

*Chemically Formed Sedimentary Rocks* – The chart shows three chemically formed sedimentary rocks: rock salt, rock gypsum and dolostone, having the texture of crystalline – a texture that shows crystals. Each one of them has different mineral compositions, but all are made by the evaporation of water. As water evaporates, the dissolved minerals become concentrated and start to precipitate (released) out of the water settling to the bottom building an evaporate sedimentary rock. This is how salt layers are produced. In the Comments column, are the terms precipitates and evaporates.

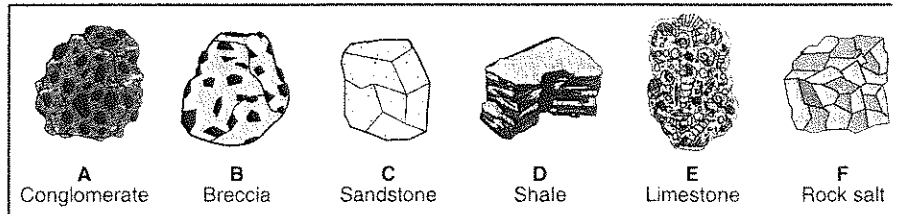
*Organically Formed Sedimentary Rocks* – These rocks were formed from once living material, making a bioclastic texture. Coal is composed of carbon from trees and plant remains. The other given example of a bioclastic texture is limestone. The Comments section for limestone states “Cemented shell fragments..” Shells contain the mineral calcite, which reacts by bubbling when in contact with hydrochloric acid. This is why an acid test is useful in identifying limestone.

**Additional Information:**

Breccia is a type of conglomerate. The difference between breccia and a conglomerate is that breccia shows angular fragments, while a conglomerate has mostly rounded sediments averaging greater than 0.2 mm in size.

**Set 1 — Scheme for Sedimentary Rock Identification**

Base your answers to questions 1 through 3 on the drawings of six sedimentary rocks labeled A through F.



- Most of the rocks shown were formed by
  - volcanic eruptions and crystallization
  - compaction and/or cementation
  - heat and pressure
  - melting and/or solidification 1 \_\_\_\_\_
- Which two rocks are composed primarily of quartz, feldspar, and clay minerals?
  - rock salt and conglomerate
  - rock salt and breccia
  - sandstone and shale
  - sandstone and limestone 2 \_\_\_\_\_

- Which table shows the rocks correctly classified by texture?

(1)

Texture	clastic	bioclastic	crystalline
Rock	A, B, C, D	E	F

(2)

Texture	clastic	bioclastic	crystalline
Rock	A, B, C	D	E, F

(3)

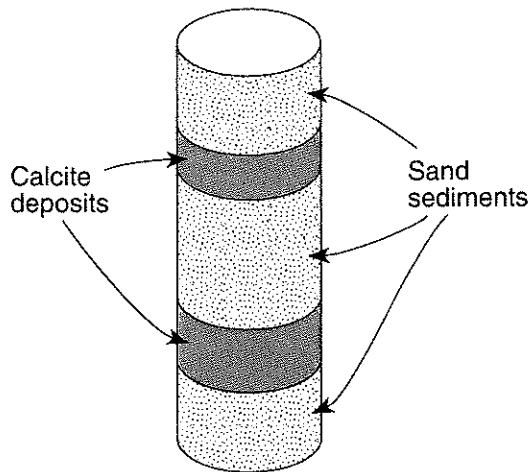
Texture	clastic	bioclastic	crystalline
Rock	A, C	B, E	D, F

(4)

Texture	clastic	bioclastic	crystalline
Rock	A, B, F	E	C, D

3 \_\_\_\_\_

4. The diagram below shows a drill core of sediment that was taken from the bottom of a lake.



Which types of rock would most likely form from compaction and cementation of these sediments?

- (1) sandstone and limestone  
 (2) shale and coal  
 (3) breccia and rock salt  
 (4) conglomerate and siltstone 4 \_\_\_\_\_
5. Which rock was organically formed and sometimes contains fossilized plant impressions?  
 (1) rock gypsum  
 (2) phyllite  
 (3) breccia  
 (4) coal 5 \_\_\_\_\_

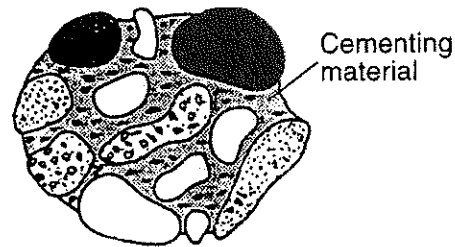
6. Which rock is made up of the largest particles?

- (1) conglomerate  
 (2) sandstone  
 (3) shale  
 (4) rock salt 6 \_\_\_\_\_

7. Which type of rock most likely contains fossils?

- (1) scoria  
 (2) gabbro  
 (3) schist  
 (4) shale 7 \_\_\_\_\_

8. The rounded pebbles of this rock have been cemented together to form



( Actual size )

- (1) granite, an igneous rock  
 (2) conglomerate, a sedimentary rock  
 (3) siltstone, a sedimentary rock  
 (4) gneiss, a metamorphic rock 8 \_\_\_\_\_

9. Give the processes to form a sedimentary rock.
- \_\_\_\_\_

10. What sedimentary rock is made from the cementation and compaction of sediments that are 0.03 cm to 0.1 cm in size? \_\_\_\_\_

## Set 2 — Scheme for Sedimentary Rock Identification

11. Which sedimentary rock may form as a result of biologic processes?

- (1) shale
- (2) siltstone
- (3) fossil limestone
- (4) breccia

11 \_\_\_\_\_

12. Which sedimentary rocks are clastic and consist of particles that have diameters smaller than 0.006 centimeter?

- (1) conglomerate and sandstone
- (2) siltstone and shale
- (3) bituminous coal and breccia
- (4) fossil limestone and chemical limestone

12 \_\_\_\_\_

13. Most rock gypsum is formed by the

- (1) heating of previously existing foliated bedrock
- (2) cooling and solidification of lava
- (3) compaction and cementation of shells and skeletal remains
- (4) chemical precipitation of minerals from seawater

13 \_\_\_\_\_

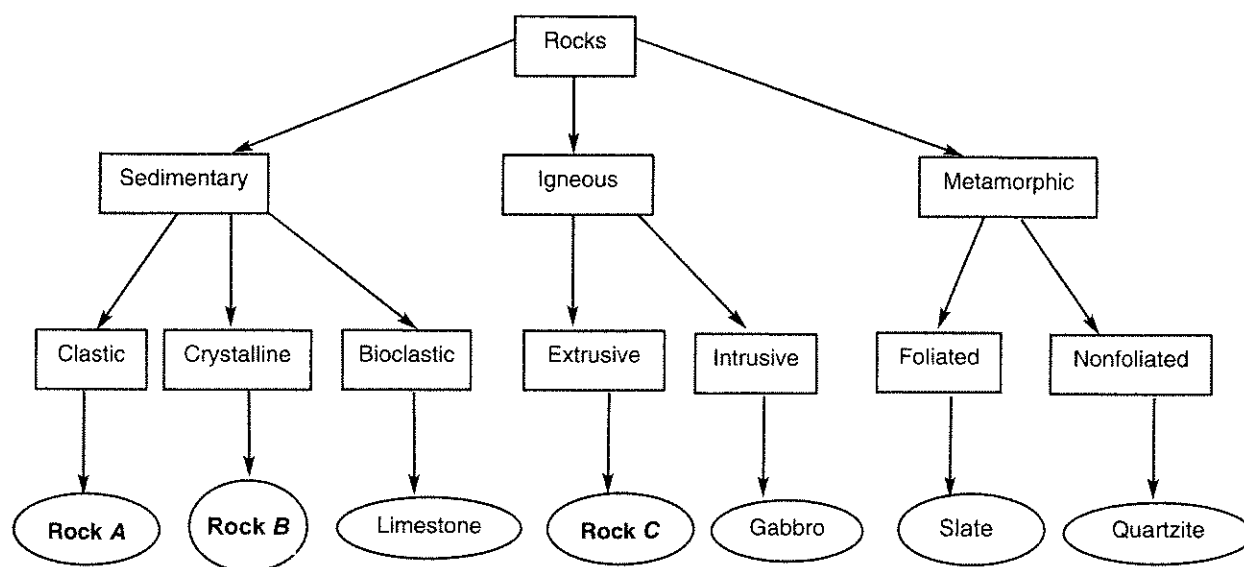
14. Evaporite deposits could be composed of which minerals?

- (1) garnet and pyroxene
- (2) mica and feldspar
- (3) hornblende and olivine
- (4) halite and gypsum

14 \_\_\_\_\_

Base your answers to questions 15 through 16 on the Rock Classification flowchart shown below. Letters *A*, *B*, and *C* represent specific rocks in this classification scheme.

**Rock Classification Flowchart**



15. Rock *B* reacts with hydrochloric acid. State the name of Rock *B*. \_\_\_\_\_

16. Rock *A* is composed of very fine-grained quartz and feldspar particles 0.005 cm in diameter. State the name of Rock *A*. \_\_\_\_\_