# Standard 5 Objective 2 Cite evidence for changes in populations over time and use concepts of evolution to explain these changes

24 Question(s)
Test ID: 2142483957

Name:_____ Date:_____

1) Which term best describes the evolution of two species of frogs separated by a mountain range?

A. mutation
B. vestigal structures
C. geographical isolation
D. camouflage

2) Scientists believe that the more primitive fossils in deeper rock layers are older than those found in layers closer to the surface. Which of the following statements best explains how scientists can come to this conclusion?

A. Scientists assume that older fossils had more time in which to sink deeper into the sediments
B. Scientists assume that in the past, layers of sediment were sequentially deposited on older layers using the same processes observed today
C. Scientists assume that more primitive organisms lacked advanced means of locomotion in which to escape being buried in sediments and were therefore buried first
D. Scientists assume that older, more primitive fossils were burrowing animals that dug deeper into the sediment layers

3) At her school, Joyce wants to create a linear scale model of the geologic time line and she wants to make one million years equal to one meter. What problem will she encounter?

A. The time scale will be too long to fit in the classroom
B. The Cenozoic era will be so small that it will be impossible to measure by methods available at school
C. Some of the markers she uses to indicate the various eras will be bunched very close together so it will be difficult, but not impossible to see the various eras
D. Precambrian time takes up about 95% of geologic time

4) In the mountains of northern Utah, there are fossils of coral. One theory is that the area was once submerged under the ocean. What further evidence would support that theory?

A. geothermal activity
B. bleached snail shells
C. volcanic activity
D. fossilized shark teeth
E. metamorphic rocks

5) Which of the following statements presents the best evidence (in this list) that present species developed from earlier forms?

A. There are no anatomical similarities between species
B. The fossil record has many gaps
C. All species contain DNA
D. AUG codes for methionine in all living things
E. The fins of fish and flippers of whales perform the same function

6) Which statement best describes why a biologist wouldn't be concerned about a single mutation in a population of mallard ducks?

A. Mallards are not threatened; their survival is not likely to depend on this mutation
B. An animal can choose to adapt to an environmental condition
C. Mutations are always beneficial
D. A population in genetic equilibrium is not evolving
E. Populations evolve, individuals don't

7) Which of the following would be an example of a frameshift mutation?

A. The base guanine is changed to adenine
B. A single base is deleted from DNA causing mRNA to be out of position by one base
C. Homologous chromosomes fail to separate properly
D. Part of a chromosome breaks out and is reinserted backwards
E. Part of a chromatid breaks off and attaches to a sister chromatid

8) Darwin's and Wallace's observations led them each to develop a hypothesis to explain the evidences that they had observed. Over time, these hypotheses have been supported by scientists studying many different organisms. These many facts, inferences, and tested hypotheses make up the Theory of Evolution. Why is this known as the Theory of Evolution?

A. This is a guess not supported by facts or valid observations
B. It is supported by many experiments and observations
C. It is supported by some experiments, but not by observations from nature
D. Because Creationism does not support it

9) During his travels, Darwin made numerous observations and collected evidence that led him to propose a revolutionary hypothesis about the way life changes over time. That hypothesis, now supported by a huge body of evidence, has become the theory of evolution. Which of the following is NOT evidence supporting the theory of evolution?

A. Embryo develop in comparable orders and in similar patterns to produce tissues and organs in all vertebrates
B. Traits acquired during a person's lifetime, such as straight teeth because of braces, will be passed on to offspring
C. Mutations in DNA can cause changes that will become part of the gene pool of a population
D. Mendelian genetic principles provide a mechanism for the continuation of traits in offspring

10) Which of the following unanswered questions about evolution CANNOT be validly asked or answered by science (now or in the future)?

A. Is music written by Mozart better than music written by Bach?
B. Why do organisms become extinct?
C. Is there biochemical evidence about Australian marsupials that supports the bone evidence in the fossil record?
D. Do more evidences of the evolution of flight in birds exist than are known today?

11) Which of the following meanings of "theory" best fits the meaning scientists use when they refer to "Cell Theory" or "Theory of Evolution"?

A. Possible but untested ideas
B. An idea someone has about how or when or why something happens
C. An impractical idea
D. A fact or bit of evidence available to explain something
E. A set of tested positions, explanations and concepts that explain known data and predict an additional phenomena

12) At one time, people believed that life spontaneously arose regularly from non-living things. For example, many people believed that spoiled meat produced living maggots. Why was spontaneous generation considered to be an adequate explanation back then but is no longer accepted as a valid theory today?

A. In the past the best data available supported the idea, but today the scientific community has collected other data
B. The current theory of the origin of life has now been proven
C. In science, theories do not last more than 100 years; they are replaced because they get old
D. Spontaneous generation was disproved by a famous scientist named Louis Pasteur

13) The statement "The age of the universe is about 13.7 billion years old" is an example of

A. a theory
B. a law
C. an observation
D. a fact
E. superstition

14) The statement "dinosaur fossils are found in rock containing many plant fossils" is an example of

A. a theory
B. an observation
C. an assumption
D. a law
E. superstition

15) Your teacher assigns you to do library research to explain one way the fossil record demonstrates diversity of life. Which topic below would be the most useful and relevant to look up at the library for this assignment?

A. Historic drift of the tectonic plates
B. Chemistry of fossil formation
C. Evolutionary lineage of a group of related mammals

D. Effect of the last ice age on fossil quality
E. Size of ocean during certain geologic eras

16) The statement "Most fossils are found in marine sediments" is an example of

A. a theory
B. a law
C. a hypothesis
D. a fact
E. an inference

17) Scientists examined fossil records and skeletons long before they knew the ages of fossils and the relationships of one organism to another, such as birds and reptiles. What additional knowledge is needed to improve the modern view that birds evolved from reptiles?

A. Better technology for determining the exact age of rocks where the fossils are found.
B. A model which definitively describes the formation of the earth and all of its inhabitants.
C. A rock collection detailing the chemical differences in the rock structure which helped to make the fossils.
D. A dichotomous key to precisely classify the ancient organisms found in the rock.

18) In 1785 James Hutton proposed that Earth was shaped by forces that occurred over long periods of time, and estimated that the world is millions of years old. In 1798 Thomas Malthus predicted that the human population would outgrow its ability to sustain life. In 1809 Jean Baptiste Lamarck proposed the first theory of how organisms changed over time -- a flawed theory of acquired characteristics. Charles Lyell confirmed that geological processes occur over long periods of time. In 1858 Alfred Wallace wrote to Charles Darwin about natural selection. Darwin presented his own thoughts as well as Wallace's ideas in his book, On The Origin Of Species. What does this series of events show us about science knowledge?

A. The knowledge learned by scientists over the years helped scientists to be able to formulate the theory of evolution.
B. The knowledge learned by scientists in the 1700s was not useful in determining the theory of evolution since Hutton and Malthus did not have appropriate scientific technology.
C. The experiments conducted by the early scientists on theory of evolution did not take into account religious views, so they were discounted and not used.
D. The experiments conducted by scientists on evolution are unrelated, so they do NOT contribute to the current theory of evolution.

19) There is a newt so poisonous that the poison from a single animal can kill over 50,000 mice or 10 humans. For a time, it was thought the newt had no natural predators. Then scientists noted one species of garter snakes began eating the newts. Scientific studies on the garter snakes revealed a genetic change in the snakes that made them immune to the newt poison. The garter snakes are now able to store the poison in their livers without making them sick or die. The garter snakes also developed red markings on their heads which predatory birds recognize and avoid. Scientists conclude that the snakes had evolved. What does this show about scientific theories of the snakes?

A. Theories about evolution are based upon evidence.
B. Theories must be supported with genetic studies.
C. Theories do not change over time.
D. Theories are scientists' best guesses and do not take into account a lot of evidence.

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A. Garter snakes are smarter than newts and can think of better ways to survive.
B. Newt toxins become less poisonous over time.
C. Evolution of garter snakes did not really happen -- it just makes scientists feel better about their findings.
D. Mutations in the garter snakes' DNA protect the snakes while giving them an additional food source.

21) Skeletons of "mini-humans" have recently been found in Indonesia. These "mini-humans" are claimed by some researchers to represent an entirely new species. Other scientists disagree with these claims saying the new finds are not a new species but a mutation of an existing species. What may happen as new evidence is discovered about humans that the current theories of human evolution do not explain?

A. The current models that explain evolution may be modified in light of this new evidence.
B. The current models that explain human evolution will be abandoned for a new theory.

C. Nothing will happen. The current models that explain the theory of human evolution are only hypotheses.
D. Nothing will happen. The current models that explain human evolution are scientists' best ideas and will remain valid.

22) Antibiotics are one of medicine's greatest weapons against bacterial disease. However, due to antibiotic overuse, bacteria are becoming resistant to antibiotics. One way the resistance develops is that the first populations exposed may contain a few bacteria with the genetic ability to survive the antibiotic. These bacteria are then able to reproduce large numbers of resistant bacteria. The government is trying to put into place strict rules about prescribing antibiotics to help reduce the frequency or rate of development of antibiotic resistance. Which statement best reflects the issue?

A. Bacteria are helpful to humans and should not be destroyed.
B. Antibiotics should be used to kill viruses such as those that cause influenza or colds.
C. Natural selection occurs in bacteria making it necessary for humans to control the use of antibiotics.
D. Bacteria are of little use to humans since they always cause infections or illnesses to occur.

23) Scientists long believed Old World and New World Monkeys developed from a common ancestor 50 million years ago and separated when the continents of Africa and South America drifted apart. This thinking was challenged in the 1970s when Richard Hoffstetter proposed that the differentiating evolution took place more recently. He proposed that the ancestral New World monkeys rafted across the Atlantic after the continents had drifted apart. Genetic evidence has been found to support Hoffstetter's hypothesis. Which statement best describes the change in the way scientists think about when evolution of these organisms occurred?

A. The experiments conducted by scientists on evolution were so disconnected that they did not contribute to the current theory of evolution.
B. The experiments conducted by the early scientists on evolution were not able to be verified, so they were discounted and not used.
C. The knowledge learned by scientists before the 1970s was not useful in determining the theory of evolution.
D. The knowledge learned by scientists over the years helped determine the current theory of monkey evolution.

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A. The current revisions are invalid because all evolution occurred at the time that continents drifted away from each other.
B. The current revisions are supported by new information from genetic research.
C. The current revisions are invalid because genetics does not have any relationship to evolution.
D. The current revisions are made possible because of our improvements with the microscope.