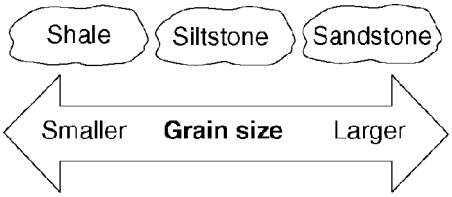
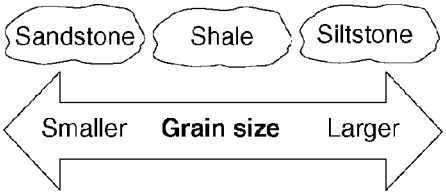
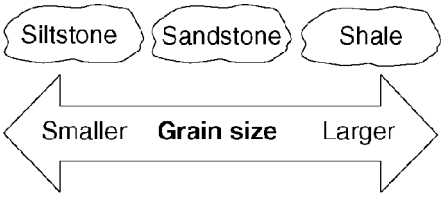
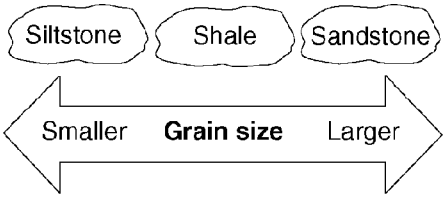
Name: _____

1) Which diagram *best* shows the grain size of some common sedimentary rocks?

A) 

B) 

C) 

D) 

2) Which processes most likely formed the shale bedrock found near Ithaca, New York?

A) burial and compaction
B) heat and pressure
C) melting and recrystallization
D) uplift and solidification

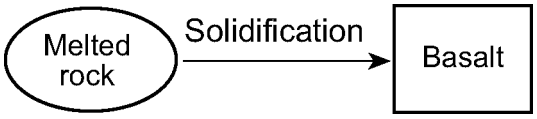
3) Most sandstone bedrock is composed of sediment that was

A) sorted by size and not layered
B) unsorted and not layered
C) sorted by size and layered
D) unsorted and layered

4) Which rock is sedimentary in origin and formed as a result of chemical processes?

A) dolostone
B) granite
C) shale
D) breccia

5) The flowchart below illustrates the change from melted rock to basalt.



The solidification of the melted rock occurred

A) slowly, resulting in fine-grained minerals
B) rapidly, resulting in coarse-grained minerals
C) slowly, resulting in coarse-grained minerals
D) rapidly, resulting in fine-grained minerals

6) The basaltic bedrock of the oceanic crust is classified as

A) felsic, with a density of 2.7 g/cm^3
B) mafic, with a density of 3.0 g/cm^3
C) mafic, with a density of 2.7 g/cm^3
D) felsic, with a density of 3.0 g/cm^3

7) What is the origin of fine-grained igneous rock?

A) silt that settled slowly in ocean water
B) lava that cooled quickly on Earth's surface
C) lava that cooled slowly on Earth's surface
D) silt that settled quickly in ocean water

8) Which igneous rock is dark colored, cooled rapidly on Earth's surface, and is composed mainly of plagioclase feldspar, olivine, and pyroxene?

A) obsidian
B) rhyolite
C) gabbro
D) scoria

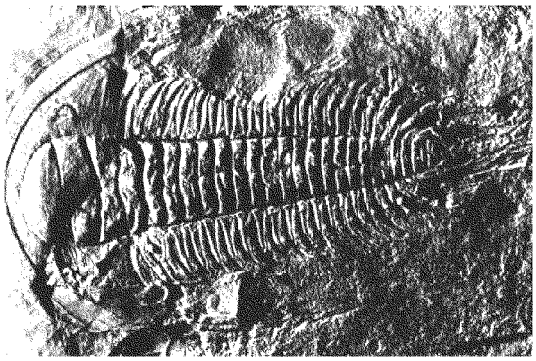
9) Which one of the following processes led to the formation of thick salt deposits found in the bedrock at some locations in New York State?

A) condensation
B) evaporation
C) runoff
D) melting

10) Most New York State sandstone bedrock was formed

A) in a desert when heat and metamorphic pressure caused quartz crystals to fuse together
B) on Earth's surface from the cooling of molten lava
C) in a delta from sand grains deposited, buried, and cemented together by minerals
D) in Earth's interior where temperatures exceeded the melting point of quartz

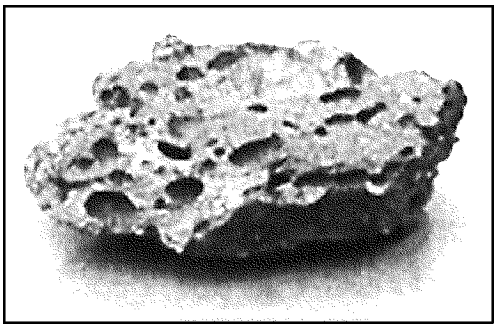
11) The fossil pictured below was found in surface bedrock in the eastern United States.



Which statement *best* describes the formation of the rock containing this fossil?

A) The rock was formed by the compaction and cementation of sediments deposited in a marine environment during the Cambrian Period.
B) The rock was formed from the solidification of magma in a marine environment during the Triassic Period.
C) The rock was formed by the compaction and cementation of sediments deposited in a terrestrial environment during the Triassic Period.
D) The rock was formed by the metamorphism of sedimentary rock deposited in a terrestrial environment during the Cretaceous Period.

12) The photograph below shows an igneous rock.



What is the origin and rate of formation of this rock?

A) plutonic with rapid cooling
B) volcanic with rapid cooling
C) volcanic with slow cooling
D) plutonic with slow cooling

13) Wavy bands of light and dark minerals visible in gneiss bedrock probably formed from the

A) cementing together of individual mineral grains
B) cooling and crystallization of magma
C) heat and pressure during metamorphism
D) evaporation of an ancient ocean

14) Which two processes lead directly to the formation of *both* breccia and conglomerate?

A) heat and pressure
B) evaporation and precipitation
C) melting and solidification
D) compaction and cementation

15) The three statements below are observations of the same rock sample:

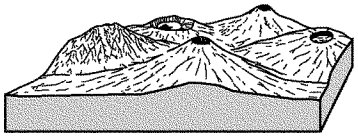
- The rock has intergrown crystals from 2 to 3 millimeters in diameter.
- The minerals in the rock are gray feldspar, green olivine, green pyroxene, and black amphibole.
- There are no visible gas pockets in the rock.

This rock sample is most likely

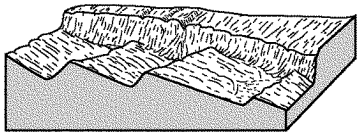
A) phyllite
B) gabbro
C) sandstone
D) granite

16) Which diagram represents a landscape where fine-grained igneous bedrock is most likely to be found?

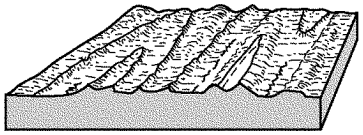
A)



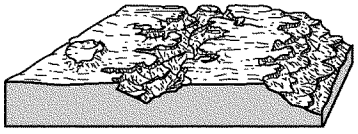
B)



C)

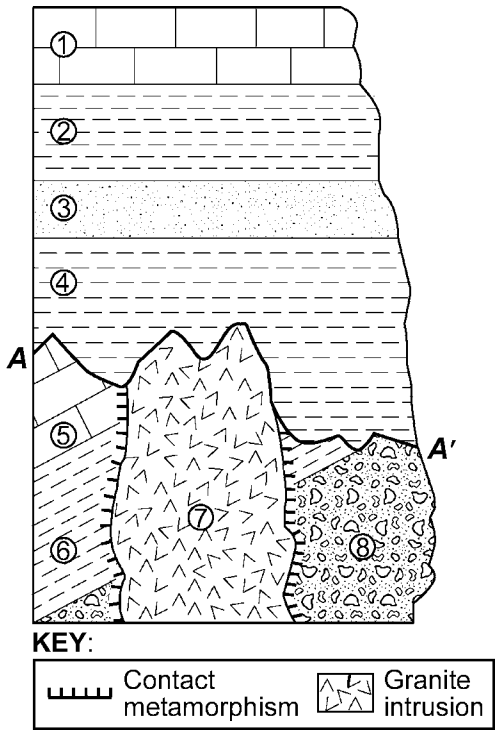


D)



Questions 17 and 18 refer to the following:

Rock units in the cross section below are labeled 1 through 8. The line between *A* and *A′* indicates an unconformity.



17) What type of rock most probably formed in the contact metamorphic zone within rock unit 6 in the cross section shown?

A) quartzite
B) basalt
C) hornfels
D) marble

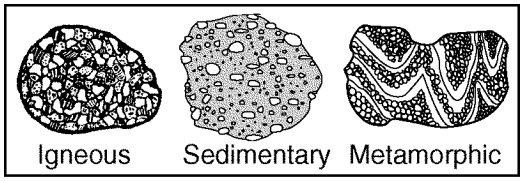
18) What characteristic of the granite intrusion in the cross section shown provides the *most* evidence that it solidified deep underground?

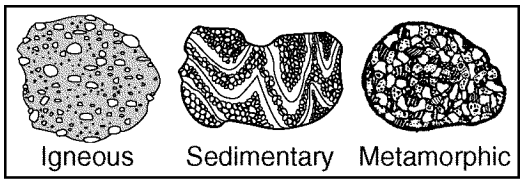
A) coarse texture
B) very hard
C) felsic composition
D) light color

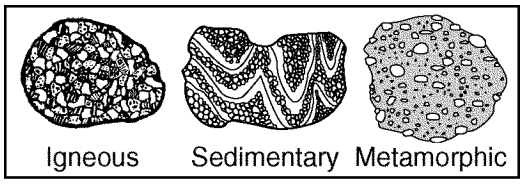
19) Which processes formed the granite that is mined in many areas of the United States?

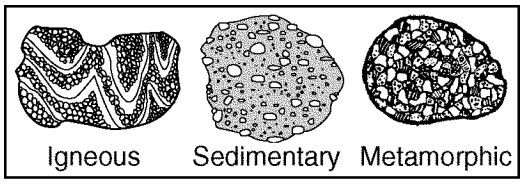
A) application of heat and pressure to shale
B) compaction and cementation of sediments
C) uplift and weathering of bedrock
D) cooling and solidification of magma

20) In which set are the rock drawings labeled with their correct rock types?

A)


B)


C)


D)


21) Dolostone is classified as which type of rock?

A) nonfoliated metamorphic rock
B) chemically formed sedimentary rock
C) foliated metamorphic rock
D) land-derived sedimentary rock

22) Which igneous rock has a vesicular texture and contains the minerals potassium feldspar and quartz?

A) pegmatite
B) scoria
C) andesite
D) pumice

23) The data table below shows information about the four largest asteroids found in our solar system.

DATA TABLE

Name	Average Diameter (kilometers)	Period of Revolution (years)
Ceres	848.4	4.60
Pallas	498.1	4.61
Juno	247.0	4.36
Vesta	468.3	3.63

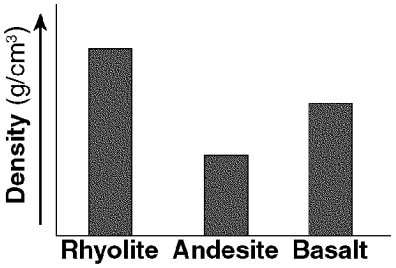
The surface rocks of the astroid Vesta contain significant amounts of the mineral pyroxene. If rocks on Vesta are similar to rocks on Earth, which two igneous rocks would most likely be found on the surface of Vesta?

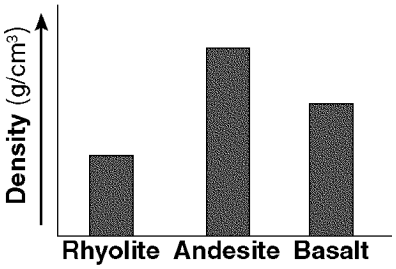
A) dunite and granite
B) basalt and scoria
C) peridotite and pumice
D) rhyolite and pegmatite

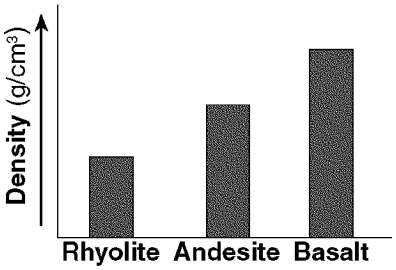
24) Which intrusive igneous rock could be composed of approximately 60% pyroxene, 25% plagioclase feldspar, 10% olivine, and 5% amphibole?

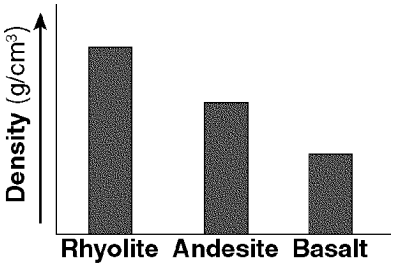
A) basalt
B) rhyolite
C) granite
D) gabbro

25) Which graph *best* represents the relative densities of three different types of igneous rock?

A)


B)


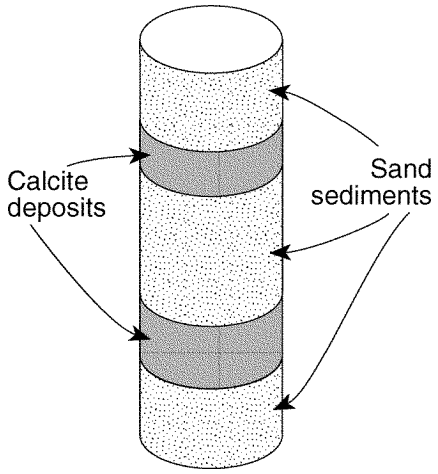
C)


D)


26) Most rock gypsum is formed by the

A) compaction and cementation of shells and skeletal remains
B) cooling and solidification of lava
C) heating of previously existing foliated bedrock
D) chemical precipitation of minerals from seawater

27) 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?

A) breccia and rock salt
B) conglomerate and siltstone
C) sandstone and limestone
D) shale and coal

28) Biotite mica and muscovite mica have different chemical compositions. Compared to the magma from which biotite mica forms, the magma from which muscovite mica forms is usually

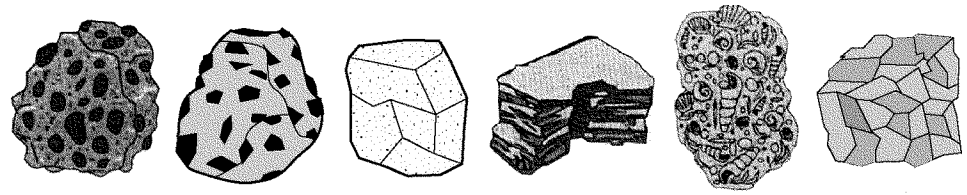
A) more felsic and less dense
B) more mafic and more dense
C) more felsic and more dense
D) more mafic and less dense

29) A student obtains a cup of quartz sand from a beach. A saltwater solution is poured into the sand and allowed to evaporate. The mineral residue from the saltwater solution cements the sand grains together, forming a material that is *most* similar in origin to

A) an extrusive igneous rock
B) an intrusive igneous rock
C) a clastic sedimentary rock
D) a foliated metamorphic rock

Questions 30 through 33 refer to the following:

Drawings of six sedimentary rocks labeled *A* through *F* are shown below.



30) Which two rocks shown in the drawings are composed primarily of quartz, feldspar, and clay minerals?

A) sandstone and limestone
B) rock salt and breccia
C) rock salt and conglomerate
D) sandstone and shale

31) *Most* of the rocks shown in the drawings were formed by

A) heat and pressure
B) volcanic eruptions and crystallization
C) compaction and/or cementation
D) melting and/or solidification

32) Which table below shows the rocks in the drawings correctly classified by texture?

A)

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

B)

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

C)

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

D)

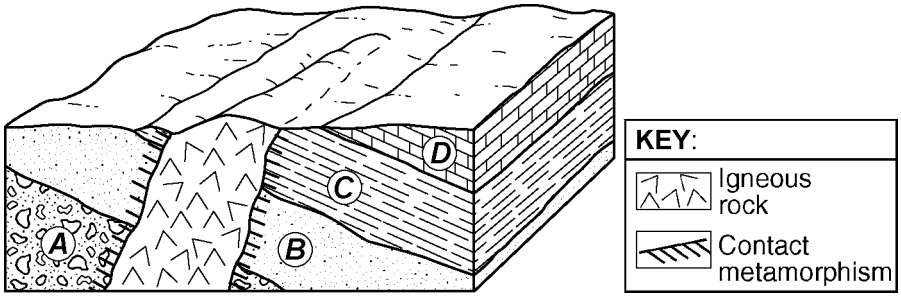
Texture	clastic	bioclastic	crystalline
Rock	*A, B, C, D*	*E*	*F*

33) Which rock was organically formed and sometimes contains fossilized plant impressions?

A) coal
B) breccia
C) rock gypsum
D) phyllite

Questions 34 and 35 refer to the following:

The block diagram below shows a portion of Earth's crust. Letters *A*, *B*, *C*, and *D* indicate sedimentary layers.



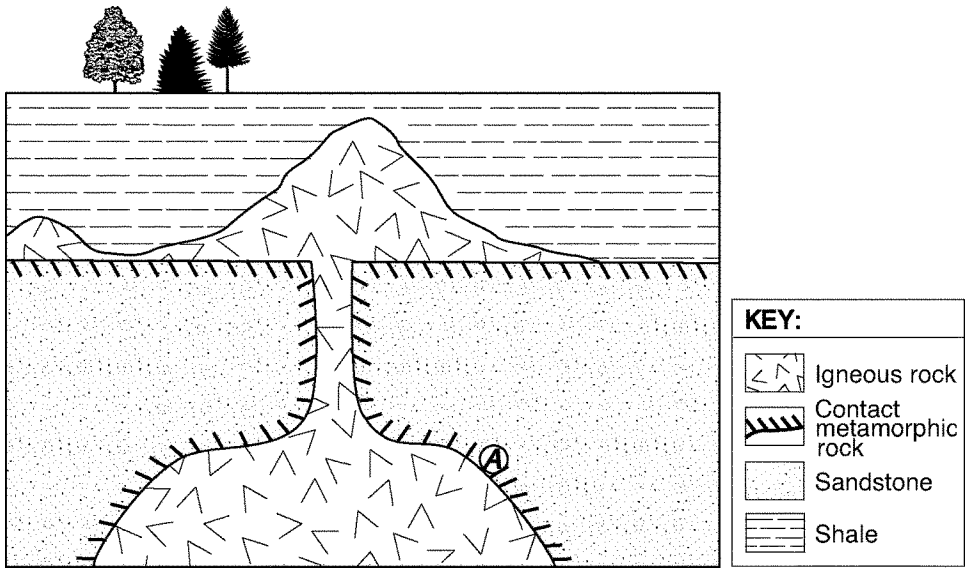
34) Which processes produced rock layer *B* in the given diagram?

A) compaction and cementation
B) subduction and melting
C) uplift and solidification
D) heat and pressure

35) The igneous rock in the given block diagram is mostly composed of potassium feldspar and quartz crystals that have an average grain size of 3 millimeters. The igneous rock is most likely

A) pegmatite
B) granite
C) pumice
D) gabbro

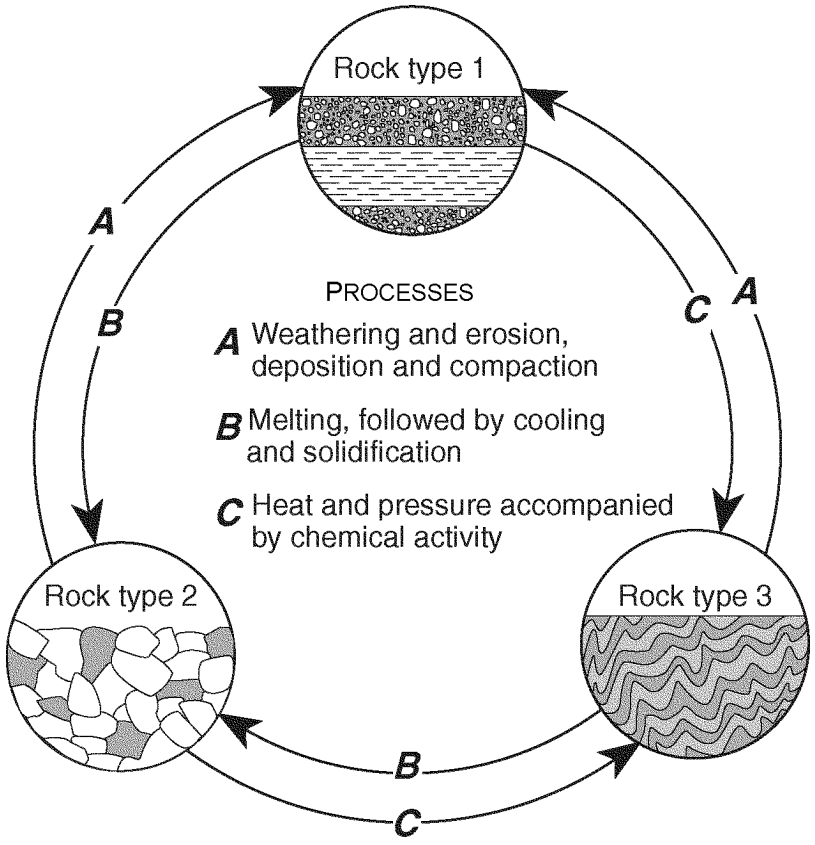
36) Location *A* on the geologic cross section below is within the metamorphic rock.



The metamorphic rock at location *A* on the cross section shown is most likely

A) quartzite B) phyllite C) slate D) marble

37) The diagram below represents geological processes that act continuously on Earth to form different rock types.



Which of the following tables correctly classifies each rock type?

A)

Rock Type	Classification
1	metamorphic
2	igneous
3	sedimentary

C)

Rock Type	Classification
1	sedimentary
2	igneous
3	metamorphic

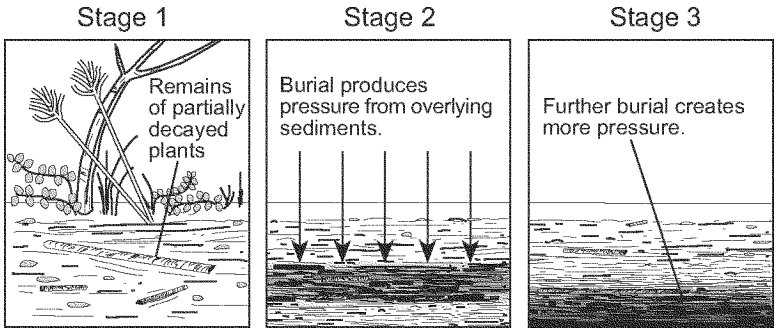
B)

Rock Type	Classification
1	igneous
2	metamorphic
3	sedimentary

D)

Rock Type	Classification
1	sedimentary
2	metamorphic
3	igneous

38) The diagram below shows three stages in the formation of a specific rock.



Which rock is formed as a result of these three stages?

A) gneiss B) limestone C) schist D) coal