

Chapter 2: Origins of Evolutionary Thought

MULTIPLE CHOICE QUESTIONS

1. What was the result of the Scopes Monkey Trial?

- a. Scopes was found guilty of teaching evolution and lost his job.
- b. The State of Tennessee was forced to allow the teaching of evolution in the classroom.
- c. Evolution was disproved.
- d. Scopes was found innocent.

Correct Answer: a

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: Chapter Opener

Difficulty Level: Easy

Skill Level: Remember the Facts

2. Today, federal courts uphold the idea that _____.

- a. evolution should not be taught in public schools
- b. the Old Testament is the most accurate source of information about the Earth's past
- c. evolution is the unifying principle of the life sciences
- d. intelligent design should be taught along with evolution

Correct Answer: c

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: Chapter Opener

Difficulty Level: Easy

Skill Level: Remember the Facts

3. Science is a(n) _____, not a _____.

- a. result; process
- b. process; method
- c. process; result
- d. observation; hypothesis

Correct Answer: c

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Easy

Skill Level: Understand the Concepts

4. Which of the following is a step in the scientific method?

- a. experimentation
- b. verification
- c. dissemination
- d. identification

Correct Answer: a

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Moderate

Skill Level: Remember the Facts

5. According to the scientific method, what is the first step scientists should take when they have a question about a natural phenomenon?

- a. Perform an experiment.
- b. Develop a hypothesis.
- c. Analyze their data.
- d. Assess a paradigm.

Correct Answer: b

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Moderate

Skill Level: Apply What You Know

6. Scientific hypotheses are _____.

- a. derived from a non-empirical process
- b. rarely tested
- c. always assumed to be true
- d. falsifiable

Correct Answer: d

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What is Science?

Difficulty Level: Easy

Skill Level: Understand the Concepts

7. Why do scientists avoid saying that a hypothesis or theory is “proven”?

- a. Usually not all variables can be controlled.
- b. Scientists are worried about their reputations.
- c. Only scientific laws and paradigms can be proven.
- d. It takes too much work to “prove” something, so it rarely occurs in science.

Correct Answer: a

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world

Topic: What is Science?

Difficulty Level: Moderate

Skill Level: Understand the Concepts

8. What is the difference between a deduction and a hypothesis?

- a. A hypothesis is more accurate than a deduction.
- b. A deduction is a conclusion, whereas a hypothesis is a preliminary explanation.
- c. A deduction cannot be disproven but a hypothesis can.
- d. Scientists work much more with hypotheses than with deductions.

Correct Answer: b

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Difficult

Skill Level: Understand the Concepts

9. According to Aristotle, _____ are the apex of the “Great Chain of Being.”

- a. insects
- b. plants
- c. mammals
- d. humans

Correct Answer: d

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Remember the Facts

10. Aristotle believed in the “immutability of species,” according to which species _____.

- a. are always changing
- b. change only when it is possible
- c. are fixed and unchanging
- d. change sporadically and unpredictably

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Understand the Concepts

11. Which of the following is consistent with Aristotle’s ideas about nature?

- a. The Earth is constantly changing.
- b. Changes to the environment will cause animals to evolve.
- c. All life is arranged in an orderly and hierarchical fashion.
- d. Humans evolved over millions of years.

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Understand the Concepts

12. During the Middle Ages, most people believed that the Earth _____.

- a. was constantly changing
- b. was unchanged since its formation
- c. was formed billions of years ago
- d. had experienced several mass extinction events

Correct Answer: b

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Understand the Concepts

13. The dominant paradigm for the natural world during the Middle Ages was based on _____.

- a. science
- b. falsifiability
- c. theology
- d. empirical experimentation

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Understand the Concepts

14. How did Renaissance thinkers such as Galileo Galilei contribute to the progression of science?

- a. With the discovery of the New World, they were able to pinpoint the origin of humanity.
- b. They determined that all texts from the Middle Ages were incorrect and rewrote them.
- c. They performed research that laid a foundation for an academic discipline devoted to the scientific understanding of the human condition.
- d. They argued openly against Church doctrine.

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Apply What You Know

15. With the circumnavigation of the globe, Renaissance scholars developed a strong sense of _____.

- a. biological and cultural variation
- b. the fixity of species
- c. humanity's inferiority in nature
- d. monogenism

Correct Answer: a

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Understand the Concepts

16. The main contribution of Renaissance natural scientists and artists like Leonardo da Vinci and Andreas Vesalius was their _____.

- a. study of the stars and planets
- b. discovery of the New World
- c. ideas about polygenism
- d. anatomical drawings

Correct Answer: d

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Remember the Facts

17. What role did the exploration of the New World play in the development of evolutionary theory?

- a. Exploration of the New World did not impact the development of evolutionary theory.
- b. European scholars became increasingly aware of biological diversity on the planet.
- c. Europeans adopted new ideas from the people they interacted with in the New World.
- d. Explorers immediately found fossils that made them think the world was very old.

Correct Answer: b

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Understand the Concepts

18. What did Malthus observe relative to populations in the natural world?

- a. Mutations are rare in large populations.
- b. Populations are always exponentially increasing in size.
- c. There is only a struggle for existence in small populations.
- d. Population size remains roughly stable.

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

19. Why was Galileo's work, *The Starry Messenger*, important in the development of scientific thought?

- a. It proved Church doctrine.
- b. It supported the theory of evolution.
- c. It supported the idea that the Earth is at the center of the universe.
- d. It argued that forces outside of traditional Church doctrine impacted the world.

Correct Answer: d

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Analyze It

20. Why were sixteenth-century scholars who argued for polygenism imprisoned or burned at the stake?

- a. They argued for the inheritance of acquired characteristics.
- b. They believed there was only one god.
- c. They followed a scientific doctrine instead of a Christian doctrine.
- d. They thought human origins were much more diverse than the Church did.

Correct Answer: d

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Apply What You Know

21. The idea that there is a single, divine origin of humanity is called _____.

- a. monogenism
- b. polygenism
- c. evolution
- d. the fixity of species

Correct Answer: a

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Remember the Facts

22. What was one possible reason evolutionary thought remained stifled in the seventeenth and eighteenth centuries?

- a. Naturalists did not have the proper technology to study evolution.
- b. The New World had not yet been thoroughly examined.
- c. Naturalists still tried to fit their observations of the natural world into Church doctrine.
- d. Too few fossils had been studied and classified.

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Apply What You Know

23. Which of the following data sources did James Ussher use to calculate the age of the Earth?

- a. geological evidence, including stratigraphy
- b. astronomical data
- c. the Old Testament of the Bible
- d. ancient Greek and Roman texts

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Understand the Concepts

24. Which of the following was the focus of much investigation in the seventeenth and eighteenth centuries?

- a. evolution
- b. polygenism
- c. classification
- d. geology

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Understand the Concepts

25. John Ray was the first naturalist to _____, and Carolus Linnaeus used Ray's work to _____.

- a. use the terms *genus* and *species*; develop taxonomy
- b. argue against Church doctrine; write *The Starry Messenger*
- c. propose polygenism; develop a racial classification system
- d. use taxonomy; propose evolution

Correct Answer: a

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Understand the Concepts

26. What does taxonomy refer to?

- a. the theory of a single, divine origin of humanity
- b. the theory of multiple origins of humanity
- c. the science of classifying and naming organisms
- d. the study of the age of the Earth

Correct Answer: c

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Understand the Concepts

27. Who is most associated with the taxonomy used by scientists today?

- a. Carolus Linnaeus
- b. Georges Cuvier
- c. Comte de Buffon
- d. Geoffroy Saint-Hilaire

Correct Answer: a

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Remember the Facts

28. A taxonomy is made up of discrete units called _____.

- a. species
- b. nomenclatures
- c. genes
- d. taxa

Correct Answer: d

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Remember the Facts

29. Why was Comte de Buffon important in the development of evolutionary thought?

- a. He identified the mechanism of evolutionary change.
- b. He observed that animals change and adapt to changing environments.
- c. He identified many new animal species.
- d. He developed the principles of geology.

Correct Answer: b

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

30. During the eighteenth and nineteenth centuries, why had it become increasingly difficult for people to think that the Earth was young and unchanged?

- a. The Church began accepting the idea of evolution.
- b. The work of James Ussher was disproven.
- c. Lamarck proved that evolution by natural selection took millions of years.
- d. Fossils of animals no longer in existence were being found in deep geological strata.

Correct Answer: d

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

31. Georges Cuvier is the naturalist best associated with which of the following ideas?

- a. the inheritance of acquired characteristics
- b. catastrophism
- c. evolution
- d. uniformitarianism

Correct Answer: b

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Easy

Skill Level: Remember the Facts

32. Which of the following is most consistent with the idea of catastrophism?

- a. Animals inherit transformations from their parents.
- b. Well-adapted individuals will reproduce successfully.
- c. A disaster wiped out the dinosaurs.
- d. Life forms slowly and transforms over time in reaction to changing environmental conditions.

Correct Answer: c

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Easy

Skill Level: Apply What You Know

33. Who among the following individuals was a supporter of the mutability of species?

- a. Leonardo da Vinci
- b. Jean Baptiste Lamarck
- c. Aristotle
- d. George Cuvier

Correct Answer: b

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

34. Lamarckianism holds that _____.

- a. individuals transform over their lifetime and their offspring inherit those transformations
- b. all species are fixed
- c. random mutations provide a pool of variation from which nature selects
- d. allele pairs correlate with one another

Correct Answer: a

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Easy

Skill Level: Understand the Concepts

35. Why did Trofim Lysenko's Soviet agricultural project fail?

- a. He assumed that he could modify crops through artificial selection.
- b. He assumed that exposing seeds to the cold would result in cold-resistant seeds.
- c. He used methods developed from Darwinian evolution.
- d. Soviet technology was not advanced enough for the project to succeed.

Correct Answer: b

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

36. James Hutton is associated with _____, which argues that _____.

- a. Lysenkoism; changes to individuals over their lifetime can be passed on to the next generation
- b. catastrophism; there have been multiple creations interspersed by great natural disasters
- c. uniformitarianism; the same slow geological processes observed today also operated in the past
- d. adaptive radiation; one founding species can diversify into multiple species in multiple environmental niches

Correct Answer: c

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

37. Which of the following statements best defines the idea of uniformitarianism?

- a. All species are fixed and unchanging.
- b. The world is periodically destroyed by natural disasters followed by creation events.
- c. The geological processes that drive the world today have always done so.
- d. Creatures can transform during their lifetime and their offspring will inherit those transformations.

Correct Answer: c

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

38. Although geological uniformitarianism was introduced by _____, it was greatly popularized by _____.

- a. Lyell; Darwin
- b. Hutton; Lyell
- c. Lamarck; Lyell
- d. Ray; Hutton

Correct Answer: b

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

39. Darwin's role aboard the *HMS Beagle* was as a(n) _____.

- a. astronomer
- b. chemist
- c. conservationist
- d. naturalist

Correct Answer: d

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Easy

Skill Level: Remember the Facts

40. Darwin's ideas on evolution fell into place while he contemplated _____.

- a. horses from Patagonia
- b. eagles from the Andes Mountains
- c. finches from the Galapagos Islands
- d. giant tortoises from the African coast

Correct Answer: c

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Easy

Skill Level: Understand the Concepts

41. What did John Gould determine when studying Darwin's collected finch specimens from the Galapagos Islands?

- a. The finches possessed very few differences from those species found on mainland South America.
- b. The finches could be sorted into different species and by island based on beak differences.
- c. The finches were changing their physical characteristics over their lifetimes in response to environmental pressures.
- d. The finches all descended from one founding group and then diversified across the islands.

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

42. Which of the following best defines adaptive radiation?

- a. when individuals transform over their lifetime and their offspring inherit those transformations
- b. survival of the fittest
- c. a process by which many species result from one ancestral one
- d. genetic change that occurs in a population over time

Correct Answer: c

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

43. Which of the following is true of natural selection?

- a. Natural selection only operates on males.
- b. Natural selection has no foresight.
- c. Natural selection does not occur outside of human influence.
- d. Natural selection only selects the strongest creatures.

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Difficult

Skill Level: Understand the Concepts

44. In the years following his journey on the *Beagle*, Darwin pursued his ideas of evolution by studying _____.

- a. artificial selection
- b. animals he found on subsequent journeys
- c. the works of Alfred Russel Wallace
- d. the works of Galileo

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Remember the Facts

45. Why is Darwin and not Wallace credited with defining natural selection?

- a. Wallace did not believe natural selection explained evolution.
- b. Wallace never wanted to publish his results.
- c. Wallace could not present his findings because he was in Malaysia.
- d. Wallace was unable to fully define natural selection.

Correct Answer: c

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Easy

Skill Level: Remember the Facts

46. Wallace's ideas differ from Darwin's in that Wallace _____.

- a. rejected artificial selection as analogous to natural selection
- b. insisted on the fixity of species
- c. supported Lamarckian ideas
- d. rejected evolution

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Easy

Skill Level: Understand the Concepts

47. When Darwin presented his ideas to the Linnaean Society, he _____.

- a. also presented Wallace's ideas in a joint paper
- b. never mentioned Wallace
- c. described Wallace's ideas as better than his own
- d. revealed that all of his own ideas were derived from correspondence with Wallace

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Easy

Skill Level: Remember the Facts

48. Upon its initial publication, Darwin's *On the Origin of Species* _____.

- a. was not widely read
- b. quickly sold out
- c. was written only for a scientific audience
- d. was not popular with the general public

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Easy

Skill Level: Remember the Facts

49. Which of the following is an observation associated with natural selection?

- a. All organisms have the potential for explosive population growth.
- b. Organisms will pass on traits acquired during their lifetime to their offspring.
- c. Species cannot adapt to changing environments.
- d. Repeated behaviors can facilitate anatomical transformations.

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

50. Central to Darwin's ideas on evolution is the observation that _____.

- a. populations have limited potential for growth
- b. creatures within a species all tend to look identical
- c. nature is full of variation
- d. artificial selection bears no resemblance to natural selection

Correct Answer: c

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

51. Natural selection can be summarized by which statement?

- a. All species are fixed and unchanging.
- b. Organisms transform and pass these transformations on to their offspring.
- c. A divine creator created all species according to an unknowable plan.
- d. Within a population, some variations are favored by environmental conditions and others are not.

Correct Answer: d

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

52. What does “survival of the fittest” entail in evolutionary theory?

- a. It is a term to describe artificial selection.
- b. Fitness is a measure of reproductive success.
- c. Natural selection applies only to some organisms, whereas “survival of the fittest” applies to all organisms.
- d. It a better way to describe evolution than natural selection.

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Difficult

Skill Level: Analyze It

53. Which of the following is an example of an organism with high biological fitness?

- a. A spider that lays 1,000 eggs, with 1 offspring that survives and reproduces.
- b. A chimpanzee that has 6 total offspring, all of which survive and reproduce.
- c. A horse that has 8 offspring during its life, all of which die before adulthood.
- d. A turtle that lives for 200 years and has no offspring.

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply what you Know

54. In order for evolution by natural selection to occur, _____.

- a. the trait in question must be inherited
- b. the trait in question must be similar between individuals
- c. there must be no environmental pressures
- d. the trait in question must make the individual stronger

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

55. While evolution happens at the level of the _____, natural selection occurs at the level of _____.

- a. population; the individual organism
- b. mutation; the population
- c. individual organism; the population
- d. mutation; DNA

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Difficult

Skill Level: Understand the Concepts

56. Why did some scientists, such as Agassiz, not immediately accept Darwin's work on evolution?

- a. It had been published previously.
- b. It discredited their work.
- c. Darwin's work provided no new mechanism for explaining evolution.
- d. Darwin had not established himself as a scientist.

Correct Answer: b

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Response to Darwin

Difficulty Level: Easy

Skill Level: Apply What You Know

57. All creationists believe that _____.

- a. species are evolving
- b. the world is only 3,000 years old
- c. a single divine force made the world and everything on it
- d. today's geology is the direct result of Noah's flood

Correct Answer: c

Learning Objective: LO 2.5: Explain the difference between science and faith-based explanations for life.

Topic: Science and Creationism

Difficulty Level: Easy

Skill Level: Understand the Concepts

58. The Bible is not considered scientific evidence because _____.

- a. its contents are not testable
- b. it is too new
- c. it explicitly states that science is inaccurate
- d. it does not accurately explain natural phenomena

Correct Answer: a

Learning Objective: LO 2.5: Explain the difference between science and faith-based explanations for life.

Topic: Science and Creationism

Difficulty Level: Moderate

Skill Level: Understand the Concept

59. “Creation science” seeks to _____.

- a. prove Darwin correct using biblical evidence
- b. exploit gaps in the fossil record to dispute evolution
- c. exclude religious instruction from science classes
- d. disprove evolution by pointing to examples of “irreducible complexity”

Correct Answer: b

Learning Objective: LO 2.5: Explain the difference between science and faith-based explanations for life.

Topic: Science and Creationism

Difficulty Level: Moderate

Skill Level: Remember the Facts

60. Why are intelligent design views of creation not supported by gaps in the fossil record?

- a. The fossil record is complete and there are no gaps.
- b. Gaps in the fossil record are expected due to the low probability of fossil preservation.
- c. The gaps are not wide enough to correspond with any creation events.
- d. Intelligent design fully embraces the mechanisms of Darwinian evolution.

Correct Answer: b

Learning Objective: LO 2.5: Explain the difference between science and faith-based explanations for life.

Topic: Science and Creationism

Difficulty Level: Difficult

Skill Level: Analyze It

TRUE/FALSE QUESTIONS

61. If two different scientists verify a hypothesis, that means the hypothesis is proven.

- a. True
- b. False

Correct Answer: b

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Easy

Skill Level: Understand the Concepts

62. During the seventeenth and eighteenth centuries, classification was the focus of much scientific thinking.

- a. True
- b. False

Correct Answer: a

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Easy

Skill Level: Remember the Facts

63. Although Lamarck's inheritance of acquired characteristics is not accepted by biologists today, he was important to the development of evolutionary thought because he argued for the importance of environmental influence.

- a. True
- b. False

Correct Answer: a

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Easy

Skill Level: Apply What You Know

64. Darwin deduced that despite the potential for exponential population growth, many individuals do not reach adulthood.

- a. True
- b. False

Correct Answer: a

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Understand the Concepts

65. Intelligent design is unscientific because it is not empirical.

- a. True
- b. False

Correct Answer: a

Learning Objective: LO 2.5: Explain the difference between science and faith-based explanations for life.

Topic: Science and Creationism

Difficulty Level: Easy

Skill Level: Understand the Concepts

ESSAY QUESTIONS

66. Describe the famous Scopes Monkey Trial. What are some reasons people have/had difficulty accepting evolution by natural selection?

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: Chapter Opener

Difficulty Level: Moderate

Skill Level: Analyze It

67. Explain the steps of the scientific method in detail and provide one example of a testable hypothesis.

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Difficult

Skill Level: Apply What You Know

68. What does it mean to say that science is “self-correcting”? Be sure to include the terms *data*, *falsifiable*, and *paradigm* in your discussion.

Learning Objective: LO 2.1: Explain how science differs from other ways of understanding the world.

Topic: What Is Science?

Difficulty Level: Difficult

Skill Level: Apply What You Know

69. What does “the fixity of species” mean? Explain the history of this idea from Aristotle to the Renaissance.

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Apply What You Know

70. Explain the artistic, scientific, and social developments in the Renaissance that contributed to our modern understanding of the world.

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Analyze It

71. Explain the influence of the Church on the natural sciences from the Renaissance through Carolus Linnaeus.

Learning Objective: LO 2.2: Explain the contributions of earliest scholars before Darwin to the development of evolutionary theory.

Topic: The Early Thinkers

Difficulty Level: Moderate

Skill Level: Apply What You Know

72. Describe the contributions of Linnaeus, de Buffon, and Cuvier. In what ways did their ideas pave the way for the “Darwinian revolution”?

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin’s time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

73. Describe Lamarckianism. What was Lysenkoism?

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

74. What is uniformitarianism?

Learning Objective: LO 2.3: Identify the contributions of the thinkers just before Darwin's time and how they helped him formulate his ideas.

Topic: The Road to the Darwinian Revolution

Difficulty Level: Easy

Skill Level: Understand the Concepts

75. What did Darwin observe while aboard the *Beagle*? How did Darwin apply what he learned on the Galapagos Islands?

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

76. Outline Darwin's three observations and two deductions of the theory of evolution by natural selection.

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Difficult

Skill Level: Apply What You Know

77. Explain what is meant by "fitness" in terms of natural selection and provide an example.

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Moderate

Skill Level: Apply What You Know

78. Describe the preconditions that must be met for natural selection to operate.

Learning Objective: LO 2.4: Summarize the ideas of Charles Darwin and how he developed them.

Topic: The Darwinian Revolution

Difficulty Level: Difficult

Skill Level: Apply What You Know

79. Explain the arguments for individuals who interpret the Bible literally to Darwin's ideas. Why are "Creation Science" and intelligent design not considered scientific?

Learning Objective: LO 2.5: Explain the difference between science and faith-based explanations for life.

Topic: Science and Creationism

Difficulty Level: Moderate

Skill Level: Analyze It