

Chapter 2: Why Is Evolution Important to Anthropologists?

Test Bank

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 01]

1) Evolution is defined as

Feedback: Evolution is the process of change over time.

Page reference: What Is Evolutionary Theory?

- a. descent with modification.
- b. natural selection plus random access.
- *c. the process of change over time.
- d. material evidence.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 02]

2) A single hierarchy of all organisms, each differing slightly from the ones above it and below it was known as

Feedback: Great Chain of Being A comprehensive framework for interpreting the world, based on Aristotelian principles and elaborated during the Middle Ages, in which every kind of living organism was linked to every other kind in an enormous, divinely created chain. An organism differed from the kinds immediately above it and below it on the chain by the least possible degree.

Page reference: Pre-Darwinian Views Of The Natural World

- *a. the Great Chain of Being.
- b. binomial nomenclature.
- c. essentialism.
- d. catastrophism.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 03]

3) A system of biological classification is called a

Feedback: Carolus Linnaeus (1707–1778) is the father of modern biological taxonomy (or classification).

Page reference: Pre-Darwinian Views Of The Natural World

- a. great chain of being.
- b. genus.
- *c. taxonomy.
- d. plenitude.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 04]

4) The level of the Linnaean taxonomy in which different species are grouped together on the basis of their similarities to one another is called a

Feedback: The term species, which modern biologists assign to subpopulations of the same genus that share certain specific attributes, was used more loosely in the past by essentialists and by nonessentialists.

Page reference: Pre-Darwinian Views Of The Natural World

- a. category.
- b. class.
- c. taxon.
- *d. genus.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 05]

5) The notion that natural disasters, such as floods, are responsible for the extinction of species, which are then replaced by new species is known as

Feedback: The term catastrophism came to refer to the notion that natural disasters, such as floods, are responsible for the extinction of some natural kinds, which are later replaced by new natural kinds.

Page reference: Pre-Darwinian Views Of The Natural World

- a. religion.
- b. essentialism.
- c. gradualism.
- *d. catastrophism.**

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 06]

6) The idea of the inheritance of acquired characters holds that

Feedback: Transformational evolution is also called Lamarckian evolution, it assumes essentialist species and a uniform environment. Each individual member of a species transforms itself to meet the challenges of a changed environment through the laws of use and disuse and the inheritance of acquired characters.

Page reference: What Is Natural Selection?

- *a.** the physical result of the use or disuse of organs could be passed from one generation to the next.
- b. the environment does not allow for certain accidentally acquired characteristics to be passed from one generation to the next.
- c. as a species adapts to an environment, changes in gene frequency are passed to the next generation.
- d.** only those characteristics that are acquired may be inherited.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 07]

7) The theory of common ancestry holds that

Feedback: Common ancestry refers to Darwin's claim that similar living species must all have had a common ancestor.

Page reference: What Is Natural Selection?

- a. no species is ranked higher than any other in the taxonomy.
- *b.** similar species are descended from a common ancestor.
- c. similar species are able to interbreed.
- d.** all species reproduce in a similar ("common") way.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 08]

8) Darwin's theory that the "fitter" survive and reproduce more offspring, who then inherit the traits that made their parents "fitter" is called

Feedback: Natural selection is a two-step, mechanistic explanation of how descent with modification takes place: (1) every generation, variant individuals are generated within a species because of genetic mutation, and (2) those variant individuals best suited to the current environment survive and produce more offspring than other variants.

Page reference: What Is Natural Selection?

- a. mixed reproduction.
- b. survival of the fittest.
- c. heredity.
- *d.** natural selection.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 09]

9) The measure of an organism's ability to compete in the struggle for existence is known as

Feedback: Fitness is a measure of an organism's ability to compete in the struggle for existence. Those individuals whose variant traits better equip them to compete with other members of their species for limited resources are more likely to survive and reproduce than individuals who lack such traits.

Page reference: What Is Natural Selection?

- *a. fitness.
- b. adaptation.
- c. the phenotype.
- d. aptation.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 10]

10) The shaping of useful features of an organism by natural selection for the function they now perform is

Feedback: Adaptation is the shaping of useful features of an organism by natural selection for the function they now perform.

Page reference: What Is Natural Selection?

- a. aptation.
- *b. adaptation.
- c. exaptation.
- d. reconciliation.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 11]

11) In Mendelian genetics, those genetic characteristics that are expressed in an organism are said to be

Feedback: The results of his breeding experiments suggested to Mendel something else as well—that the particle responsible for one form of a particular trait (flower color, for example) could be present in an organism but go unexpressed. Those particles whose traits are expressed in an organism are said to be dominant; those whose traits are not expressed are said to be recessive.

Page reference: How Did Biologists Learn About Genes?

- *a. dominant.
- b. genetic.
- c. homozygous.
- d. recessive.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 12]

12) A fertilized egg that has received a different form of a specific gene from each parent is called

Feedback: Heterozygous describes a fertilized egg that receives a different particle (or allele) from each parent for the same trait.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. homozygous.
- *b. heterozygous.
- c. allele-identical.
- d. chromosomal.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 13]

13) In genetics, the phenomenon known as crossing over occurs when

Feedback: Crossing over refers to the phenomenon that occurs when part of one chromosome breaks off and reattaches itself to a different chromosome during meiosis; also called incomplete linkage.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. two chromosomes are passed on together.
- *b. part of a chromosome breaks off and reattaches itself to a different chromosome.
- c. two genes near each other on the same chromosome have an effect on a trait.
- d. there is discontinuous variation.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 14]

14) The principle of Mendelian inheritance in which an individual gets one gene for each trait from each parent is the principle of

Feedback: Principle of segregation is a principle of Mendelian inheritance in which an individual gets one particle (gene) for each trait (i.e., one-half of the required pair) from each parent.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. inheritance.
- b. genetics.
- *c. segregation.
- d. independent assortment.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 15]

15) The principal of Mendelian inheritance in which each pair of chromosomes separates independently of every other pair when egg and sperm are formed is the principle of

Feedback: Principle of independent assortment is a principle of Mendelian inheritance in which each pair of particles (genes) separates independently of every other pair when germ cells (egg and sperm) are formed.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. inheritance.
- b. genetics.
- c. segregation.
- *d. independent assortment.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 16]

16) All the different forms that a particular gene might take are known as

Feedback: Alleles are all the different forms that a particular gene might take.

Page reference: What Are The Basics Of Contemporary Genetics?

- *a. alleles.
- b. chromosomes.
- c. particles.
- d. variants.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 17]

17) The form of cell division in which each newly formed daughter cell takes one full set of paired chromosomes is called

Feedback: Mitosis is the way body cells make copies of themselves. The pairs of chromosomes in the nucleus of the cell duplicate and line up along the center of the cell. The cell then divides, each daughter cell taking one full set of paired chromosomes.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. meiosis.
- *b. mitosis.
- c. natural selection.
- d. sexual transmission.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 18]

18) The situation in which two or more genes are responsible for producing a single trait is called

Feedback: Polygeny is the phenomenon whereby many genes are responsible for producing a phenotypic trait, such as skin color.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. linkage.
- *b. polygeny.
- c. polyzygous.

d. pleiotropy.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 19]

19) Mutations that neither help nor harm an organism are called

Feedback: Mutations can be harmful or helpful, but they may also have no effect at all. Mutations that neither help nor harm an organism are called “neutral” mutations.

Page reference: What Are The Basics Of Contemporary Genetics?

a. allele mutations.

*b. neutral mutations.

c. regulatory mutations.

d. value-free mutations.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 20]

20) The sum total of all the genetic information about an organism, carried on the chromosomes in the cell nucleus is called the

Feedback: Genome is the sum total of all the genetic information about an organism, carried on the chromosomes in the cell nucleus.

Page reference: What Are The Basics Of Contemporary Genetics?

a. genotype.

*b. genome.

c. phenotype.

d. locus.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 21]

21) The genetic information about particular biological traits encoded in an organism's DNA is called the

Feedback: Genotype is the genetic information about particular biological traits encoded in an organism's DNA.

Page reference: Genotype, Phenotype, And The Norm Of Reaction

*a. genotype.

b. infrabar.

c. phenotype.

d. ultrabar.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 22]

22) The observable, measurable outward characteristics of an organism are called the

Feedback: Phenotype is the observable, measurable overt characteristics of an organism.

Page reference: Genotype, Phenotype, And The Norm Of Reaction

a. genotype.

b. infrabar.

*c. phenotype.

d. ultrabar.

Type: multiple choice question

Title: [Knowledge of Key Terms and Concepts: Chapter 02 Question 23]

23) The way people struggle, often against great odds, to exercise some control over their lives is known as

Feedback: Human agency is the way people struggle, often against great odds, to exercise some control over their lives.

Page reference: What Does Evolution Mean?

*a. human agency.

b. natural selection.

- c. niche construction.
- d. race memory.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 24]

24) Evolutionary theory is based on a set of

Feedback: Evolutionary theory is the set of testable hypotheses that assert that living organisms can change over time and give rise to new kinds of organisms, with the result that all organisms ultimately share a common ancestry.

Page reference: What Is Evolutionary Theory?

- *a. testable hypotheses.
- b. scientists' opinions about different species.
- c. assumptions about when life began.
- d. observations of the natural world.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 25]

25) The claim that "living species can change over time and give rise to new kinds of organisms, with the result that all organisms ultimately share a common ancestry" is central to which theory?

Feedback: Evolutionary theory is the set of testable hypotheses that assert that living organisms can change over time and give rise to new kinds of organisms, with the result that all organisms ultimately share a common ancestry.

Page reference: What Is Evolutionary Theory?

- a. Genetic transformational theory
- *b. Evolutionary theory
- c. Intelligent design
- d. Prehistoric positional theory

Type: true-false

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 26]

26) Material evidence for evolutionary theory came from the study of living organisms and the fossil record.

Feedback: Two kinds of material evidence have been particularly important in the history of evolutionary theory: material evidence of change over time and material evidence of change across space.

Page reference: What Material Evidence Is There For Evolution?

- *a. True
- b. False

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 27]

27) That view that every "natural kind" of living thing is characterized by an unchanging core of features and separated from all other natural kinds by a sharp break is

Feedback: A central element of Plato's philosophy was a belief in an ideal world of perfect, eternal, unchanging forms that exist apart from the imperfect, changeable, physical world of living things. Plato believed that these two worlds—ideal and material—were linked and that every ideal form—the ideal form of "cowness," for instance—was represented in the physical, material world by a number of imperfect but recognizable real cows of varying sizes, colors, temperaments, and so on. When observers looked at real cows and saw their similarities despite all this variation, Plato believed that what they were really seeing was the ideal form, or essence, of "cowness" that each individual cow incarnated.

Page reference: Pre-Darwinian Views Of The Natural World

- *a. essentialism.
- b. catastrophism.
- c. uniformitarianism.
- d. natural selection.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 28]

28) For modern biologists, a species is defined as

Feedback: Species is (1) For Linnaeus, a Platonic “natural kind” defined in terms of its essence. (2) For modern biologists, a reproductive community of populations (reproductively isolated from others) that occupies a specific niche in nature.

Page reference: Pre-Darwinian Views Of The Natural World

- *a. a reproductive community that occupies a specific niche.
- b. a set of related individuals.
- c. a general category of organisms that closely resemble one another.
- d. the organisms that live in a specific niche.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 29]

29) Lamarckian evolution is also known as

Feedback: Transformational evolution is also called Lamarckian evolution, it assumes essentialist species and a uniform environment. Each individual member of a species transforms itself to meet the challenges of a changed environment through the laws of use and disuse and the inheritance of acquired characters.

Page reference: Pre-Darwinian Views Of The Natural World

- a. variational evolution.
- *b. transformational evolution.
- c. evolution by descent.
- d. notional selection.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 30]

30) Darwin’s innovation in defining the species was to emphasize

Feedback: Charles Darwin’s theory of evolution was possible only because he was able to think about species in a new way. Although Lamarck had begun to do this when he suggested that species could change, Darwin completed the job. If organisms could change, then they did not have a fixed essence. This, in turn, meant that variation—or differences—among individual members of a species might be extremely important.

Page reference: What Is Natural Selection?

- a. what members of a species have in common.
- b. the connections of species to other species.
- *c. how individual members of a species differ.
- d. the survival potential of the species.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 31]

31) In Darwinian terms, who are the fit?

Feedback: Darwin wondered what factors determined which competitors win and which lose. Pointing to the variation among all individuals of the species, he argued that those individuals whose variant traits better equip them to compete in the struggle for existence are more likely to survive and reproduce than those who lack such traits. Individuals who leave greater numbers of offspring are said to have superior fitness.

Page reference: What Is Natural Selection?

- a. The most powerful
- b. Those who survive
- *c. Those who reproduce and replace themselves
- d. Those who cooperate with others

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 32]

32) Mendelian inheritance is

Feedback: The notion of particulate inheritance was already common in the middle of the nineteenth century when the Austrian monk Gregor Mendel (1822–1884) began conducting plant-breeding experiments in the garden of his monastery. His great contribution was to provide evidence in favor of nonblending, single-particle inheritance, called Mendelian inheritance.

Page reference: How Did Biologists Learn About Genes?

- a. blending, multiple-particle
- b. blending, single-particle
- c. nonblending, multi-particle
- *d. nonblending, single-particle

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 33]

33) In modern terms, Mendel's principle of segregation holds that

Feedback: Principle of segregation is a principle of Mendelian inheritance in which an individual gets one particle (gene) for each trait (i.e., one-half of the required pair) from each parent.

Page reference: How Did Biologists Learn About Genes?

- a. plants are able to pass genetic information from one generation to the other without sexual reproduction.
- b. there are two chromosomes for each physical trait.
- *c. an individual receives one chromosome of each pair of chromosomes from each parent.
- d. the genes controlling related traits are next to each other on chromosomes.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 34]

34) Natural selection acts on

Feedback: Natural selection can act only on randomly produced variation, which makes evolution by natural selection a two-step process. First, random genetic variation is produced. Second, those organisms whose variant traits better equip them to meet environmental challenges survive and produce more offspring.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. mutations.
- b. the needs of a species.
- *c. randomly produced variation.
- d. the sex cells.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 35]

35) Chromosomes are made up of strands of

Feedback: DNA (deoxyribonucleic acid) is the structure that carries the genetic heritage of an organism as a kind of blueprint for the organism's construction and development.

Page reference: What Are The Basics Of Contemporary Genetics?

- *a. deoxyribonucleic acid.
- b. guanine.
- c. cytosine.
- d. ribonucleic acid.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 36]

36) The biochemical structure for transmitting genetic information regarding the construction and development of a particular organism is

Feedback: DNA (deoxyribonucleic acid) is the structure that carries the genetic heritage of an organism as a kind of blueprint for the organism's construction and development.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. adenine.

- *b. DNA.
- c. MFT.
- d. RNA.

Type: multiple choice question

Title: [Comprehension of Fundamental Concepts: Chapter 02 Question 37]

37) When an organism actively perturbs the environment in ways that modify the selection pressures experienced by subsequent generations of organisms, it is said to be engaged in

Feedback: Niche construction is when organisms actively perturb the environment in ways that modify the selection pressures experienced by subsequent generations of organisms.

Page reference: Genotype, Phenotype, And The Norm Of Reaction

- a. genetic drift.
- b. gene flow.
- c. natural selection.
- *d. niche construction.

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 38]

38) The panda's elongated wrist bone or "thumb" would be explained by Lamarck's theory in which of the following ways?

Feedback: Transformational evolution is also called Lamarckian evolution, it assumes essentialist species and a uniform environment. Each individual member of a species transforms itself to meet the challenges of a changed environment through the laws of use and disuse and the inheritance of acquired characters.

Page reference: What Is Natural Selection?

- *a. Some pandas acquired "thumbs" through strenuous activity and then produced offspring with the same characteristic.
- b. Some pandas had "thumbs" of different lengths, and in a new environment, those with longer "thumbs" were better able to survive and produce offspring.
- c. Some pandas acquired "thumbs" through strenuous activity and were better able to survive.
- d. Some pandas had longer "thumbs" and were able to produce offspring.

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 39]

39) The panda's elongated wrist bone or "thumb" would be explained by Darwin's theory in which of the following ways?

Feedback: Natural selection is a two-step, mechanistic explanation of how descent with modification takes place: (1) every generation, variant individuals are generated within a species because of genetic mutation, and (2) those variant individuals best suited to the current environment survive and produce more offspring than other variants.

Page reference: What Is Natural Selection?

- a. Some pandas acquired "thumbs" through strenuous activity and then produced offspring with the same characteristic.
- *b. Some pandas had "thumbs" of different lengths, and in a new environment, those with longer "thumbs" were better able to survive and produce offspring.
- c. Some pandas acquired "thumbs" through strenuous activity and were better able to survive.
- d. Some pandas had longer "thumbs" and were able to produce offspring.

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 40]

40) Which of the following is NOT an element of Darwin's theory of evolution by natural selection?

Feedback: Type general feedback here (maximum of 1000 characters, including spaces)

Page reference: Type relevant section heading here

- *a. Crossing-over
- b. Natural selection

- c. Struggle for existence
- d. Variation

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 41]

41) Homozygous: heterozygous::

Feedback: Homozygous describes a fertilized egg that receives the same particle (or allele) from each parent for a particular trait. Heterozygous describes a fertilized egg that receives a different particle (or allele) from each parent for the same trait.

Page reference: What Are The Basics Of Contemporary Genetics?

- *a. same:different
- b. fertilized:unfertilized
- c. genetics:heredity
- d. genes:alleles

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 42]

42) In the ABO series of human blood types, people have only one kind of blood type, either A, B, AB, or O. This illustrates what kind of variation?

Feedback: Continuous variation is a pattern of variation involving polygeny in which phenotypic traits grade imperceptibly from one member of the population to another without sharp breaks.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. Continuous
- b. Contingent
- *c. Discontinuous
- d. Genetic

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 43]

43) Polygeny:pleiotropy::

Feedback: Polygeny is the phenomenon whereby many genes are responsible for producing a phenotypic trait, such as skin color. Pleiotropy is the phenomenon whereby a single gene may affect more than one phenotypic trait.

Page reference: What Are The Basics Of Contemporary Genetics?

- a. homozygous:heterozygous
- b. one:many
- *c. many and one:one and many
- d. blood type:skin color

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 44]

44) The realization of a _____ is called the _____.

Feedback: Genotype is the genetic information about particular biological traits encoded in an organism's DNA. Phenotype is the observable, measurable overt characteristics of an organism.

Page reference: Genotype, Phenotype, And The Norm Of Reaction

- *a. genotype; phenotype
- b. phenotype; genotype
- c. phenotype; norm of reaction
- d. genotype; norm of reaction

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 45]

45) At 6,000 calories a day, a person with genotype X will weigh 285 lbs with much energy and high cholesterol levels. At 3,500 calories a day, the person will weigh 200 lbs with much energy and slightly

elevated cholesterol levels. At 1,800 calories a day, the person will weigh 175 lbs with little energy and low cholesterol levels. These are examples of that genotype's

Feedback: Norm of reaction is a table or graph that displays the possible range of phenotypic outcomes for a given genotype in different environments.

Page reference: Genotype, Phenotype, And The Norm Of Reaction

a. adaptive capacities.

b. environment.

*c. norm of reaction.

d. This has nothing to do with the genotype..

Type: multiple choice question

Title: [Application of Concepts: Chapter 02 Question 46]

46) The way in which genotype and environment interact to produce a phenotype is measured by the

Feedback: Norm of reaction is a table or graph that displays the possible range of phenotypic outcomes for a given genotype in different environments.

Page reference: Genotype, Phenotype, And The Norm Of Reaction

a. overall size of the organism.

b. phenotypic index.

*c. norm of reaction.

d. principle of independent assortment.

Type: true-false

Title: [Application of Concepts: Chapter 02 Question 47]

47) Because evolution typically occurs over a long period of time, there is substantial material evidence to substantiate it as a viable theory.

Feedback: Type general feedback here (maximum of 1000 characters, including spaces)

Page reference: Type relevant section heading here

*a. True

b. False

Type: true-false

Title: [Application of Concepts: Chapter 02 Question 48]

48) According to Lamarck, all organisms have two attributes: the ability to physically adapt to their environments, and the capacity to activate this ability when necessary.

Feedback: Lamarck believed that once a natural kind had come into existence, it had the capacity to evolve over time into increasingly complex (or "perfect") forms. This could happen, Lamarck suggested, because all organisms have two attributes: (1) the ability to change physically in response to environmental demands and (2) the capacity to activate this ability whenever environmental change makes the organism's previous response obsolete.

Page reference: Pre-Darwinian Views Of The Natural World

*a. True

b. False

Type: essay/short answer question

Title: [Application of Concepts: Chapter 02 Question 49]

49) Compare and contrast the positions of catastrophism and uniformitarianism.

Feedback: The term catastrophism came to refer to the notion that natural disasters, such as floods, are responsible for the extinction of some natural kinds, which are later replaced by new natural kinds.

Uniformitarianism is the notion that an understanding of current processes can be used to reconstruct the past history of the earth, based on the assumption that the same gradual processes of erosion and uplift that change the earth's surface today had also been at work in the past.

Page reference: Pre-Darwinian Views Of The Natural World

Type: essay/short answer question

Title: [Application of Concepts: Chapter 02 Question 50]

50) How would a scholar following the work of Lamarck explain the evolution of the elephant's trunk? How would a Darwinian explain it?

Feedback: Transformational evolution is also called Lamarckian evolution, it assumes essentialist species and a uniform environment. Each individual member of a species transforms itself to meet the challenges of a changed environment through the laws of use and disuse and the inheritance of acquired characters.

Page reference: Pre-Darwinian Views Of The Natural World

Type: essay/short answer question

Title: [Application of Concepts: Chapter 02 Question 51]

51) Describe the premise that Darwinian evolution by natural selection is a phenomenon that affects populations of organisms. Why is this important? What are the implications?

Feedback: Natural selection is a two-step, mechanistic explanation of how descent with modification takes place: (1) every generation, variant individuals are generated within a species because of genetic mutation, and (2) those variant individuals best suited to the current environment survive and produce more offspring than other variants.

Page reference: What Is Natural Selection?

Type: essay/short answer question

Title: [Analysis and Synthesis: Chapter 02 Question 52]

52) Describe three sources of material evidence for evolution and how these sources of evidence create a complete picture for explaining change over time.

Feedback: Equally important material evidence for evolutionary theory came from the study of living organisms. Darwin himself was most interested in explaining the spatial distributions of living species of organisms. In one of his best-known studies, Darwin noted that neighboring geographic areas on the islands of the Galápagos Archipelago were inhabited by species of finch different from the finch species found on the Ecuadorian mainland. At the same time, the various Galápagos species resembled one another closely and resembled mainland finch species. Species distribution patterns of this kind suggested change over space, which, again, any persuasive biological theory would have to explain.

Page reference: What Material Evidence Is There For Evolution?

Type: essay/short answer question

Title: [Analysis and Synthesis: Chapter 02 Question 53]

53) What is the significance of variation in evolution by natural selection? Be sure to illustrate your answer with specific examples.

Feedback: Darwin wondered what factors determined which competitors win and which lose. Pointing to the variation among all individuals of the species, he argued that those individuals whose variant traits better equip them to compete in the struggle for existence are more likely to survive and reproduce than those who lack such traits. Individuals who leave greater numbers of offspring are said to have superior fitness.

Page reference: What Is Natural Selection?

Type: essay/short answer question

Title: [Analysis and Synthesis: Chapter 02 Question 54]

54) What is the significance for human beings of the facts that different genotypes can produce the same phenotypes in some environments and that the same genotype can produce different phenotypes in different environments?

Feedback: Genotype is the genetic information about particular biological traits encoded in an organism's DNA. Phenotype is the observable, measurable overt characteristics of an organism.

Page reference: Genotype, Phenotype, And The Norm Of Reaction