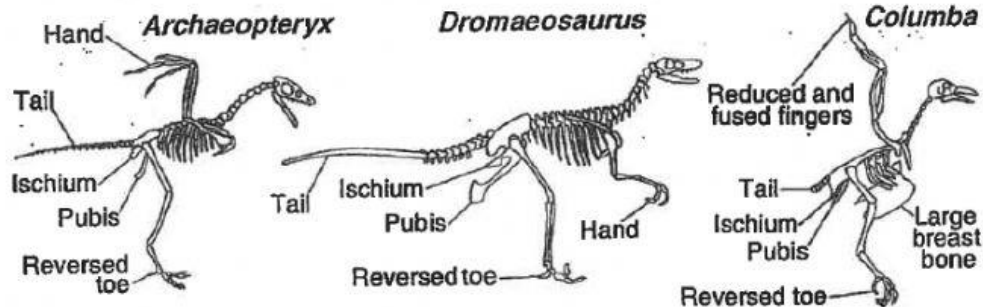


**Living Environment – Topic 5 Practice**

- 1) Characteristics that are harmful to a species tend to decrease in frequency from generation to generation because these characteristics usually
- A) are inherited by more individuals
  - B) have a high survival value for the species
  - C) affect only the older members of the population
  - D) have a low survival value for the species
- 2) Examination of ancient rock layers at a certain location reveals many different fossils. Which conclusion can be drawn concerning the species that formed these fossils?
- A) Only the predators are still present.
  - B) They had no variations due to mutations.
  - C) Many of them are now extinct.
  - D) They produced offspring that were all genetically identical.
- 3) Parrots are tropical birds. However, in some areas of New York City, some parrots have been able to survive outdoors year-round. These parrots survive, while most others cannot, due to
- A) a variation that allows these parrots to live in colder climates.
  - B) asexual reproduction of parrots with a mutation
  - C) extinction of previous species
  - D) overproduction of offspring

- 4) Which group would most likely have the *greatest* survival success during a long period of environmental changes?
- A) one species of bird that nests only in sugar maple trees
  - B) a large population of red ants living in a forest
  - C) a small population of rabbits living in a field of grass
  - D) an endangered population of polar bears living near an iceberg
- 5) A population of white moths lives in a forest near a factory. This factory burns coal and pollutes the air with black dust. Over time, this dust has settled on the trees in the area, making them darker in color. This could result in
- A) an increase in the number of trees in the area
  - B) a decrease in the air pollution affecting the area
  - C) an increase in the white moth population
  - D) a decrease in the white moth population

- 6) The remains of three organisms are shown below.

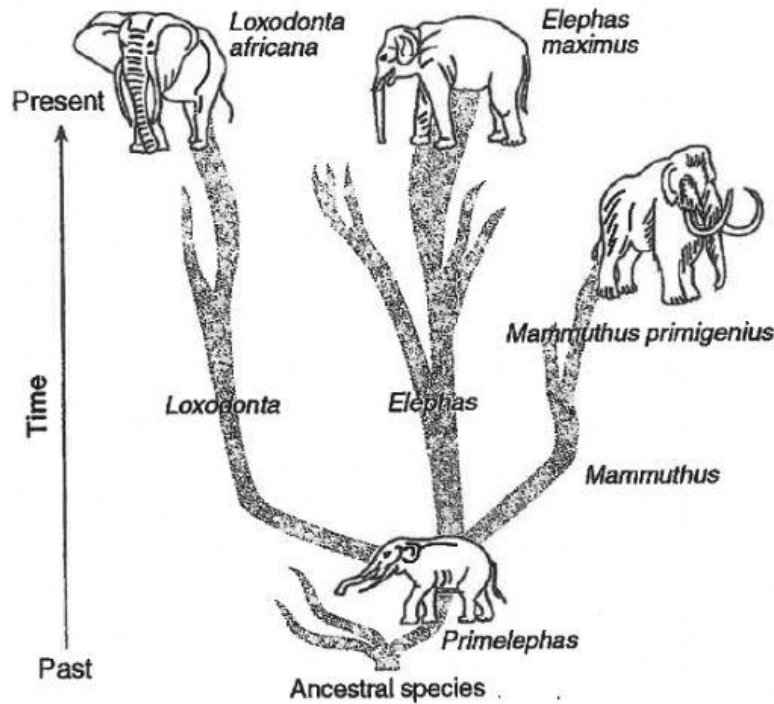


A study of these remains would indicate that these organisms have

- A) habitat similarities
- B) identical body sizes
- C) structural similarities
- D) identical food preferences

- 7) Which of the following statements provides evidence that evolution is still occurring at the present time?
- A) The extinction rate of species has decreased in the last 50 years.
  - B) New varieties of plant species appear more frequently in regions undergoing climatic change.
  - C) Many bird species and some butterfly species make annual migrations.
  - D) Through cloning, the genetic makeup of organisms can be predicted.

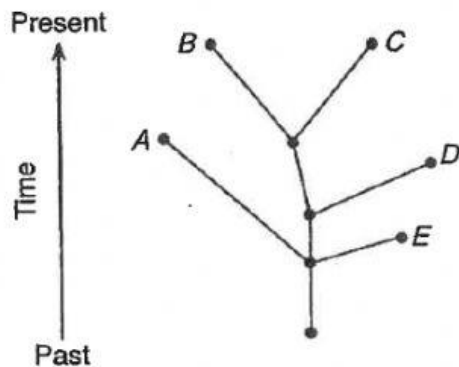
- 8) One possible pathway for the evolution of elephants is represented in the diagram below.



Which one of the following statements concerning this pattern of evolution is correct?

- A) Evolution does not always result in a species that will survive to present time.
- B) Evolution results in the same changes in all species.
- C) Evolution always results in favorable traits.
- D) Evolution leads to less complex organisms.

- 9) Which one of the following statements concerning the evolution of species A, B, C, D, and E is supported by the diagram below?



- A) Species B and C can be found in today's environments.
- B) Species A and D evolved from E.
- C) Species A, B, and E all evolved from a common ancestor and all are successful today.
- D) Species A and C can still interbreed.

- 10) A chemical known as 5-bromouracil causes a mutation that results in the mismatching of molecular bases in DNA. The offspring of organisms exposed to 5-bromouracil can have mismatched DNA if the mutation occurs in

- A) all the body cells of both parents
- B) only the nerve cells of the father
- C) the gametes of either parent
- D) the skin cells of the mother

- 11) Agriculturists have developed some varieties of vegetables from common wild mustard plants, which reproduce sexually. Which statement *best* explains the development of these different varieties of vegetables?

- A) Variations in a species will increase when the rate of mitosis is decreased.
- B) Mutations will occur in the genes of a species only if the environment changes.
- C) Different species can develop from a single species as a result of the effect of similar environmental conditions.
- D) Different varieties can develop from a single species as a result of the recombination of genetic information.



- 12) Buffalo grass is a species of plant found on the grazing prairies of Wyoming. It is a tough grass that has silicates (compounds containing oxygen and silicon) that reinforce its leaves. For hundreds of years, this grass has survived in an adverse environment. Which one of the following statements *best* explains the presence of this grass today?

A) There are no variations in this grass species that help it to survive in an adverse environment.  
 B) Silicates are necessary for photosynthesis.  
 C) The silicates in the grass have given the species an advantage in its environment.  
 D) The current species has no mutations.

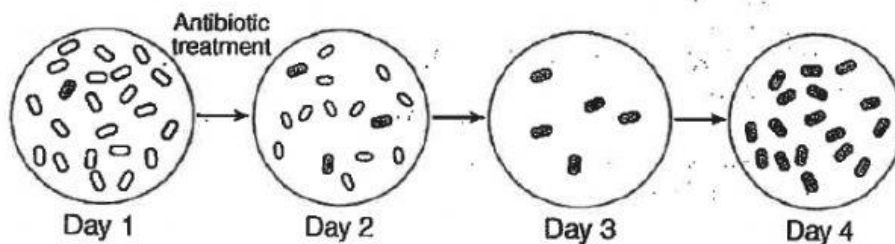
- 13) Many scientists suggest that billions of years ago, life on Earth began with

A) complex, single-celled organisms  
 B) complex, multicellular organisms  
 C) simple, single-celled organisms  
 D) simple, multicellular organisms

- 14) In order for a species to evolve, it must be able to

A) maintain a constant body temperature  
 B) consume a large quantity of food  
 C) reproduce successfully  
 D) be domesticated

- 17) The diagram below represents some changes that took place in a bacterial population recently exposed to an antibiotic.



Which statement would *best* explain the presence of bacteria on day 4?

A) This bacterial population cannot survive exposure to this antibiotic.  
 B) Bacteria can change whenever it is necessary to survive antibiotic treatment.  
 C) A bacterial population cannot survive exposure to antibiotics.  
 D) Some of the bacterial population was resistant to this antibiotic.

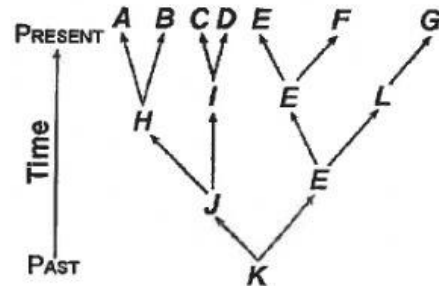
- 18) A species that lacks the variation necessary to adapt to a changing environment is more likely to

A) become extinct over time  
 B) begin to reproduce sexually  
 C) develop resistance to diseases  
 D) develop many mutated cells

- 15) Young birds that have been raised in isolation from members of their species build nests characteristic of their species. This suggests that the nest-building behavior is

A) learned by watching members of their species  
 B) a direct result of the type of food the bird eats  
 C) genetically inherited from parents  
 D) a disadvantage to the survival of the species

- 16) The evolutionary pathways of several species are represented in the diagram below.



Which species was *best* adapted for survival in changing environmental conditions?

A) A  
 B) L  
 C) E  
 D) K

- 19) The crucian carp, a Scandinavian fish, thrives in shallow ponds that freeze over during winter. While other creatures in the pond die from lack of oxygen, these carp are able to obtain energy through a biochemical pathway that does not require oxygen. This characteristic is an example of a
- A) feedback mechanism common to carnivores that inhabit shallow pond ecosystems  
 B) favorable adaptive trait that has led to increased survival  
 C) stage of succession that leads to a new community  
 D) gene mutation that occurred because carp need to survive to maintain ecological stability

- \_\_\_ 20) A species of bird known as Bird of Paradise has been observed in the jungles of New Guinea. The males shake their bodies and sometimes hang upside down to show off their bright colors and long feathers to attract females. Females usually mate with the "flashiest" males. These observations can be used to support the concept that
- homeostasis in an organism is influenced by physical characteristics
  - some organisms are better adapted for asexual reproduction
  - unusual courtship behaviors lead to extinction
  - behaviors that lead to reproductive success have evolved
- \_\_\_ 21) Which situation results in a characteristic that is inheritable?
- A random mutation causes the immediate death of a microbe.
  - A gene is inserted into a bacterium, allowing the organism to produce insulin.
  - A limb is lost when two marine organisms fight.
  - A puppy learns to beg for food by watching an older dog perform tricks.
- \_\_\_ 22) Ancestors of the giant panda had rounded paws with five very short toes. Today, the giant panda has a sixth toe, often referred to as a thumb, even though it develops from a wrist bone. This unique thumb is an adaptation that allows the panda to easily hold and eat bamboo shoots. The presence of the giant panda's thumb is most likely the result of
- natural selection
  - selective breeding
  - asexual reproduction
  - ecological succession
- \_\_\_ 23) The sorting and recombination of genes during reproduction is important to evolution because these processes
- increase the ability of all the offspring to adapt to the environment
  - increase variation that enables species to adapt to change
  - decrease variation and help maintain a stable population
  - decrease the chances of producing offspring that are adapted to the environment
- \_\_\_ 24) A characteristic that an organism exhibits during its lifetime will only affect the evolution of its species if the characteristic
- results from isolation of the organism from the rest of the population
  - is due to a genetic code that is present in the gametes of the organism
  - causes a change in the environment surrounding the organism
  - decreases the number of genes in the body cells of the organism
- \_\_\_ 25) Male stickleback fish with red undersides attack other male sticklebacks with red undersides and also attack models of fish with red undersides. Sticklebacks and fish models without red undersides are not attacked. Which is the *best* inference that can be drawn regarding this behavior?
- The stimulus for an attack is a model with red fins or a male stickleback.
  - The stimulus for an attack is a red underside.
  - Male sticklebacks turn red to attract females.
  - A male stickleback will defend its territory against all other fish.
- \_\_\_ 26) Which reproductive pattern would be associated with a species that is most likely to undergo rapid evolutionary change?
- sexual reproduction with a short reproductive cycle
  - asexual reproduction with a long reproductive cycle
  - asexual reproduction with a short reproductive cycle
  - sexual reproduction with a long reproductive cycle
- \_\_\_ 27) The table below shows adaptations in two organisms.

### Environmental Adaptations

Organism	Environment	Adaptation
desert rat	hot and dry	comes out of burrow only at night
Arctic poppy plant	cold and windy	grows low to ground next to rocks

The presence of these adaptations is most likely the result of

- human interference
- asexual reproduction
- natural selection
- reproductive technology