes are less variable than inherited behavior traits, with fixed action patterns falling between the two.*

59. Explain the role of mutations in evolution. (20)

*The answer should indicate that mutations provide new variations which, if adaptive, will be selected.*

60. Why is natural selection helpful to species, but not to individuals? (20)

*This point is covered in the query on p. 22 of the text. Students should note that natural selection produces changes across generations, not within a given individual.*

61. Some psychologists insist that learning refers to durable changes. What is the problem with this approach? (21)

*Answers should focus on the vagueness of durable – is it measured in seconds? Minutes? Years? Decades? There is no true consensus. Students might also note that there is no reason to deny that learning occurred merely because it didn’t last.*