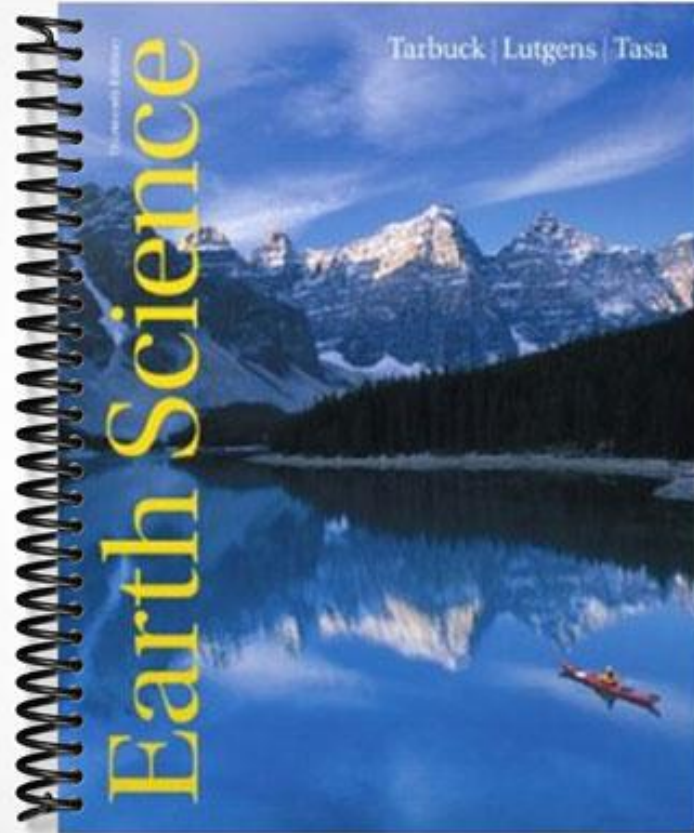


**TEST BANK**



**Earth Science, 13e (Tarbuck)**

**Chapter 2 Minerals: Building Blocks of Rocks**

1) Which of the following best defines a mineral and a rock?

A) A rock has an orderly, repetitive, geometrical, internal arrangement of minerals; a mineral is a lithified or consolidated aggregate of rocks.

B) A mineral consists of its constituent atoms arranged in a geometrically repetitive structure; in a rock, the atoms are randomly bonded without any geometric pattern.

C) In a mineral the constituent atoms are bonded in a regular, repetitive, internal structure; a rock is a lithified or consolidated aggregate of different mineral grains.

D) A rock consists of atoms bonded in a regular, geometrically predictable arrangement; a mineral is a consolidated aggregate of different rock particles.

Answer: C

Diff: 1

Topic: 2.1 Minerals: Building Blocks of Rocks

Bloom's: Remembering

2) Which of the following is NOT a fundamental particle found in atoms?

A) neutron

B) selectron

C) electron

D) protons

Answer: B

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Remembering

3) Atoms of the same element, zinc for example, have the same number of \_\_\_\_\_.

A) electrons in the nucleus

B) protons in the nucleus

C) neutrons in the outer nuclear shell

D) electrons in the valence bond level

Answer: B

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Remembering

4) Atoms that have an electrical charge due to a gain or loss of electrons are called \_\_\_\_\_.

A) isotopes

B) ions

C) isochrons

D) periodic elements

Answer: B

Diff: 1

Topic: 2.3 Why Atoms Bond

Bloom's: Remembering

5) Which of the following is correct for isotopes of the same element?

- A) The atoms have different numbers of protons and the same number of neutrons.
- B) The atoms have the same number of electrons and different numbers of protons.
- C) The atoms have different numbers of neutrons and the same number of protons.
- D) The atoms have different numbers of electrons but the same number of neutrons.

Answer: C

Diff: 1

Topic: 2.4 Isotopes and Radioactive Decay

Bloom's: Analyzing

6) What mineral is the hardest known substance in nature?

- A) silicate
- B) native gold
- C) diamond
- D) muscovite

Answer: C

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

7) Which mineral reacts readily with cool, dilute hydrochloric acid to produce visible bubbles of carbon dioxide gas?

- A) calcite
- B) quartz
- C) gypsum
- D) plagioclase

Answer: A

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

8) Which common mineral is composed entirely of silicon and oxygen?

- A) calcite
- B) diamond
- C) olivine
- D) quartz

Answer: D

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

9) Which of the following minerals is a silicate?

- A) hematite
- B) feldspar
- C) calcite
- D) halite

Answer: B

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

10) A cubic centimeter of quartz, olivine, and gold weighs 2.5, 3.0, and 19.8 grams respectively.

This indicates that \_\_\_\_\_.

- A) gold has a higher density and specific gravity than quartz and olivine
- B) gold is 6 to 7 times harder than olivine and quartz
- C) gold and olivine are silicates, whereas quartz is elemental silicon
- D) olivine and quartz powders are harder than metallic gold

Answer: A

Diff: 2

Topic: 2.5 Properties of Minerals

Bloom's: Applying

11) Which one of the following mineral groups exhibits a sheet-like silicate structure?

- A) carbonates
- B) pyroxenes
- C) micas
- D) feldspars

Answer: C

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

12) The ion at the center of a silicon-oxygen tetrahedron is surrounded by \_\_\_\_\_.

- A) four oxygen ions
- B) six oxygen ions
- C) four sodium ions
- D) six sodium ions

Answer: A

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

13) The resistance of a mineral to abrasion is known as \_\_\_\_\_.

- A) luster
- B) cleavage
- C) streak
- D) hardness

Answer: D

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

14) All silicate minerals contain which two elements?

- A) iron, silicon
- B) silicon, sodium
- C) oxygen, carbon
- D) silicon, oxygen

Answer: D

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

15) Which mineral has water bound into its structure?

- A) diamond
- B) talc
- C) gypsum
- D) olivine

Answer: C

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

16) What element is the most abundant in the Earth's crust by weight?

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

Answer: C

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

17) The strong tendency of certain minerals to break along smooth, parallel planes is known as \_\_\_\_\_.

- A) streak
- B) cleavage
- C) cracking luster
- D) habit

Answer: B

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

18) An atom's mass number is 13 and its atomic number is 6. How many neutrons are in its nucleus?

- A) 19
- B) 7
- C) 13
- D) 6

Answer: B

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Applying

19) Which one of the following is NOT true for minerals?

- A) They have a specific, internal, crystalline structure.
- B) They can be a liquid, solid, or glass.
- C) Many have a specific, predictable chemical composition.
- D) They can be identified by characteristic physical properties.

Answer: B

Diff: 1

Topic: 2.1 Minerals: Building Blocks of Rocks

Bloom's: Analyzing

20) Which group of minerals are the most abundant in the Earth's crust?

- A) sulfides
- B) carbonates
- C) silicates
- D) halides

Answer: C

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

21) Which the following denotes the positively charged particles in an atom's nucleus?

- A) protons
- B) electrons
- C) isotrons
- D) neutrons

Answer: A

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Remembering

22) Which of the following has the highest specific gravity?

- A) wood
- B) water
- C) gold
- D) quartz

Answer: C

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Applying

23) Which of the following describes the light reflecting and transmission characteristics of a mineral?

- A) luster
- B) color streak
- C) virtual absorption
- D) fluorescence

Answer: A

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

24) The most unreliable (variable) diagnostic property of minerals such as quartz is \_\_\_\_\_.

- A) hardness
- B) habit
- C) specific gravity
- D) color

Answer: D

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

25) Which of the following is NOT one of the eight most common elements in the Earth's crust?

- A) carbon
- B) potassium
- C) aluminum
- D) calcium

Answer: A

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

26) A naturally occurring concentration of one or more metallic minerals that can be extracted economically is a(n) \_\_\_\_\_.

- A) reserve
- B) ore
- C) resource
- D) tailing

Answer: B

Diff: 1

Topic: 2.7 Natural Resources

Bloom's: Remembering

**Word Analysis.** Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option which does not fit the pattern.

27) electron            atom            proton            neutron

Answer: atom

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Analyzing

28) hardness            fracture            luster            cleavage

Answer: luster

Diff: 2

Topic: 2.5 Properties of Minerals

Bloom's: Analyzing

29) quartz            olivine            feldspar            calcite

Answer: calcite

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Analyzing



30) oxygen sulfur aluminum iron

Answer: sulfur

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Analyzing

31) All minerals exhibit cleavage.

Answer: FALSE

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Analyzing

32) Rocks are aggregates of minerals.

Answer: TRUE

Diff: 1

Topic: 2.1 Minerals: Building Blocks of Rocks

Bloom's: Analyzing

33) Mineral luster is broadly classified as either being metallic or opaque.

Answer: FALSE

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Analyzing

34) Electrically neutral atoms have equal numbers of electrons and protons.

Answer: TRUE

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Analyzing

35) Most minerals have a higher specific gravity than water.

Answer: TRUE

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Analyzing

36) In the silicon-oxygen tetrahedron, there are more silicon atoms than oxygen atoms.

Answer: FALSE

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Analyzing

37) More than 100 elements are currently known.

Answer: TRUE

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Analyzing

38) All atoms of the same element have the same atomic number.

Answer: TRUE

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Analyzing

39) A mineral can be composed entirely of one element.

Answer: TRUE

Diff: 1

Topic: 2.1 Minerals: Building Blocks of Rocks

Bloom's: Analyzing

40) Diamond and quartz are both minerals composed of a single element.

Answer: FALSE

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Analyzing

41) The micas, biotite and muscovite, both exhibit one direction of cleavage.

Answer: TRUE

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Analyzing

42) Nonmetallic minerals like halite and gypsum have no industrial uses.

Answer: FALSE

Diff: 1

Topic: 2.7 Natural Resources

Bloom's: Analyzing

43) Nearly 4000 minerals have been named.

Answer: TRUE

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Analyzing

44) Isotopes of the same element have the same mass number.

Answer: FALSE

Diff: 1

Topic: 2.4 Isotopes and Radioactive Decay

Bloom's: Analyzing

45) Moh's hardness scale is a relative measure of which physical property of minerals?

Answer: hardness

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

46) What physical property denotes the color of a powdered mineral?

Answer: streak

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

47) The physical property denoting a mineral's tendency to crack along parallel, planar surfaces is known as \_\_\_\_\_.

Answer: cleavage

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

48) What is the hardest mineral known?

Answer: diamond

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

49) A compound is a stable chemical substance composed of two or more \_\_\_\_\_.

Answer: elements

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Remembering

50) Most glasses and some minerals exhibit a type of fracture characterized by nested and curved crack surfaces. What term describes this property?

Answer: conchoidal

Diff: 1

Topic: 2.5 Properties of Minerals

Bloom's: Remembering

51) What is the smallest particle of matter that exhibits and defines the distinctive chemical characteristics of the individual elements?

Answer: atom

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Remembering

52) An aggregate minerals is called a(n) \_\_\_\_\_.

Answer: rock

Diff: 1

Topic: 2.1 Minerals: Building Blocks of Rocks

Bloom's: Remembering

53) The central region of an atom is called the \_\_\_\_\_.

Answer: nucleus

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Remembering

54) The two most abundant elements found in Earth's crust are \_\_\_\_\_ and \_\_\_\_\_.

Answer: oxygen, silicon

Diff: 1

Topic: 2.6 Mineral Groups

Bloom's: Remembering

**Critical Thinking and Discussion.** Use complete sentences, correct spelling, and the information presented in Chapter 2 to answer the questions below.

55) Overall, the physical properties of minerals provide a reliable means to identify common minerals. However, certain properties can exhibit a range of characteristics or values making them less useful for identification purposes. Choose three physical properties that might vary considerably between samples of the same mineral and explain why such variability might exist.

Diff: 2

Topic: 2.5 Properties of Minerals

Bloom's: Applying

56) Using the information from Table 2.1 in the text, identify five different materials that you encounter or use on a daily basis and give a possible mineral that could be mined to supply those materials. Can you think of any other considerations other than economic that might prohibit or limit the mining of certain minerals?

Diff: 2

Topic: 2.6 Mineral Groups

Bloom's: Applying

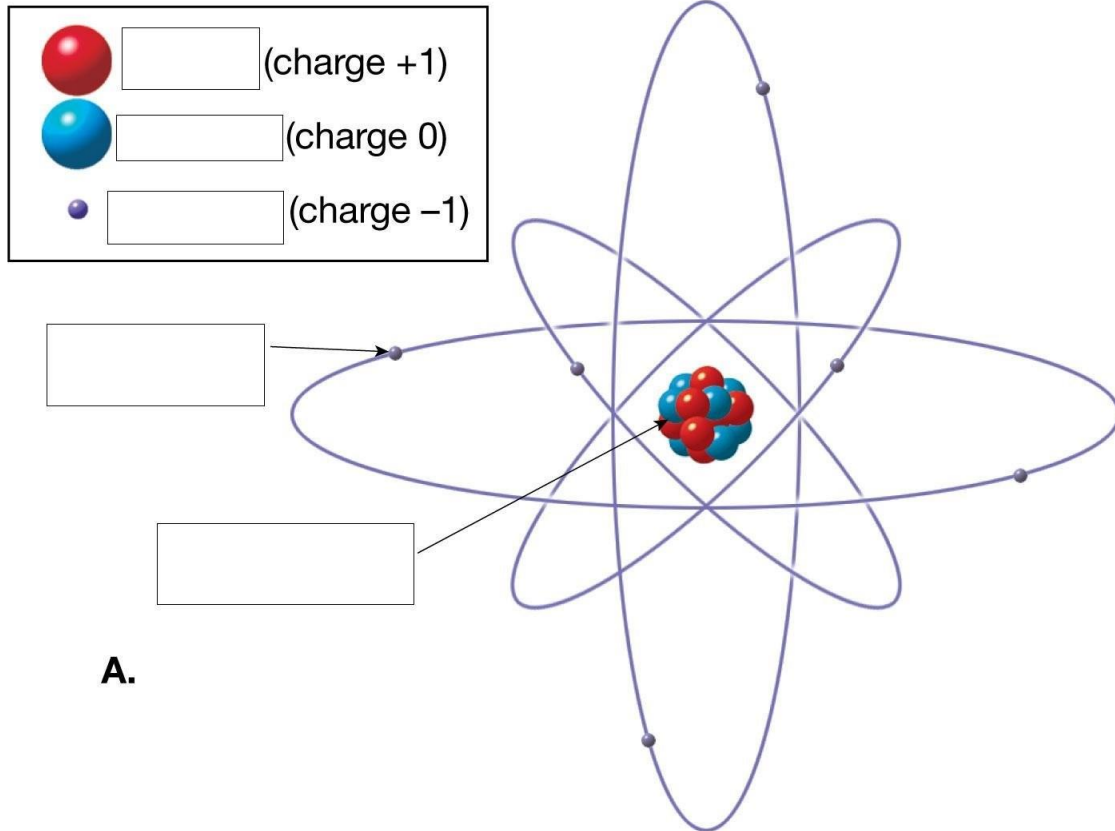
57) Why are most rock-forming minerals silicates? Also, considering the composition of Earth's crust, do all of the nonsilicate mineral groups make sense chemically? Why or why not?

Diff: 2

Topic: 2.6 Mineral Groups

Bloom's: Analyzing and Remembering

58) Label the various parts of an atom in the diagram below.



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Answer: See Figure 2.4 A in Chapter 2 of *Earth Science*, 13e.

Diff: 1

Topic: 2.2 Atoms: Building Blocks of Minerals

Bloom's: Applying