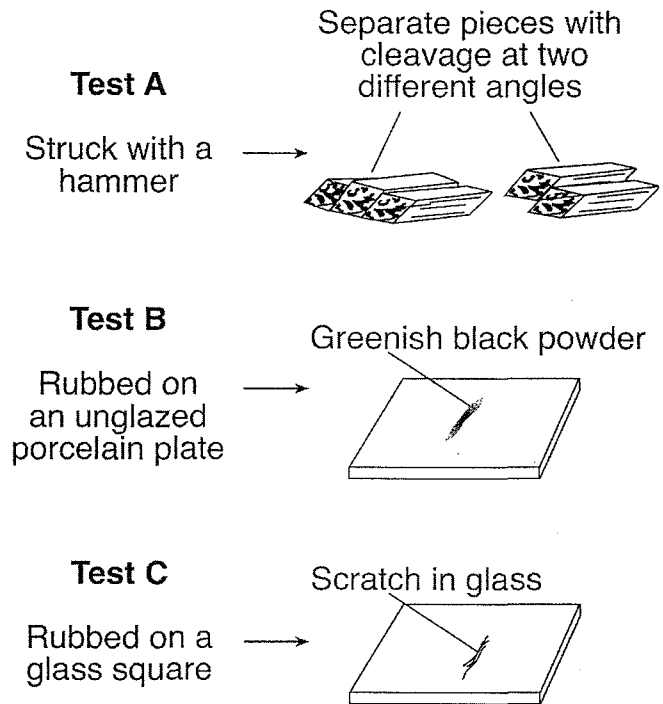


## PRACTICE

- Silicate minerals contain the elements silicon and oxygen. Which list contains only silicate materials?
  - graphite, talc, and selenite gypsum
  - potassium feldspar, quartz, and amphibole
  - calcite, dolomite, and pyroxene
  - biotite mica, fluorite, and garnet
- Which mineral is the major component of drywall?
  - talc
  - calcite
  - muscovite mica
  - selenite gypsum
- The internal atomic structure of a mineral most likely determines the mineral's
  - color, streak, and age
  - origin, exposure, and fracture
  - size, location, and luster
  - hardness, cleavage, and crystal shape
- Which mineral has a hardness of 6, and shows cleavage?
  - Olivine
  - Talc
  - Hematite
  - Potassium Feldspar
- Which mineral is an ore of iron and has a characteristic reddish brown streak?
  - magnetite
  - pyrite
  - hematite
  - olivine
- Which of the following elements is not found in Plagioclase Feldspar?
  - Na
  - Al
  - Si
  - Pb

Base your answers to questions 7 and 8 on the diagram below, which shows the results of three different physical tests, A, B, and C, that were performed on a mineral.



- The luster of this mineral could be determined by
    - using an electronic balance
    - using a graduated cylinder
    - observing how light reflects from the surface of the mineral
    - observing what happens when acid is placed on the mineral
  - Which mineral was tested?
    - amphibole
    - quartz
    - galena
    - graphite
-

## PRACTICE

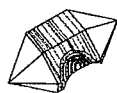
9. The table below shows some properties of four different minerals.

Mineral Variety	Color	Hardness	Luster	Composition
flint	black	7	nonmetallic	SiO <sub>2</sub>
chert	gray, brown, or yellow	7	nonmetallic	SiO <sub>2</sub>
jasper	red	7	nonmetallic	SiO <sub>2</sub>
chalcedony	white or light color	7	nonmetallic	SiO <sub>2</sub>

The minerals listed in the table are varieties of which mineral?

- 1) garnet                      2) magnetite                      3) quartz                      4) olivine

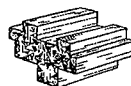
10. The diagram below shows four mineral samples, each having approximately the same mass.



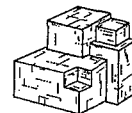
Quartz



Amphibole



Pyroxene

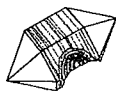


Galena

If all four samples are placed together in a closed, dry container and shaken vigorously for 10 minutes, which mineral sample would experience the most abrasion (break down or physically weather the most)?

- 1) quartz                      2) amphibole                      3) pyroxene                      4) galena

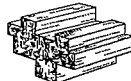
11. The diagram below shows four mineral samples, each having approximately the same mass.



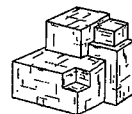
Quartz



Amphibole



Pyroxene



Galena

If all four samples are placed together in a closed, dry container and shaken vigorously for 10 minutes, which mineral sample would experience the most abrasion?

- 1) quartz                      2) amphibole                      3) pyroxene                      4) galena

12. Which mineral property is illustrated by the peeling of muscovite mica into thin, flat sheets?

- 1) luster                      3) hardness  
2) streak                      4) cleavage

13. Which mineral is composed of Calcium and Fluorine?

- 1) Amphiboles                      3) Hematite  
2) Calcite                      4) Fluorite

## PRACTICE

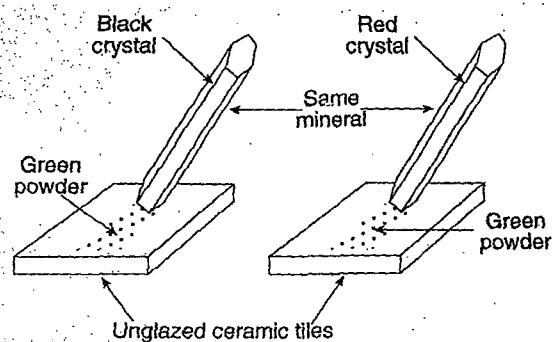
14. Base your answer to the following question on the data table below, which lists some properties of four minerals that are used as ores of zinc (Zn).

Mineral Property	Mineral			
	Smithsonite	Sphalerite	Willemite	Zincite
Composition	ZnCO <sub>3</sub>	ZnS	Zn <sub>2</sub> SiO <sub>4</sub>	ZnO
Hardness	4–4.5	3.5–4	5.5	4
Density (g/cm <sup>3</sup> )	4.4	4.0	4.0	5.6
Color	white, gray, green, blue, yellow	brown, yellow, red, green, black	white, yellow, green, reddish brown, black	deep red to orange yellow
Streak	white	white to yellow to brown	white	orange yellow

Which mineral belongs in the same mineral group as quartz and olivine?

- 1) zincite                      2) willemite                      3) sphalerite                      4) smithsonite

15. The diagram below shows the results of one test for mineral identification.



Which mineral property is being tested?

- 1) density                      3) streak  
2) fracture                      4) luster

16. The relative hardness of a mineral can best be tested by

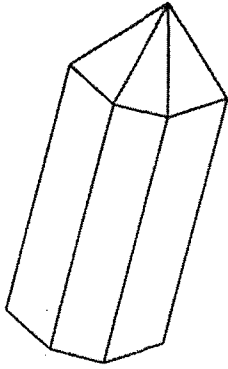
- 1) scratching the mineral across a glass plate
- 2) squeezing the mineral with calibrated pliers
- 3) determining the density of the mineral
- 4) breaking the mineral with a hammer

17. Minerals are identified on the basis of

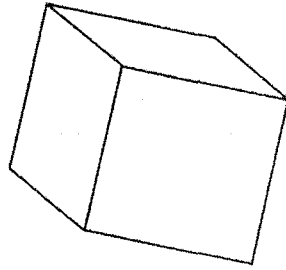
- 1) the method by which they were formed
- 2) the type of rock in which they are found
- 3) the size of their crystals
- 4) their physical and chemical properties

## PRACTICE

18. The diagrams below show the crystal shapes of two minerals.



Quartz



Halite

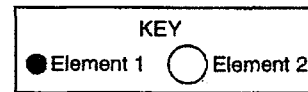
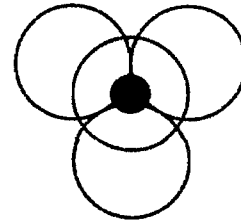
Quartz and halite have different crystal shapes primarily because

- 1) light reflects from crystal surfaces
  - 2) energy is released during crystallization
  - 3) of impurities that produce surface variations
  - 4) of the internal arrangement of the atoms
19. Differences in hardness between minerals are most likely caused by the
- 1) internal arrangement of atoms
  - 2) external arrangement of flat surfaces
  - 3) number of pointed edges
  - 4) number of cleavage planes
20. The physical properties of minerals result from their
- 1) density and color
  - 2) texture and color of streak
  - 3) type of cleavage and hardness
  - 4) internal arrangement of atoms

21. The elements contained in four minerals are given in the table below. The basic structural unit of one of the minerals is also shown. The atom of element 1 is surrounded by four atoms of element 2.

Mineral	Element 1	Element 2
Fluorite	calcium	fluorine
Halite	sodium	chlorine
Quartz	silicon	oxygen
Galena	lead	sulfur

Basic Structural Unit

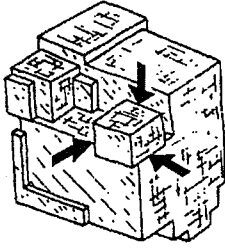


In which mineral are the atoms arranged as shown in the basic structural unit?

- |             |           |
|-------------|-----------|
| 1) fluorite | 3) quartz |
| 2) halite   | 4) galena |
22. Although diamonds and graphite both consist of the element carbon, their physical properties are very different. The most likely explanation for these differences is that
- 1) the internal arrangement of carbon atoms is different in each mineral
  - 2) graphite contains impurities not found in diamonds
  - 3) graphite contains radioactive carbon-14 but diamonds do not
  - 4) diamonds contain silicate tetrahedra but graphite does not

## PRACTICE

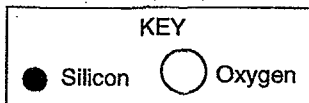
23. The diagram below shows a broken crystal of the mineral halite



The shape of the halite crystal is a direct result of the

- 1) internal arrangement of the atoms in the crystal
- 2) emperature at which the crystal formed
- 3) type of surface on which the crystal formed
- 4) stream erosion that changed the crystal

24. Which diagram best represents the silicon-oxygen tetrahedron of which talc, feldspar, and quartz are composed?



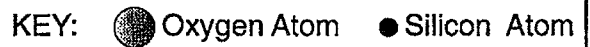
- 1)

3)

2)

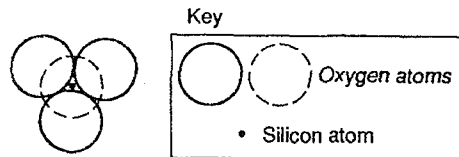
4)

25. Which model best represents the silicon-oxygen tetrahedron?



- 1)
- 2)
- 3)
- 4)

26. The diagram below represents a basic atomic structure that forms when oxygen and silicon unite.

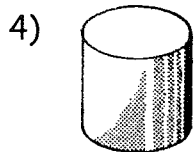
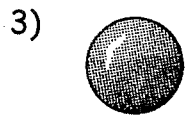
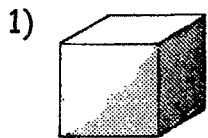


This structure is called a

- |                |             |
|----------------|-------------|
| 1) tetrahedron | 3) sphere   |
| 2) cube        | 4) cylinder |

# PRACTICE

27. Which object is the best model of the shape of a silicon-oxygen structural unit?



PRACTICE  
Answer Key  
[New Exam]

1. 2

2. 4

3. 4

4. 4

5. 3

6. 4

7. 3

8. 1

9. 3

10. 4

11. 4

12. 4

13. 4

14. 2

15. 3

16. 1

17. 4

18. 4

19. 1

20. 4

21. 3

22. 1

23. 1

24. 4

25. 1

26. 1

27. 2

