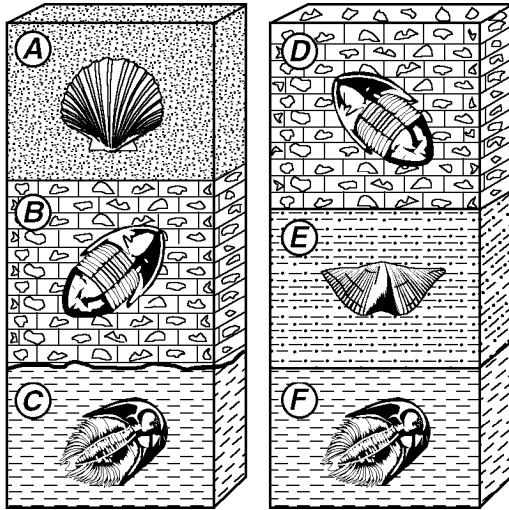


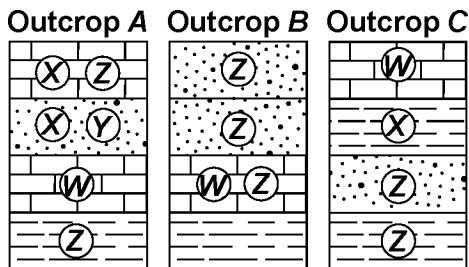
Name: _____

Questions 1 through 3 refer to the following:

The diagrams below represent two rock outcrops found several miles apart in New York State. Individual rock layers are lettered, and fossils and rock types are indicated.

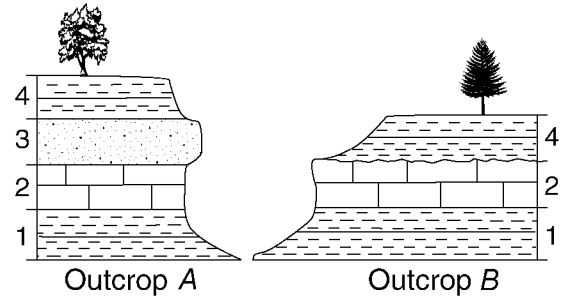


- An unconformity (buried erosional surface) is represented by the interface between which two layers?
 - D and F
 - E and F
 - A and B
 - B and C
 - In which sequence are the rock layers listed in order from *oldest* to *youngest*?
 - F, B, E, D
 - C, E, D, A
 - F, E, C, A
 - C, A, F, D
 - Based on the given rock and fossil evidence, which two letters most likely indicate parts of the same layer?
 - C and E
 - B and D
 - D and A
 - A and F
- 4) The cross sections below represent three widely separated bedrock outcrops labeled A, B, and C. Letters W, X, Y, and Z represent fossils found in the rock layers.

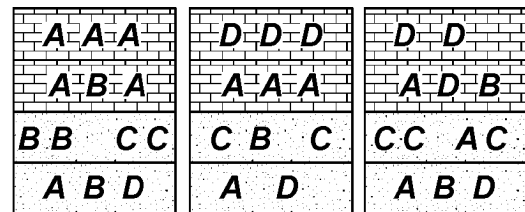


- Which fossil could best be used as an index fossil?
- W
 - X
 - Z
 - Y

- 5) Bedrock outcrops A and B are located at two different locations along the Genesee River in western New York State. Rock layers 1, 2, and 4 are the same in both outcrops.

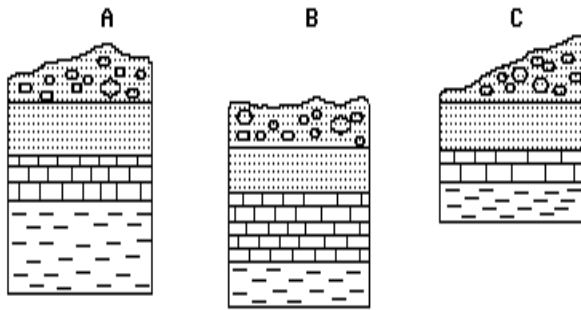


- Which statement *best* explains why rock layer 3 is missing from outcrop B?
- Erosion created an unconformity between rock layers 2 and 4 in outcrop B.
 - Metamorphism of outcrop A created rock layer 3.
 - A fault exists between outcrops A and B.
 - A volcanic eruption destroyed rock layer 3 in outcrop B.
- 6) The three cross sections of sedimentary bedrock shown below represent widely separated surface exposures of layers that contain fossils. Letters A, B, C, and D represent four different marine fossils found in these rock layers.

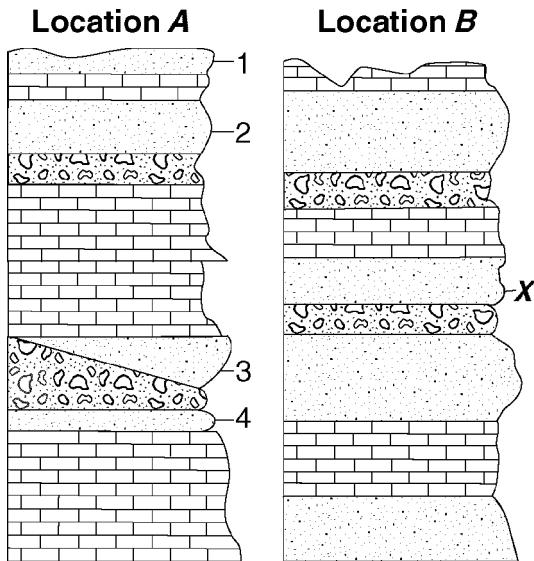


- Which letter *best* represents an index fossil?
- A
 - B
 - C
 - D

- 7) The diagram below represents cross sections of three rock outcrops approximately 100 kilometers apart. What would be the best method of correlating the rock layers of each outcrop?



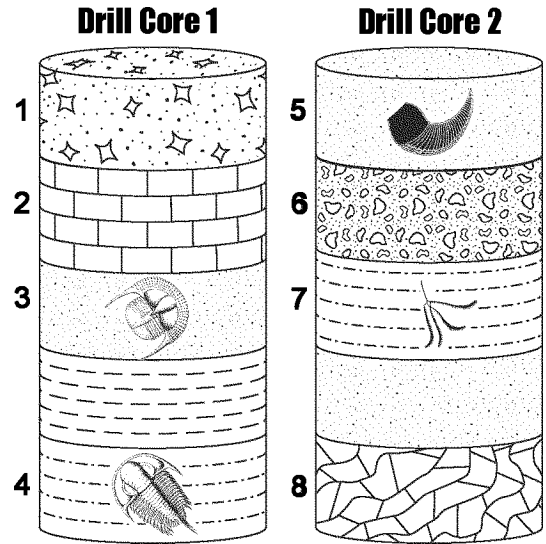
- A) comparing rock types
 B) comparing thickness of rock layers
 C) comparing index fossils
 D) comparing mineral composition
- 8) The cross sections below show the surface bedrock in two different locations 20 miles apart. Rock layers are labeled 1, 2, 3, 4, and X. The rock layers have not been overturned.



Rock layer X at location B is most likely the same relative age as which rock layer at location A?

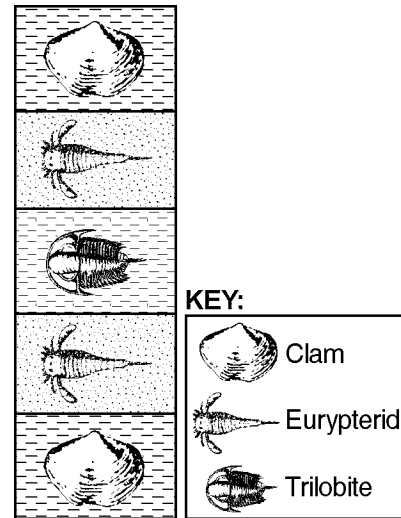
- A) 1 B) 2 C) 3 D) 4

- 9) The drill-core samples below were taken from two locations 1,000 kilometers apart. Rock layers 1 through 8 have been labeled. Some index fossils are shown in the layers.



Which numbered layers most likely formed at the same time?

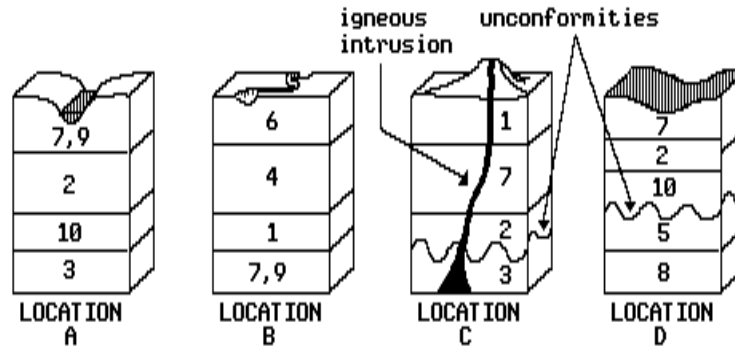
- A) 2 and 8 C) 4 and 7
 B) 3 and 5 D) 1 and 6
- 10) The diagram below represents bedrock layers found in an outcrop. Three index fossils are found within the bedrock layers.



Which evidence *best* suggests that this outcrop has undergone crustal movement?

- A) The sedimentary layers have the same thickness.
 B) The same rock layers appear twice within the outcrop.
 C) The trilobite fossil is not found in all five layers.
 D) The eurypterid fossil is absent in the middle layer.

11) The diagrams below show cross sections of the Earth's crust at four widely scattered locations, A through D, Numbers 1 through 10 represent fossils located in the rock layers. (The numbers do not represent the relative ages of the fossils.) The rock layers have not been overturned.

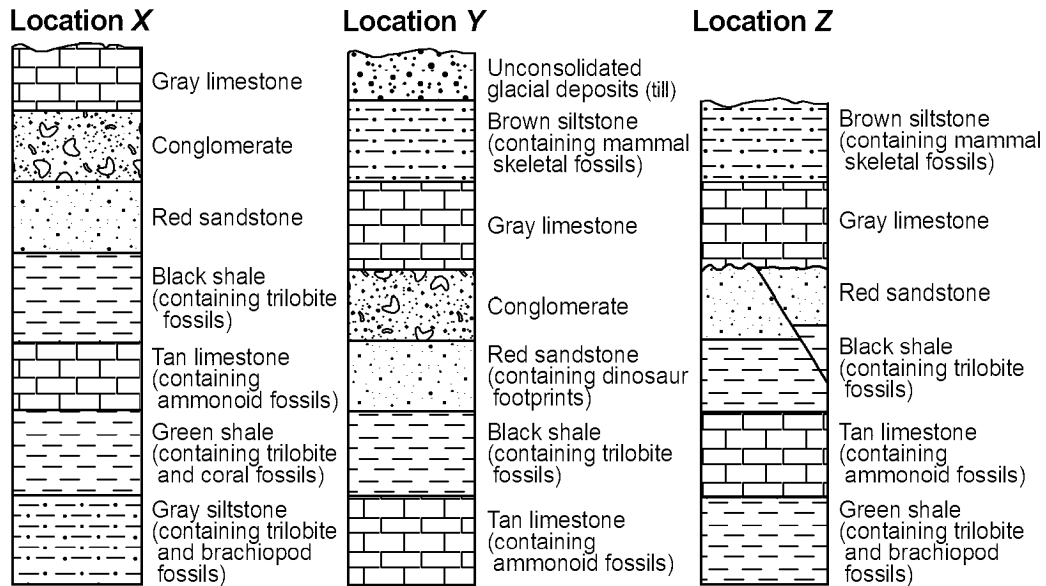


Index fossils such as 7 are useful for correlating rocks because the fossils

- A) represent organisms that lived for a relatively short period of geological time in widespread areas
- B) are found only in sedimentary rocks
- C) represents organisms that lived close to the Earth's surface for a relatively long period of time
- D) contain radioactive carbon-14, which is used for relative dating

Questions 12 and 13 refer to the following:

The cross sections below show widely separated outcrops at locations X, Y, and Z.



12) Which rock layer is *oldest*?

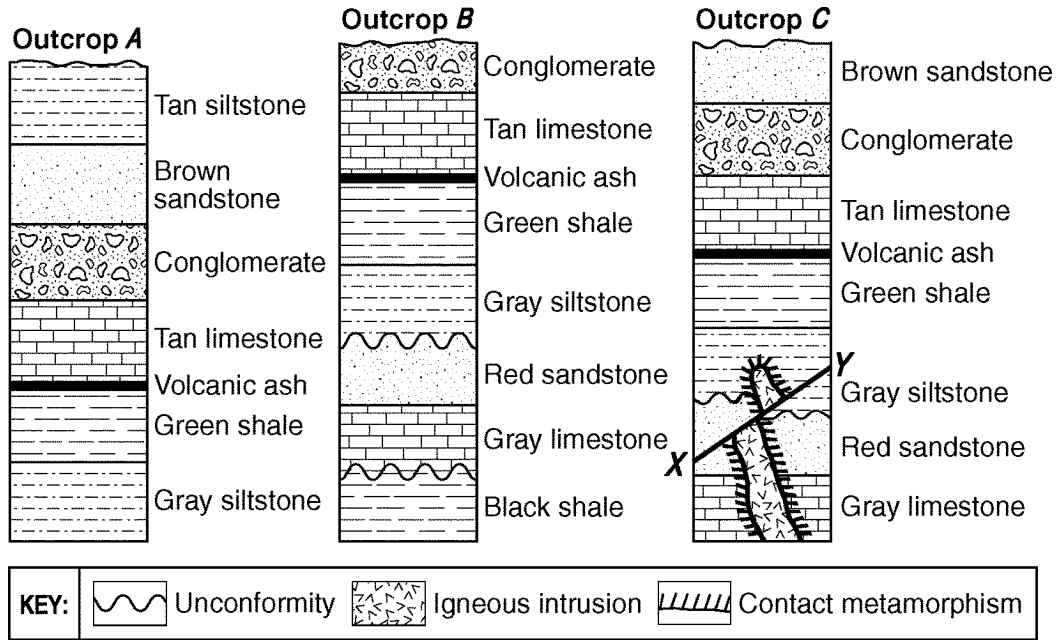
- A) gray siltstone
- B) tan limestone
- C) brown siltstone
- D) green shale

13) An unconformity can be observed at location Z. Which rock layer was most probably removed by erosion during the time represented by the unconformity?

- A) brown siltstone
- B) black shale
- C) conglomerate
- D) gray siltstone

Questions 16 through 18 refer to the following:

On the cross sections of three rock outcrops, A, B, and C, line XY represents a fault. Overturning has not occurred in the rock outcrops.



16) What is the *youngest* geologic feature in the three bottom layers of outcrop C in the given cross sections?

- A) fault
- B) unconformity
- C) zone of contact metamorphism
- D) igneous intrusion

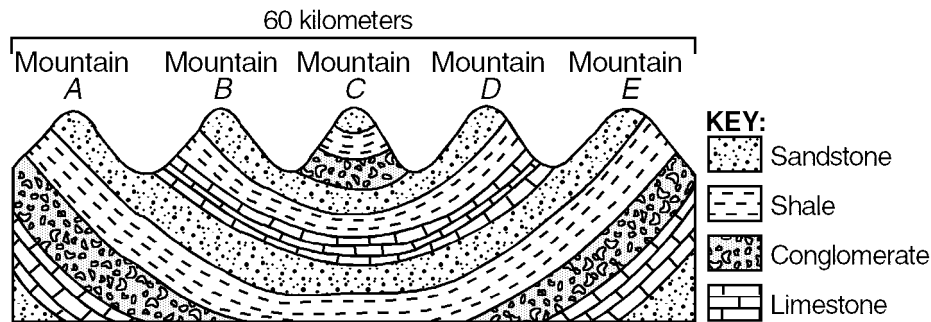
17) Which sedimentary rock shown in the outcrops is the *youngest*?

- A) tan siltstone
- B) conglomerate
- C) black shale
- D) brown sandstone

18) The volcanic ash layer shown on the outcrops is considered a good time marker for correlating rocks because the volcanic ash layer

- A) was rapidly deposited over a wide area
- B) lacks fossils
- C) has a dark color
- D) can be dated using carbon-14

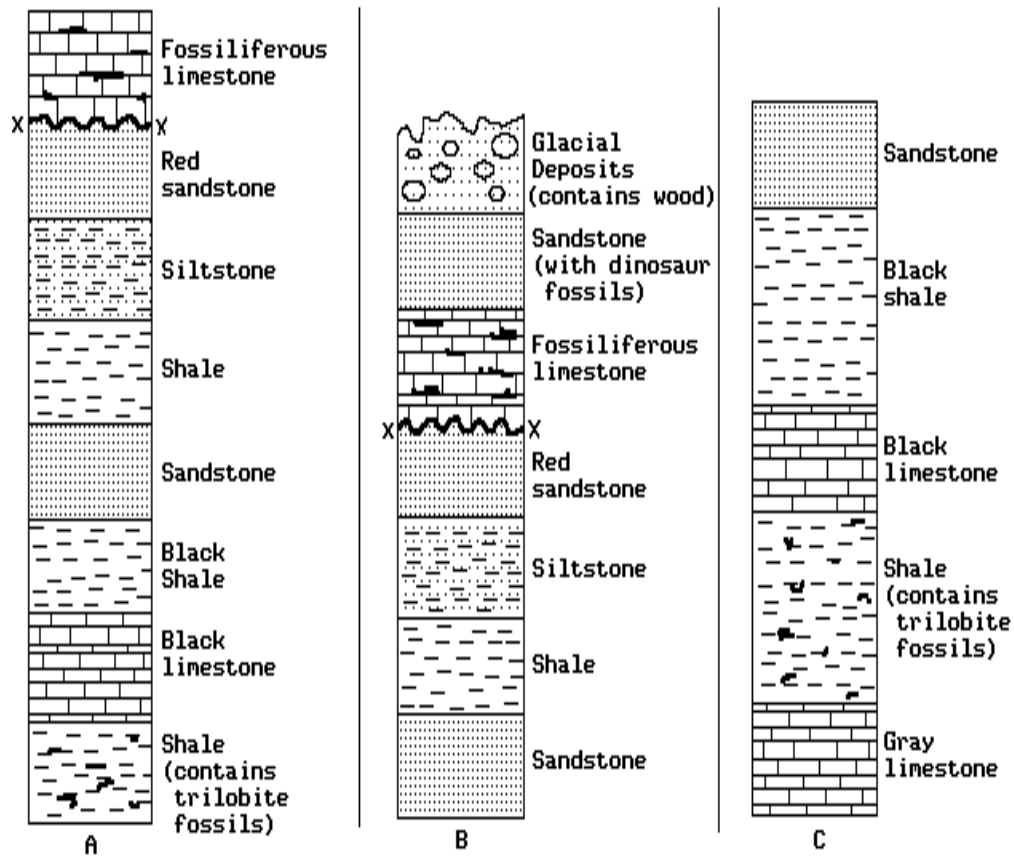
19) The diagram below represents a geologic cross section of a portion of the Earth's crust. The rock layers have not been overturned.



The top of which mountain is composed of the *youngest* bedrock?

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

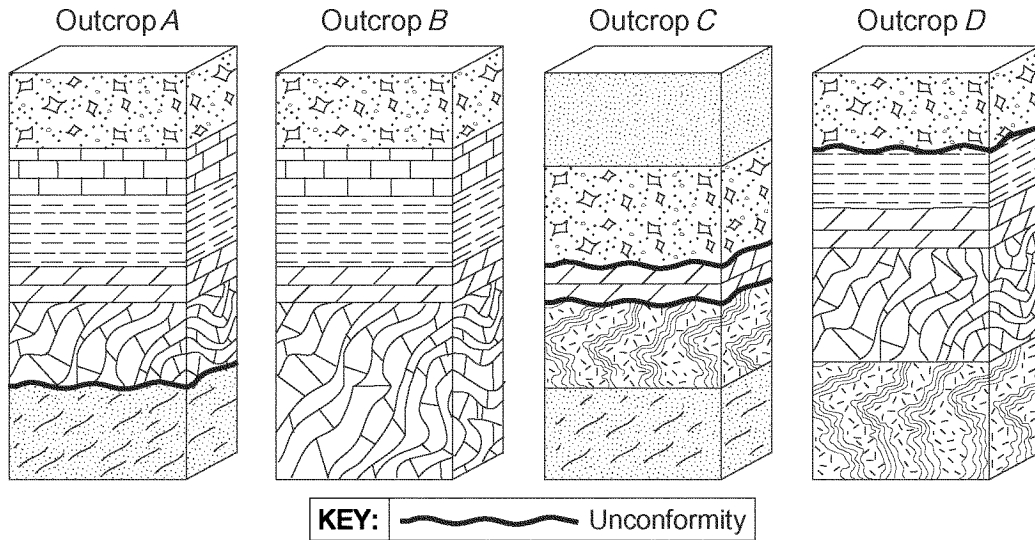
- 20) The diagram below shows matching geologic columns from three different locations, A, B, and C. The locations are about 5 kilometers apart and the layers have not been overturned.



Which is the oldest layer shown?

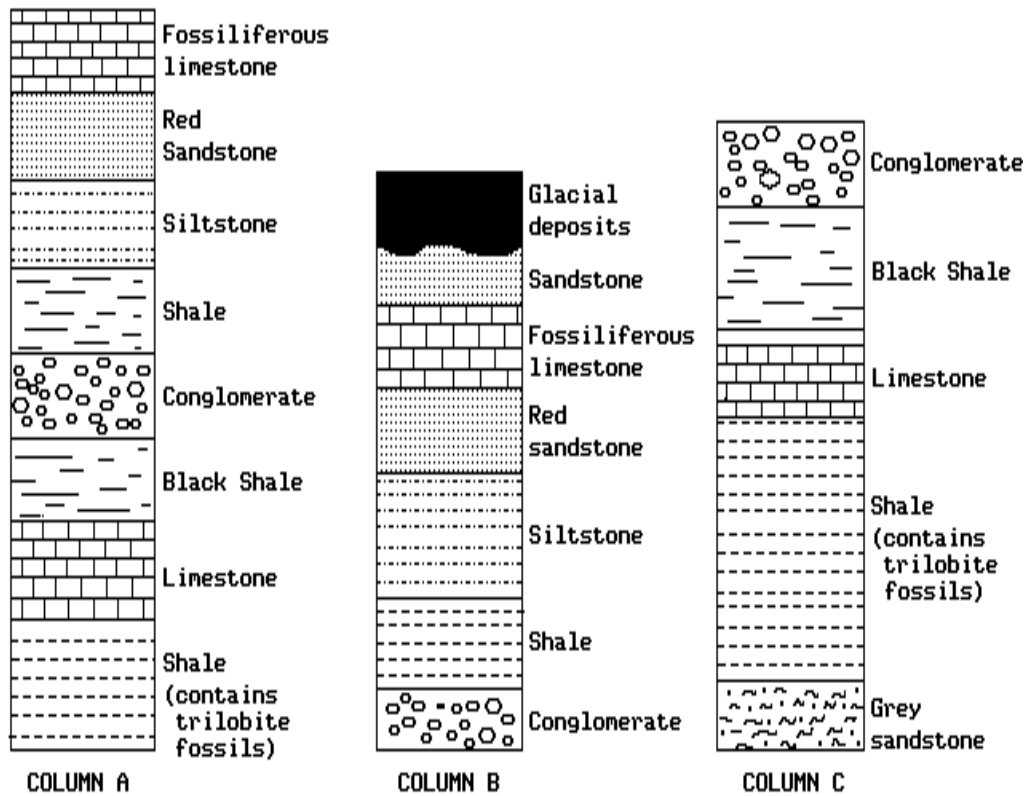
- A) glacial till containing wood
 B) shale containing trilobite fossils
 C) gray limestone
 D) sandstone

- 21) The block diagrams below show four rock outcrops, A, B, C, and D, that are located within 15 kilometers of each other. The rock layers have not been overturned.



When the rock layers at outcrops A, B, C, and D in the given diagram are correlated, which rock layer would be determined to be the *oldest*?

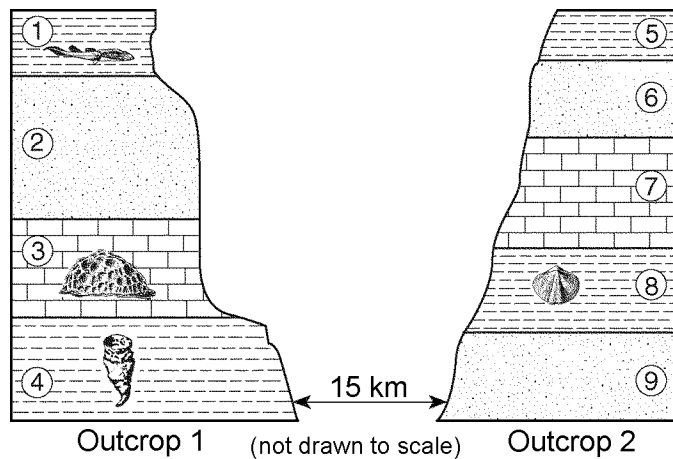
- A) quartzite B) marble C) gneiss D) sandstone
- 22) The diagram below shows three geologic columns representing widely separated rock outcrops that had a common origin. Descriptions of each sedimentary rock are indicated beside the layers. The rock layers have not been overturned.



Which column contains the youngest rock formations?

- A) C B) A C) B

- 23) The cross sections below represent two bedrock outcrops 15 kilometers apart. The rock layers have been numbered for identification and some contain the index fossil remains shown.



Evidence *best* indicates that rock layers 4 and 8 in the given diagram were deposited during the same geologic period because *both* layers

- A) contain the same index fossil
 B) contain index fossils of the same age
 C) are composed of glacial sediments
 D) are found in the same area