Evolution Making Sense of Life 3rd edition Emlen Test Bank

SKU: 9781319079864-TEST-BANK

Name:_____ Class:_____ Date:_____

Chapter 2

1. Which statement best describes the concept known as the Great Chain of Being?
   a. Biological entities can be organized into groups based on similarities.
   b. Species are arranged on a scale from lower to higher forms.
   c. Humans and other large species descended from microbes.
   d. Parents pass traits to their offspring.

ANSWER: b

2. The first proponents of the Great Chain of Being were
   a. early Greek philosophers.
   b. Renaissance scholars.
   c. the seventeenth-century Catholic Church.
   d. eighteenth-century naturalists.

ANSWER: a

3. Carlos Linnaeus
   a. devised a system of taxonomy that is still used today.
   b. accepted the idea that most of life's diversity arose through the process of evolution.
   c. believed that life's diversity reflected a divine plan.
   d. a and b
   e. a and c

ANSWER: e

4. Nicolaus Steno
   a. was one of the first to recognize that fossils were the remains of once living organisms.
   b. recognized the basic principles of stratigraphy.
   c. a and b
   d. none of the above

ANSWER: c

5. The most influential text on natural theology was published by
   a. Jean Baptiste Lamarck.
   b. Charles Lyell.
   c. William Paley.
   d. Nicolaus Steno.

ANSWER: c

6. Natural theology describes the idea that
   a. the mechanical function of living things is evidence of a divine designer.
   b. the natural laws observable currently are responsible for events in the past.
   c. differences between individuals cause some to reproduce more effectively than others.
   d. life is arranged on a scale from lower to higher forms, with humans at the top of the scale.

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ANSWER: a

7. On which point would Charles Darwin and Georges Buffon have likely disagreed?
   a. the idea that Earth was formed according to the laws of physics
   b. the idea that all life shares a common ancestor
   c. the idea that species change over time
   d. none of the above

ANSWER: b

8. Georges Cuvier discovered that
   a. the remains of plants and animals were sometimes preserved in stone.
   b. living things were made up of the same kinds of particles as those found in rocks.
   c. fossilized elephants differed from the skeletons of modern elephants in crucial ways.
   d. types of animals had lived across a wide variety of geographical ranges for a period of time.

ANSWER: c

9. What contribution did British naturalist Mary Anning make to paleontology?
   a. the comparison of elephant fossils and the skeletons of living elephants
   b. the discovery of fossilized marine animals and other strange animals
   c. the idea that rocks formed through very slow changes
   d. the realization that tongue stones were actually shark teeth

ANSWER: b

10. The discovery of the fossilized remains of animals that no longer existed was persuasive evidence for which concept?
   a. extinction
   b. homology
   c. paleontology
   d. uniformitarianism

ANSWER: a

11. William Smith
   a. created the first geological map.
   b. devised a system of taxonomy still in use today.
   c. was the first to establish the fact of extinction.
   d. first proposed the idea of natural selection.

ANSWER: a

12. Jean-Baptiste Lamarck proposed that
   a. bacteria represent some of the youngest species on Earth.
   b. organisms can adapt to their environment.

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c. life arises spontaneously.
d. all of the above
e. none of the above

ANSWER: d

13. Which of the following ideas was not accepted by Jean-Baptiste Lamarck?
a. Bacteria represent some of the youngest species on Earth.
b. Life arises spontaneously.
c. Organisms go extinct.
d. none of the above

ANSWER: c

14. On what point(s) would Charles Darwin and Jean-Baptiste Lamarck have disagreed?
a. Organisms change over time.
b. Adaptation occurs when individuals change to adapt to their environment.
c. Species give rise to new species.
d. none of the above
e. all of the above

ANSWER: b

15. On what point(s) would Charles Darwin and Jean-Baptiste Lamarck have agreed?
a. Adaptation occurs when individuals change to adapt to their environment.
b. Life is spontaneously generated all the time.
c. Species give rise to new species.
d. Simple organisms have existed for a shorter period of time than complex organisms.
e. none of the above

ANSWER: c

16. Which of the following statements is central to the idea of uniformitarianism?
a. Natural laws that are observable today also operated in the past.
b. Catastrophic events such as floods and volcanoes have played the primary role in shaping Earth's existing features.
c. Geological change happens gradually for the most part.
d. a and c
e. a, b, and c

ANSWER: d

17. What is the name of the naturalist whose own ideas about natural selection and evolution spurred Darwin to publicly share his work?
a. Jean-Baptiste Lamarck
b. Charles Lyell

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c. Robert Fitzroy
d. Alfred Russel Wallace

ANSWER: d

18. A hypothesis is a
a. well-confirmed, objective observation.
b. overall set of principles or mechanisms.
c. tentative explanation for an observation.
d. vague guess not based on evidence.

ANSWER: c

19. Theories
a. are a summative set of mechanism or principles.
b. explain major aspects of the natural world.
c. are supported by many different kinds of evidence.
d. all of the above

ANSWER: d

20. Homologous traits
a. always perform the same function in different species.
b. always perform a different function in different species.
c. are inherited from a common ancestor.
d. a and c
e. b and c

ANSWER: c

21. Homologous and homoplasic traits differ because
a. homoplasic traits perform the same function in different species, whereas homologous traits perform a different function.
b. homologous traits arise through convergent evolution, whereas homoplasic traits do not.
c. homoplasic traits arise through convergent evolution, whereas homologous traits do not.
d. a and b
e. a and c

ANSWER: c

22. Which of the following is/are critical for Darwin's idea of natural selection?
a. Individuals vary in their traits.
b. Natural resources are limited.
c. Some individual variation is heritable.
d. all of the above
e. none of the above

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ANSWER: d

23. Which of the following is/are not critical for Darwin's idea for natural selection?
    a. No two individuals are exactly the same.
    b. Variable traits can influence reproductive success.
    c. Features of individuals change during their lifetime.
    d. none of the above
    e. all of the above

ANSWER: c

24. Over time, natural selection can produce new _____ that allow individuals to outcompete other members of a population.
    a. adaptations
    b. genomes
    c. genes
    d. homologies

ANSWER: a

25. Which of the following was not proposed by Darwin?
    a. sexual selection
    b. genetic drift
    c. DNA as the hereditary material
    d. a and c
    e. b and c

ANSWER: e

26. Which publication first explained the concept of sexual selection?
    a. *The Origin of Species*
    b. *The Descent of Man*
    c. *The Principles of Geology*
    d. *Natural Theology*

ANSWER: b

27. Darwin realized that some traits evolve not because they help species survive but because they help species
    a. adapt.
    b. fight.
    c. mate.
    d. swim.

ANSWER: c

28. Sexual selection can shape which of the follow aspects of an organism?

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a. visible weaponry on males
b. how fast embryos grow in the uterus
c. the shape of mammal limbs
d. a and b
e. a, b, and c

ANSWER: d

29. The modern evolutionary synthesis combines knowledge from the fields of
a. genetics, paleontology, and ecology.
b. genetics, evolutionary medicine, and ecology.
c. genomics, paleontology, and ecology.
d. genetics, genomics, and heredity.

ANSWER: a

30. The process of changes arising due to random chance is
a. natural selection.
b. sexual selection.
c. genetic drift.
d. heredity.

ANSWER: c

31. How did physics and engineering influence the naturalists of the seventeenth and eighteenth centuries?
ANSWER:

32. How did James Hutton's ideas about geology differ from earlier views?
ANSWER:

33. How would early geologists such as William Smith explain the observation that certain species were found only in small number of rock layers while others were found in many different layers?
ANSWER:

34. Describe Jean-Baptiste Lamarck's ideas about evolution.
ANSWER:

35. Charles Darwin and Jean-Baptiste Lamarck both argued that organisms could adapt to their environment. How did their ideas about how this occurred differ?
ANSWER:

36. Explain how George Lyell and Thomas Malthus influenced Darwin.
ANSWER:

37. How did the work of geologists such as James Hutton and Charles Lyell influence Darwin?
ANSWER:

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38. Organisms are similar in many ways. Considering Darwin's idea of descent with modification, what are two possible explanations for shared similarities between species?
ANSWER:

39. How can the wings of bats and birds be considered both homologous and homoplasic structures?
ANSWER:

40. How did Charles Darwin draw on embryology to support the idea of common descent?
ANSWER:

41. Explain how new discoveries in genetics enabled scientists to expand on Darwin's theory of evolution in the twenty-first century.
ANSWER:

42. Please describe at least one scientific contribution made by each of the following individuals:
Charles Darwin, Charles Lyell, Alfred Russel Wallace, Jean-Baptiste Lamarck, Georges Cuvier, Carl Linnaeus, and Georges Buffon.
ANSWER:

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