Geologic Time Study Guide

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. The major divisions in geologic time are _____.
   a. centuries  
   b. epochs  
   c. eons  
   d. periods  

2. Ediacaran organisms first appeared during the _____.
   a. Precambrian Time  
   b. Cambrian Period  
   c. Permian Period  
   d. none of these  

3. Species of ____ existed during the Mesozoic Era.
   a. birds  
   b. mammals  
   c. both a and b  
   d. neither a nor b  

4. Today, many scientists think that _____.
   a. dinosaurs evolved from reptiles  
   b. birds evolved from dinosaurs  
   c. birds evolved from amphibians  
   d. both a and b  

5. Geologic time is divided into units based on _____.
   a. geologic changes  
   b. fossils and rocks  
   c. types of life-forms living during certain periods  
   d. all of these  

6. Plate tectonics may affect changes in species because movement of plates causes a change in _____.
   a. climates  
   b. Earth’s surface  
   c. the environment  
   d. all of these  

7. The end of the Paleozoic Era might have involved _____.
   a. the development of humans  
   b. mass extinctions of land and sea animals  
   c. the appearance of marine animals with hard parts  
   d. both a and b  

8. A trilobite with no eyes was best adapted for life _____.
   a. on land  
   b. deeper than light could penetrate  
   c. as an active swimmer  
   d. near the water’s surface  

9. Plate tectonics during the Mesozoic Era caused _____.
   a. human life to form  
   b. Pangaea to separate  
   c. Pangaea to form  
   d. dinosaurs to become extinct  

10. Life-forms that first appeared in the Cenozoic Era include _____.
    a. reptiles  
    b. mammals  
    c. humans  
    d. all of these  

11. A life-form that evolved during the Mesozoic Era was the _____.
    a. human  
    b. reptile  
    c. cyanobacteria  
    d. dinosaur
12. Trilobites can be used to study the passage of geologic time because ____.
   a. their physical features changed through time
   b. they burrowed into sediments
   c. they lived in the oceans
   d. they lived throughout the Paleozoic Era

13. The development of ozone in the stratosphere and oxygen in the atmosphere first made possible the development of ____.
   a. complex organisms
   b. single-cell organisms
   c. cyanobacteria
   d. all of these

14. A life-form that evolved during the Paleozoic Era was ____.
   a. reptiles
   b. cyanobacteria
   c. dinosaurs
   d. humans

15. Large mammals of the Cenozoic Era may have become extinct because of activity by ____.
   a. volcanoes
   b. plate tectonics
   c. humans
   d. all of these

16. As ____ evolved, they changed Earth’s atmosphere by producing oxygen.
   a. cyanobacteria
   b. dinosaurs
   c. reptiles
   d. trilobites

17. Humans appeared in the ____ Era.
   a. Paleozoic
   b. Devonian
   c. Cenozoic
   d. Mesozoic

18. Changes in the exoskeleton of trilobites probably occurred because of ____.
   a. changing environments
   b. geographic isolation
   c. the competition for survival
   d. all of these

Matching

Match each term with the correct statement below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>fossils</td>
<td>ab. uniformitarianism</td>
</tr>
<tr>
<td>mold</td>
<td>ac. carbon</td>
</tr>
<tr>
<td>original remains</td>
<td>ad. half-life</td>
</tr>
<tr>
<td>radiometric</td>
<td>ae. unconformities</td>
</tr>
<tr>
<td>absolute dating</td>
<td>bc. radioactive</td>
</tr>
</tbody>
</table>

19. Element found in tissues of most organisms
20. Remains, imprints, or traces of once-living organisms
21. Kind of decay that results in the formation of a different element
22. Time it takes for half of the atoms in a radioactive element to decay
23. Actual organism or parts of organism protected from decay
24. Principle stating that Earth’s processes occurring today are similar to those that occurred in the past
25. Cavity left in rock by a decayed organism
26. Method using properties of atoms in rocks and other objects to determine their ages
27. Gaps found in rock records
28. Method of dating rocks when the amounts of parent and daughter materials are measured
Match the items with the correct descriptions below.

a. amphibians           ac. cyanobacteria       ad. species
b. reptiles             ae. vertebrates

c. natural selection     af. index fossil     
d. invertebrates         ae. angiosperms

e. geologic time scale   bd. gymnosperms

29. division of Earth’s history into smaller units
30. animals that live on land but return to water to reproduce
31. organism used to identify specific geologic time period
32. process by which organisms with traits that are suited to a certain environment survive whereas others do not
33. group of organisms that normally reproduce only among themselves
34. naked seed plant
35. animals without a backbone
36. among the earliest life-forms on Earth
37. flowering plants
38. animals with a backbone
39. animals evolved from a species of amphibians

Match each term with the correct description below.

a. cast                       ad. mold
b. carbonaceous film          ae. radioactive decay

c. index fossils              bc. relative dating

d. fossil                     bd. unconformities

e. half-life                  be. radiometric dating

ab. principle of superposition cd. uniformitarianism

ac. absolute dating           ce. permineralized remains

40. method by which a geologist can calculate the absolute age of the rock by knowing the half-life of an isotope
41. remains, imprints, or traces of once-living organisms
42. process that occurs when the number of protons in an atom is changed and a new element is formed
43. time it takes for half of an isotope’s atoms to decay
44. method by which order of events or age of rocks is determined by examining the position of rocks in a layer
45. gaps in rock records made when agents of erosion remove existing rock layers
46. process that uses the properties of atoms in rocks and other objects to determine their ages
47. formed when original materials in skeletal remains are replaced by minerals
48. states that in a sequence of undisturbed rocks, the oldest rocks are on the bottom and the rocks become progressively younger toward the top
49. fossil of thin layer of carbon atoms and molecules
50. principle that Earth’s processes occurring today are similar to those that occurred in the past
51. fossils of species that existed for short periods and were widespread
52. produced when sediments fill in a cavity made when an object decayed
53. cavity in rock made when an organism decayed
Modified True/False

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

54. A fossil may tell a geologist when, where, and how an organism lived. _______________________

55. Only a radioactive isotope will have a half-life. _______________________

56. The soft parts of organisms are most likely to become fossils. ______ hard

57. Preserved animal tracks are trace fossils. _______________________

58. Any fossil can be dated by the amount of carbon-14 it contains. only fossils up to 35,000 yr old

59. A permineralized bone is composed of calcium. ______ a mineral