

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

Test Bank, Chapter 02

1. Silicon has an atomic number of 14, meaning that all atoms of silicon have

- A) 14 nuclei.
- B) 14 neutrons.
- C) 14 protons.
- D) 14 electrons.

Ans: C

2. The radioactive isotope of carbon is

- A) carbon 15.
- B) carbon 14.
- C) carbon 13.
- D) carbon 12.

Ans: B

3. _____ consist of a unique kind of atom.

- A) Chemical elements
- B) Atomic masses
- C) Molecules
- D) Chemical compounds

Ans: A

4. Ionic bonding occurs in

- A) seawater.
- B) halite.
- C) diamond.
- D) graphite.

Ans: B

5. _____ precipitates directly from seawater as tiny needle-like crystals, which accumulate on the shallow sea floor as _____.

- A) Calcite; calcite crystals
- B) Halite; evaporite minerals
- C) Aragonite; carbonate mud
- D) Calcite; coral skeletons

Ans: C

6. In some places, the strontium ion substitutes for the _____ ion within the calcium carbonate crystal structure.

- A) sodium
- B) calcium
- C) chlorine
- D) carbon

Ans: B

7. In the atomic structure of diamond, each carbon atom is covalently bonded with _____ other carbon atom(s) in the diamond structure shown.

- A) four
- B) three
- C) two
- D) one

Ans: A

8. The outermost shell of the chlorine atom, prior to bonding with sodium to form a common mineral (NaCl), contains how many electrons?

- A) 8
- B) 7
- C) 6
- D) 5

Ans: B

9. Minerals containing the complex ion SO_4^{2-} are called

- A) sulfides.
- B) sulfates.
- C) oxides.
- D) silicates.

Ans: B

10. Of the major mineral groups, the one that is dominant in all igneous, sedimentary, and metamorphic rocks is called

- A) sulfates.
- B) carbonates.
- C) silicates.
- D) sulfides.

Ans: C

11. Dolomite resembles calcite in many ways, but in approximately half of the sites where there could be calcium ions in dolomite's crystal structure, there is instead a(n) _____ ion.

- A) magnesium
- B) iron
- C) strontium
- D) carbon

Ans: A

12. Hematite is an example of the major mineral group called

- A) sulfates.
- B) carbonates.
- C) silicates.
- D) oxides.

Ans: D

13. _____ is a kind of igneous rock that is high in silica and contains two types of feldspars.

- A) Granite
- B) Gabbro
- C) Felsic
- D) Basalt

Ans: A

14. Coarse grain size (or crystal size) is usually found in

- A) flood basalts.
- B) pillow lavas.
- C) plutons.
- D) tuffs.

Ans: C

15. Mud is a mixture of

- A) sand and silt.
- B) silt and clay.
- C) pebbles and sand.
- D) pebbles and cobbles.

Ans: B

16. A sedimentary particle that is 1/128 millimeter in diameter is classified as
- A) clay.
 - B) silt.
 - C) sand.
 - D) pebble.
- Ans: C
17. Of the siliciclastic rocks that have mainly sand-sized grains, the one with at least 25% percent feldspar sand grains is called
- A) arkose.
 - B) breccia.
 - C) graywacke.
 - D) lithic sandstone.
- Ans: A
18. The main chemical process that occurs during lithification is called
- A) compaction.
 - B) cementation.
 - C) weathering.
 - D) evaporation.
- Ans: B
19. Chert can form by biogenic processes (for example, as deposits from silica-rich solutions moving through rock) or by the process of
- A) evaporation of seawater.
 - B) direct precipitation from seawater.
 - C) compaction and cementation.
 - D) Native Americans making arrowheads.
- Ans: B
20. _____ are sediments consisting of nearly spherical grains, which grow in modern seas by rolling around and accumulating aragonite needles on their surfaces.
- A) Oolites
 - B) Ooids
 - C) Cherts
 - D) Coals
- Ans: A

21. What sedimentary structure formed on a beach and is (are) produced by wave motion in water that oscillates back and forth?

- A) Cross-bedding
- B) Ripples
- C) Mudcracks
- D) Graded beds

Ans: B

22. The average direction of the slope of _____ indicates the general direction of prevailing winds when ancient sands were deposited, thus forming a sand dune.

- A) mudcracks
- B) cross-bedding
- C) graded beds
- D) ripples

Ans: B

23. This sedimentary structure formed when sediments were exposed to air.

- A) Graded bed
- B) Mudcracks
- C) Cross-bedding
- D) Ripples

Ans: B

24. _____ is the word used to indicate the levels of temperature and pressure of metamorphism.

- A) Thermometer
- B) Barometer
- C) Assemblage
- D) Grade

Ans: D

25. The mica-like, green mineral chlorite occurs primarily in

- A) schist.
- B) marble.
- C) gneiss.
- D) slate.

Ans: A

26. The form of metamorphism that is most closely associated with the heat or “baking” resulting from an igneous intrusions is

- A) a fault-zone.
- B) regional.
- C) hydrothermal.
- D) contact.

Ans: D

27. When an asteroid strikes the Earth, rocks that border the impact crater are affected by _____ metamorphism.

- A) contact
- B) shock
- C) regional
- D) fault-zone

Ans: B

28. The type of metamorphism associated with the percolation of hot watery fluids through rock is called

- A) contact.
- B) hydrothermal.
- C) burial.
- D) shock.

Ans: D

29. Banded iron formations are complex rocks that consist of

- A) oxides, sulfides, or carbonates of iron interlayered with thin beds of chert.
- B) interlayered thin beds of calcite and aragonite, and beds of chert.
- C) interlayered beds of limestone and dolostone, and beds of chert.
- D) thin beds of chemical and biogenic sediments, which are interlayered with chert.

Ans: A

30. An igneous rock that forms under water is called

- A) pumice.
- B) flood basalt.
- C) pillow basalt.
- D) tuff.

Ans: C