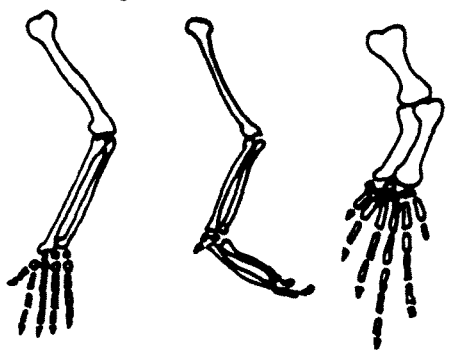


## Chapter 28 Review

1. The diagrams below represent the forelimbs of three different organisms.



HUMAN

BIRD

WHALE

These structures are classified as homologous because they

- A) demonstrate the law of use and disuse  
 B) are identical in function  
 C) represent acquired characteristics  
**D) are similar in structure and origin**
2. According to the heterotroph hypothesis, which gas was *lacking* in the atmosphere of primitive Earth?
- A) ammonia                      B) hydrogen  
 C) methane                      D) **oxygen**
3. According to the fossil record, which statement is accurate?
- A) Most of the species that have lived on Earth no longer exist.**  
 B) Most of the species that have lived on Earth still exist today.  
 C) Fossils of species that never existed can be found.  
 D) Fossils of species that never existed, but will exist in the future, can be found.
4. A species that lacks the variation necessary to adapt to a changing environment is more likely to
- A) develop many mutated cells  
**B) become extinct over time**  
 C) begin to reproduce sexually  
 D) develop resistance to disease
5. Evidence that best supports the theory of biological evolution was obtained from the
- A) investigation of environmental niches  
**B) study of fossil records**  
 C) comparison of the number of cells in organisms  
 D) analysis of food chains and food web
6. Most species on Earth have changed through time. This change is known as
- A) isolation                      B) geology  
 C) ecology                      D) **evolution**

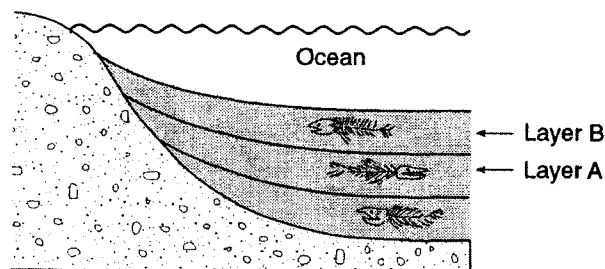
7. In a certain area of undisturbed layers of rock, fossils of horseshoe crabs may be found in the upper layer, and a lower layer contains fossils of trilobites. Trilobites are extinct aquatic arthropods resembling modern horseshoe crabs. This information suggests that

- A) horseshoe crabs will soon become extinct  
 B) horseshoe crabs and trilobites are completely unrelated organisms  
**C) horseshoe crabs may have evolved from trilobites**  
 D) trilobites may have evolved from horseshoe crabs

8. Fossils would most likely be found in

- A) amber that is over 8 billion years old  
 B) icebergs that are 500 billion years old  
**C) sedimentary rocks that are 500 million years old**  
 D) volcanic rocks that are 50 million years old

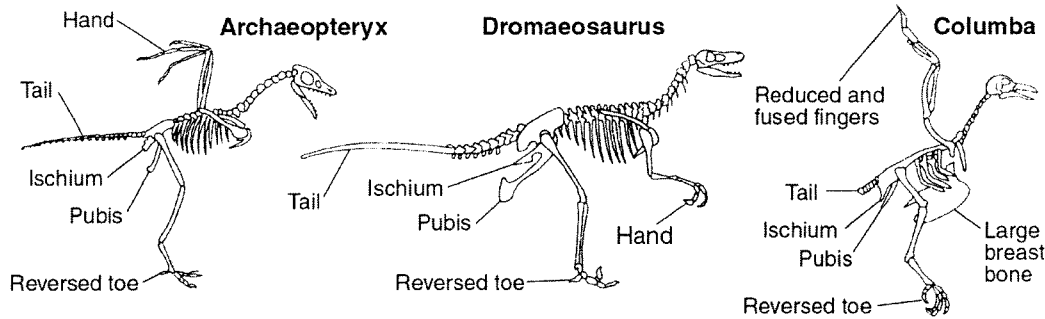
9. The diagram below shows undisturbed sedimentary strata at the bottom of an ocean.



The fossils found in layer B resemble the fossils found in layer A. This similarity suggests that

- A) the fossils in layer B were formed before the fossils in layer A  
**B) modern forms of life may have evolved from earlier forms of life**  
 C) vertebrate fossils are only found in sediments  
 D) the fossils in layer A must be more complex than those in layer B
10. Which technique has been used by scientists to determine that the Earth is at least 4.5 billion years old?
- A) radioactive dating of rocks in the Earth's crust**  
 B) comparing fossils found in the upper strata to fossils found in the lower rock  
 C) using the electron microscope to observe fossils of prehistoric microscopic life forms  
 D) using x-rays to find fossils buried in the Earth's crust
11. Which term describes appendages that may have different functions, but are similar in structure and are assumed to have the same evolutionary origin?
- A) fossils                      B) homozygous  
**C) homologous**                      D) mutations

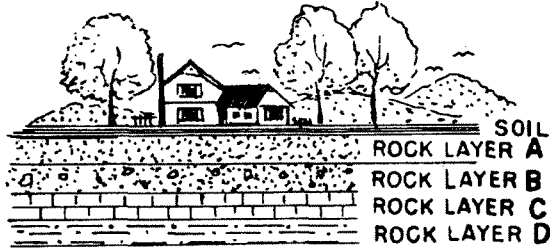
12. The remains of three organisms are shown below.



A study of these remains would indicate that these organisms have

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

13. A geologist finds fossils in each of the undisturbed rock layers represented in the diagram below. The fossils are all structurally similar. Which is the most likely conclusion that the geologist would make?

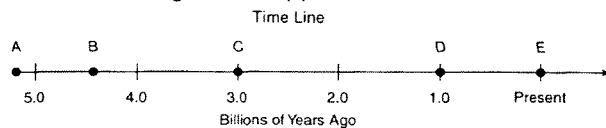


- A) All the fossils are of the same age.
- B) The relative ages of the fossils cannot be determined.
- C) **The fossils in rock layer D are older than those in layer A.**
- D) The fossils in rock layer B are older than those in layer C.

14. The fossil record of ancient life forms provides scientific evidence of

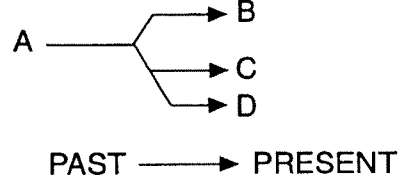
- A) direct harvesting
- B) selective breeding
- C) gene manipulation
- D) **evolutionary changes**

15. According to the interpretation of the fossil record by many scientists, during which time interval shown on the time line below did increasingly complex multicellular organisms appear on Earth?



- A) A to B
- B) B to C
- C) C to D
- D) **D to E**

16. In the diagram below, B, C, and D represent organisms that exist in the present time and show a striking similarity to each other in their bone structure.



In the diagram, letter A most likely represents

- A) homologous structures
- B) **a common ancestor**
- C) an acquired characteristic
- D) geographic distribution





17. Fossil records indicate that between 80 million and 60 million years ago the structure of the horned dinosaur frequently underwent rapid changes separated by long periods of stability. This pattern of change best illustrates the concept of

- A) use and disuse
- B) **punctuated equilibrium**
- C) gradualism
- D) enzyme specificity

18. Which population of organisms would be in greatest danger of becoming extinct?

- A) A population of organisms having few variations living in a stable environment.
- B) **A population of organisms having few variations living in an unstable environment.**
- C) A population of organisms having many variations living in a stable environment.
- D) A population of organisms having many variations living in an unstable environment.

19. Information related to the organisms found on Earth during various geological time periods is represented in the chart below.

Common Organisms				
	4.6 (?) Billion Years Ago	600 Million Years Ago	200 Million Years Ago	60 Million Years Ago
	<b>Precambrian</b> (Simple Multicellular Organisms and First Protists)	<b>Paleozoic</b> (Age of Amphibians, Fishes, and Invertebrates)	<b>Mesozoic</b> (Age of Reptiles)	<b>Cenozoic</b> (Age of Mammals)
	Past <span style="display: inline-block; width: 100px; border-bottom: 1px solid black;"></span> → Present Geologic Time			

Which statement concerning the first appearance of the organisms over the time period represented in this chart is most likely correct?

- A) Life on Earth has remained the same.
- B) Life on Earth has changed from primitive organisms to more complex organisms.**
- C) Life on Earth began with complex organisms and changed to more complex organisms.
- D) Life on Earth has changed rapidly.

20. Which factor contributed most to the extinction of many species?

- A) changes in the environment**
- B) lethal mutations
- C) inability to evolve into simple organisms
- D) changes in migration patterns