

Earth System History, 4th Edition, by Steven M. Stanley and John A. Luczaj

Test Bank, Chapter 01

1. Actualism is the
- A) idea that the geological record provides a unique perspective on human activities.
 - B) study of how large meteors have struck the Earth over time and thus caused mass extinctions of life.
 - C) notion that fundamental physical principles operating today have done so throughout Earth's history.
 - D) study of ripples in sand made by water and air movements, and how those features are always different from the ones made by water and air long ago.

Ans: C

2. The concept or philosophy of uniformitarianism is commonly summarized by saying
- A) catastrophic forces dominate Earth's geological history.
 - B) conditions existing today cannot form rocks as in the past.
 - C) rocks cannot be made in the laboratory.
 - D) the present is the key to the past.

Ans: D

3. We can use the principle of actualism if
- A) the rocks in question formed under conditions that no longer exist.
 - B) we can simulate or replicate the conditions under which a rock formed.
 - C) we know that the conditions responsible for the formation of these rocks still exist, but at such great depths beneath Earth's surface that we cannot observe them.
 - D) the conditions exist today, but produce the rocks over a long interval of geologic time.

Ans: B

4. Catastrophism is a
- A) principle very similar to actualism and uniformitarianism.
 - B) theory advanced first by a Scottish gentleman farmer named James Hutton and expounded upon by the English naturalist and author Charles Lyell.
 - C) nineteenth-century concept that floods caused by supernatural forces formed most of the rocks that we see today on Earth's surface today.
 - D) twentieth-century philosophy about the formation of volcanic rocks.

Ans: C

5. Central to Hutton's view of Earth's history was

- A) vast geologic time.
- B) catastrophism.
- C) volcanism.
- D) supernatural floods.

Ans: A

6. Charles Lyell was NOT

- A) the author of *Principles of Geology*, a popular 1830s geology text.
- B) an advocate of ideas similar to James Hutton's regarding Earth's history.
- C) an advocate of gradual forces in Earth's history.
- D) a German professor of mineralogy who promoted catastrophism.

Ans: D

7. A mineral is

- A) either extrusive or intrusive.
- B) interlocking or bonded grains of matter.
- C) a naturally occurring inorganic solid element or compound.
- D) formed mainly of sand grains that are cemented together.

Ans: C

8. _____ form by the cooling of molten material to the temperature at which the molten material hardens or freezes.

- A) Magmas
- B) Igneous rocks
- C) Minerals
- D) Sedimentary rocks

Ans: B

9. _____ is the collective term for the chemical and physical processes that break down rocks of any kind at Earth's surface.

- A) Weathering
- B) Sediment
- C) Erosion
- D) Lithification

Ans: A

10. In the sedimentary debris generated by the breakdown of preexisting rocks, the most common grains are

- A) bits of broken sea shells.
- B) particles of sand and clay.
- C) salts precipitated from seawater.
- D) clay minerals derived from feldspars.

Ans: B

11. Sedimentary rocks made of the fragments of skeletons of once-living organisms are called

- A) shale.
- B) limestone.
- C) sandstone.
- D) crystalline rock.

Ans: B

12. The arrangement of sedimentary rocks in discrete layers is called

- A) metamorphism.
- B) lithification.
- C) cementation.
- D) stratification.

Ans: D

13. A _____ is a discrete body of rock of a particular type that formed in a particular way.

- A) group
- B) supergroup
- C) formation
- D) member

Ans: C

14. Steno's second principle says that

- A) the laws of nature are inviolable and have not changed with time.
- B) originally, all strata are horizontal when they form.
- C) the oldest strata lie at the bottom of a succession of layers and that successively higher strata are progressively younger.
- D) similar rocks that seem once to have been connected usually are.

Ans: B

15. The principle of cross-cutting relationships states that
- A) intrusive igneous rock is always younger than the rock it invades.
 - B) any structure, such as a fault, that cuts through a sequence of preexisting rocks must be younger than the host rocks.
 - C) fragments of one body of rock are found within another body of rock.
 - D) rock may be melted to form magma that later cools to form intrusive igneous rock.
- Ans: B
16. The natural ordering known as fossil succession
- A) cannot be used to establish the relative age of rocks that lie far apart.
 - B) was one of the few things that eighteenth-century surveyor William Smith did not notice about the fossils he collected.
 - C) reflects the sequence of organic evolution and extinction through time.
 - D) has to do with the characteristics of trilobites from the Early, Middle, and Late Cambrian Periods.
- Ans: C
17. Naturally occurring radioactive materials
- A) decay into other materials at variable rates.
 - B) provide us with good estimates of the actual ages of ancient rocks.
 - C) are produced annually, like similar to rings in a tree trunk.
 - D) establish relative ages of rocks on a global scale, but only in rocks with abundant fossils.
- Ans: B
18. Eras are divided into formal units called
- A) eras.
 - B) epochs.
 - C) periods.
 - D) ages.
- Ans: C
19. Which of the following is NOT an era in the Phanerozoic?
- A) Cenozoic
 - B) Mesozoic
 - C) Paleozoic
 - D) Proterozoic
- Ans: D

20. The thickest chalk deposits in the world are found in which geological system?

- A) Cambrian
- B) Carboniferous
- C) Cretaceous
- D) Triassic

Ans: C

21. The body of rock recognized in 1835 as representing the oldest system in what we call today the Phanerozoic is called

- A) Devonian.
- B) Silurian.
- C) Ordovician.
- D) Cambrian.

Ans: D

22. An earthquake always begins at

- A) the Moho.
- B) a focus.
- C) the base of the Earth's crust.
- D) the top of the Earth's mantle.

Ans: B

23. Ultramafic rocks make up Earth's

- A) continental crust.
- B) oceanic crust.
- C) mantle.
- D) core.

Ans: C

24. _____ is the process in which material that is heated deep within the asthenosphere rises to displace cooler, less dense material near the surface.

- A) Convection
- B) Subduction
- C) Mountain building
- D) Divergence

Ans: A

25. The location of the most powerful earthquakes that occur deep within the Earth is

- A) at the Mid-Atlantic ridge.
- B) on the western edge of Africa.
- C) on the western edge of South America.
- D) on the eastern edge of Africa.

Ans: C

26. The largest reservoir for water on Earth is in

- A) glaciers and ground ice.
- B) groundwater (both saline and fresh).
- C) oceans.
- D) Earth's atmosphere.

Ans: C

27. Darwin provided evidence that showed life has evolved even without

- A) changes in the physical environment.
- B) the vast span of geological time.
- C) any process akin to organic evolution.
- D) preservation of the sequence of parent and descendant species in the rock record.

Ans: A

28. An ecosystem is

- A) a cyclical change in Earth's history.
- B) the direction and the nature of change in Earth's history.
- C) an environment and the organisms within it.
- D) a group of fossil organisms.

Ans: C

29. Which phrase below does NOT best describe the whole stratigraphic record?

- A) Sedimentation can occur in pulses.
- B) It displays evidence of episodic deposition.
- C) Deposition can be catastrophic.
- D) It contains few, if any, gaps in sedimentation.

Ans: D

30. A type of unconformity, with eroded crystalline rock below it, is called a
- A) disconformity.
 - B) nonconformity.
 - C) angular unconformity.
 - D) mass extinction.
- Ans: B