

Midterm Prep-Metamorphic Rocks

1. Base your answer to the following question on the information below.

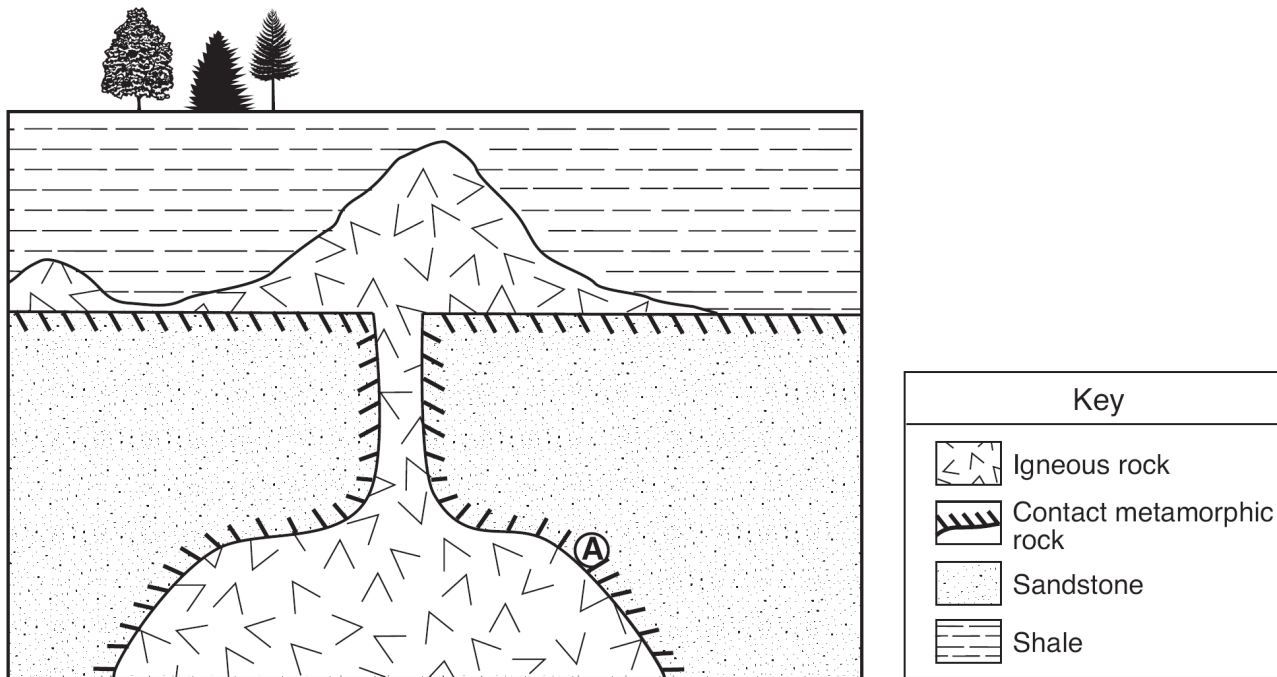
A student on a field trip in New York State collected a sample of metamorphic bedrock containing bands of coarse-grained crystals of plagioclase feldspar, pyroxene, quartz, and mica.

Identify the metamorphic rock found by the student.

2. Which rock is only formed by regional metamorphism?

- A) slate B) hornfels
C) dunite D) marble

3. Base your answer to the following question on the geologic cross section below. Location *A* is within the metamorphic rock.



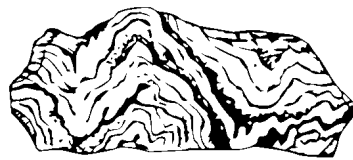
The metamorphic rock at location *A* is most likely

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

4. Wavy bands of light and dark minerals visible in gneiss bedrock probably formed from the

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

5. The rock shown below has a foliated texture and contains the minerals amphibole, quartz, and feldspar arranged in coarse-grained bands.

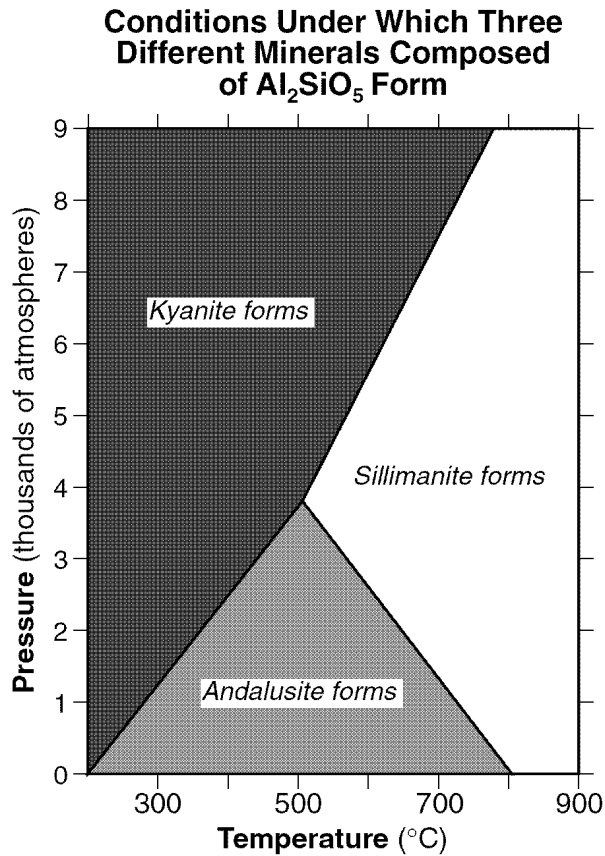


Which rock is shown?

- A) slate B) dunite
C) gneiss D) quartzite

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6. Base your answer to the following question on the graph below, which shows the crustal temperature and pressure conditions under which three different minerals with the same chemical composition (Al_2SiO_5) crystallize.



Under which crustal temperature and pressure conditions will andalusite form?

- A) 300°C and 6000 atmospheres B) 500°C and 2000 atmospheres
C) 600°C and 4000 atmospheres D) 700°C and 8000 atmospheres
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7. Which physical characteristic best describes the rock phyllite?
- A) glassy texture with gas pockets
B) clastic texture with angular fragments
C) bioclastic texture with cemented shell fragments
D) foliated texture with microscopic mica crystals
8. During the Permian Period, sedimentary bedrock in the Appalachian Region was subjected to high temperature and pressure. Calcite deposits that had existed in this environment would most likely have formed
- A) schist B) gabbro
C) marble D) gneiss
9. Which nonfoliated rock forms only in a zone of contact metamorphism?
- A) conglomerate B) hornfels
C) pegmatite D) quartzite
10. Which rock is foliated, shows mineral alignment but not banding, and contains medium-sized grains of quartz and pyroxene?
- A) phyllite B) schist
C) gneiss D) quartzite

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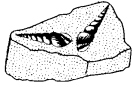
11. The diagram below shows four rock samples.



Sample A



Sample B



Sample C



Sample D

Which sample best shows the physical properties normally associated with regional metamorphism?

- A) *A* B) *B* C) *C* D) *D*

12. Which sequence of change in rock type occurs as shale is subjected to increasing heat and pressure?

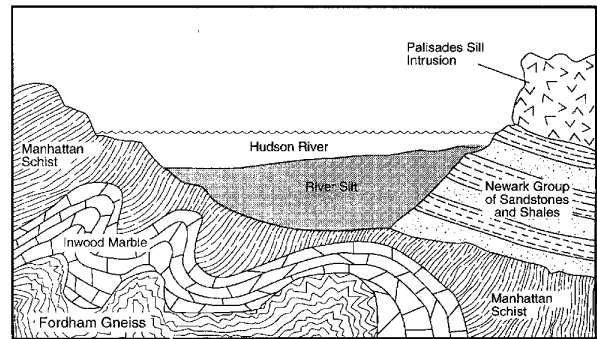
- A) shale → schist → phyllite → slate → gneiss
 B) shale → slate → phyllite → schist → gneiss
 C) shale → gneiss → phyllite → slate → schist
 D) shale → gneiss → phyllite → schist → slate

13. How do the metamorphic rocks schist and quartzite differ?

- A) Quartzite contains the mineral quartz and schist does not.
 B) Quartzite forms from regional metamorphism and schist does not.
 C) Schist is organically formed and quartzite is not.
 D) Schist is foliated and quartzite is not.

14. Base your answer to the following question on the cross section below which shows the surface and subsurface rock formations near New York City.

Geologic Section Across the Hudson River



Which rock formation was originally limestone?

- A) Palisades sill B) Fordham gneiss
 C) Inwood marble D) Manhattan schist

15. The diagram below represents a rock with a distorted layer structure.



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

- A) a long period of weathering
 B) glacial activity
 C) wind erosion
 D) extreme pressure