

Name: _____ Period: _____ Date: _____

WS Metamorphic Rocks

- ___ 1) The diagram below represents a rock with a distorted layer structure.

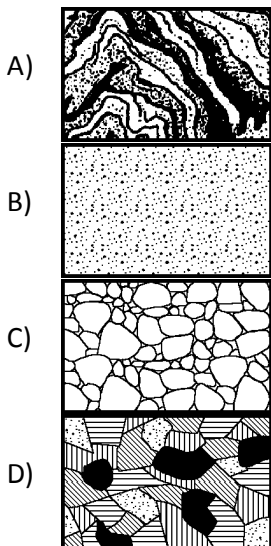


The distorted structure of this rock is most likely the result of

- A) glacial activity
 B) wind erosion
 C) a long period of weathering
 D) extreme pressure
- ___ 2) What is the main difference between metamorphic rocks and most other rocks?
- A) Many metamorphic rocks contain only one mineral.
 B) Many metamorphic rocks have an organic composition.
 C) Many metamorphic rocks contain a high amount of oxygen- silicon tetrahedra.
 D) Many metamorphic rocks exhibit banding and distortion of structure.
- ___ 3) Which rocks would most likely be separated by a transition zone of altered rock (metamorphic rock)?
- A) granite and limestone
 B) conglomerate and siltstone
 C) shale and sandstone
 D) sandstone and limestone
- ___ 4) Which characteristics are most useful for identifying the conditions under which a metamorphic rock was formed?
- A) shape and mass
 B) composition and structure
 C) color and luster
 D) hardness and size

- ___ 5) Which rock is most likely a nonsedimentary rock?
- A) a rock showing mud cracks
 B) a rock composed of distorted light-colored and dark-colored mineral bands
 C) a rock consisting of layers of rounded sand grains
 D) a rock containing dinosaur bones
- ___ 6) Metamorphic rocks are formed by
- A) compaction and cementation
 B) melting and solidification
 C) heating and pressure
 D) erosion and deposition
- ___ 7) Metamorphic rocks result from the
- A) erosion of rocks
 B) cooling and solidification of molten magma
 C) compression and cementation of soil particles
 D) recrystallization of rocks
- ___ 8) The metamorphism of a sandstone rock will cause the rock
- A) to be melted
 B) to occupy a greater volume
 C) to contain more fossils
 D) to become more dense
- ___ 9) When dilute hydrochloric acid is placed on the sedimentary rock limestone and the nonsedimentary rock marble, a bubbling reaction occurs with both. What would this indicate?
- A) The two rocks originated at the same location.
 B) The physical properties of these two rocks are identical.
 C) The molecular structures of these two rocks have been changed by heat and pressure.
 D) the minerals of these two rocks have similar chemical compositions.

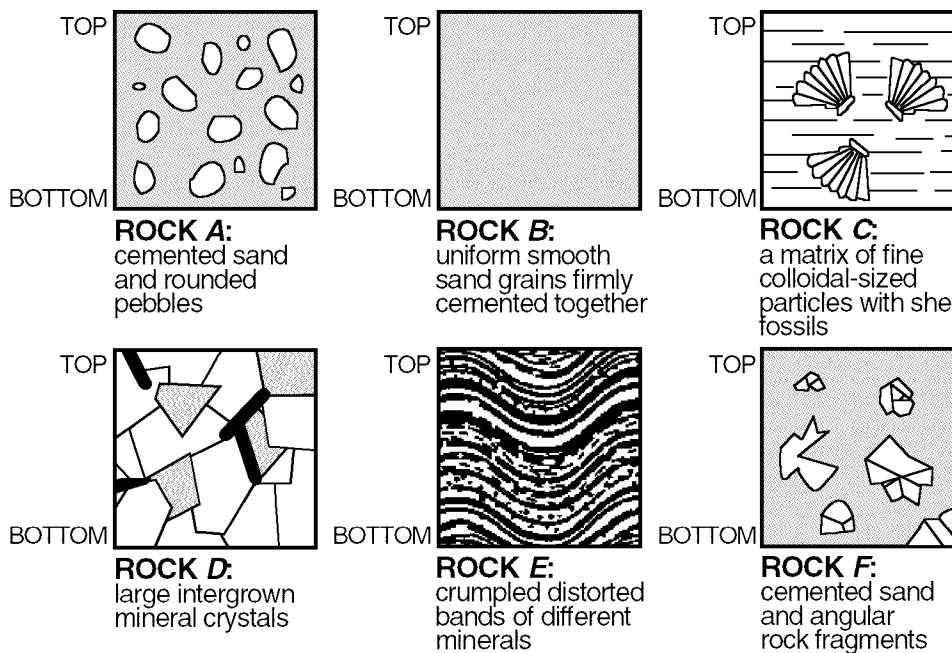
___ 10) Which diagram *best* represents a sample of the metamorphic rock gneiss?



___ 11) Where is metamorphic rock frequently found?

- A) along the interface between igneous intrusions and sedimentary bedrock
- B) within large lava flows
- C) as a thin surface layer covering huge areas of the continents
- D) on mountaintops that have horizontal layers containing marine fossils

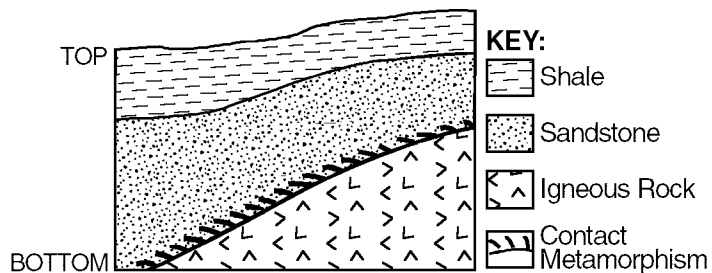
___ 12) The diagrams below represent six different rock types.



Which rock was probably formed from a pre-existing rock that was changed by heat and pressure, but *not* melted?

- A) B
- B) A
- C) F
- D) E

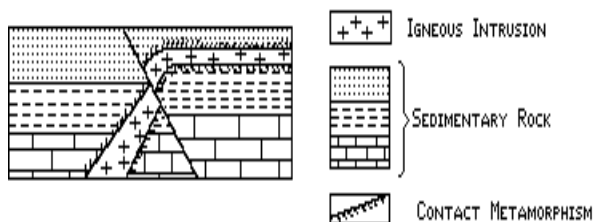
___ 15) The diagram below represents a geologic cross section.



Which inference is *best* supported by the evidence shown in the diagram?

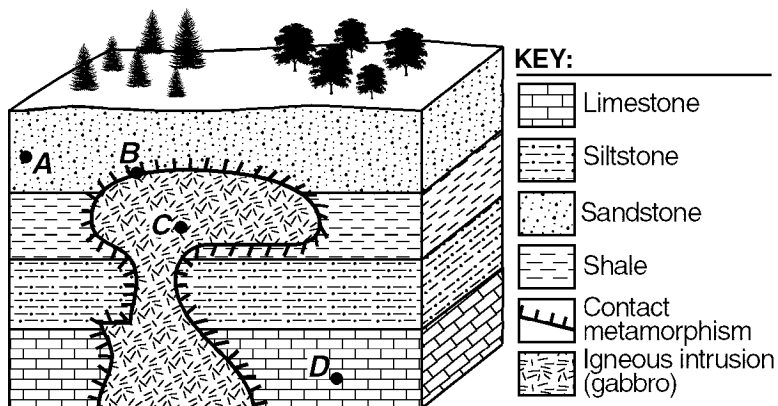
- A) Sandstone formed after sand was deposited on top of the metamorphic rock.
- B) Shale formed from the melting and solidification of the sandstone layer.
- C) Igneous rock was changed to sedimentary rock.
- D) Contact metamorphism occurred when the igneous rock was in its molten state.

___ 16) The diagram below represents a portion of the Earth's crust. Which statement best explains why portions of the sedimentary rock layers have the symbol for contact metamorphism?



- A) The sedimentary layers were altered by heat at the interface between the igneous intrusion and sedimentary rocks.
- B) The rock layers were eroded at the interface between the igneous intrusion and the sedimentary rocks.
- C) As the molten material cooled, energy was absorbed by the igneous intrusion.
- D) Faulting changed the rocks before the igneous intrusion occurred.

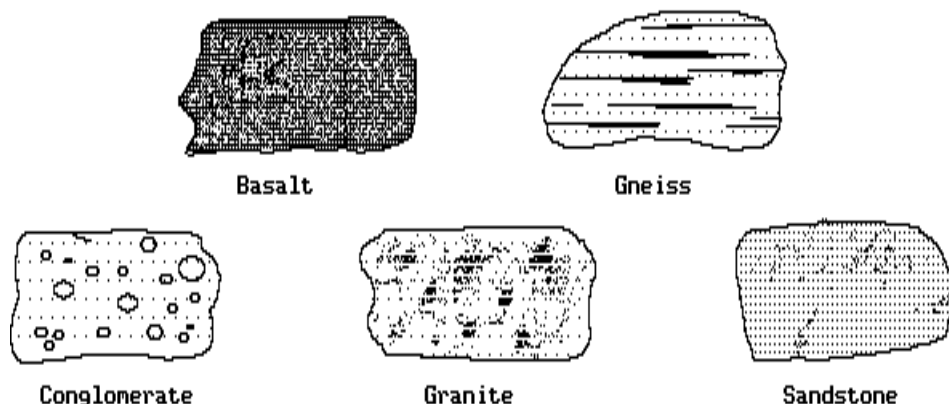
___ 17) The diagram below represents a cross section of a portion of the Earth's crust. Points A through D represent locations in the bedrock. The rock layers have not been overturned.



Which rock formed as a result of heat and pressure at point B?

- A) quartzite
- B) anthracite coal
- C) marble
- D) slate

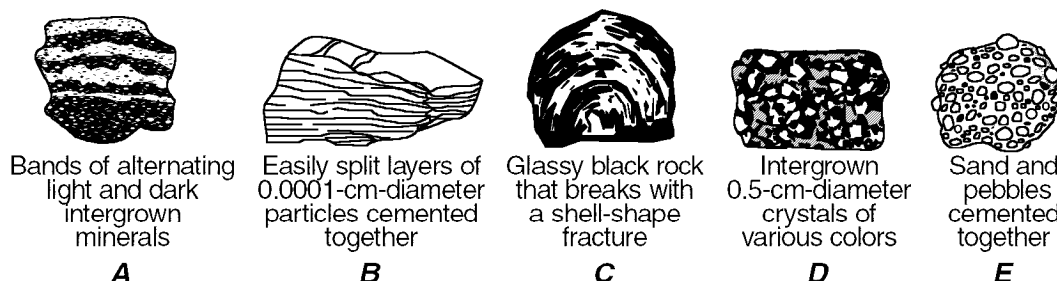
___ 18) The diagrams below illustrate five rock samples (including metamorphic gneiss). [Refer to the *Earth Science Reference Tables*.]



Which rock shows banding that formed as a result of recrystallization of unmelted material under high temperature and pressure?

- A) conglomerate
- B) sandstone
- C) gneiss
- D) granite

___ 19) The diagrams below represent five different rock samples.



If sample E were metamorphosed, it would most likely become

- A) marble
- B) metaconglomerate
- C) slate
- D) anthracite coal

Questions 20 and 21 refer to the following:

METAMORPHIC ROCKS

Rock	Composition	Formed From	Characteristics	Use
Gneiss	Quartz, feldspar, mica	Various rocks	Minerals are arranged in parallel bands (foliated)	Monuments, buildings
Quartzite	Chiefly quartz	Sandstone	Grains of sand are fused (not porous)	Buildings
Marble	Calcite	Limestone	A	Buildings, statues, monuments
B	Mud and clay	Shale	Splits into thin sheets	Roofs, sidewalks
Anthracite Coal	Chiefly carbon	Bituminous coal	Harder and shinier than bituminous coal	Fuel
Schists	Variable, quartz plus other minerals	Igneous or sedimentary rock	Parallel bands of minerals; flakes of mica, talc, and chlorite may be visible	Various uses

- ___ 20) Which rock is represented by letter *B* in the "Metamorphic Rocks" table?
- A) diorite C) slate
B) hornfels D) rhyolite

- ___ 21) Which characteristic is represented by letter *A* in the "Metamorphic Rocks" table?
- A) nonfoliated
B) clastic
C) particles rounded and cemented together
D) porous and permeable