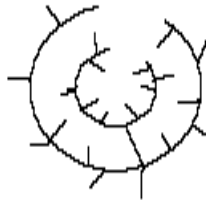


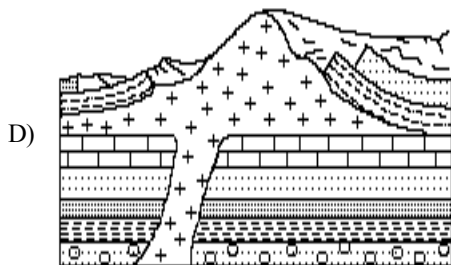
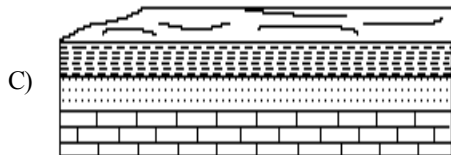
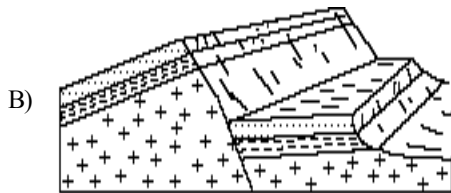
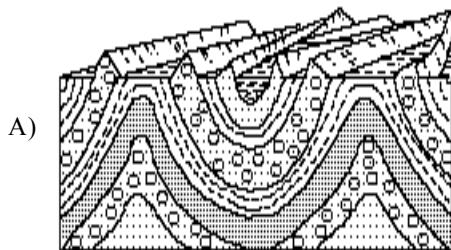
10) Which New York State landscape region has been most extensively changed by ocean wave erosion during the last 200 years?

- A) Atlantic Coastal Plains
- B) St. Lawrence Lowlands
- C) Hudson-Mohawk Lowlands
- D) Triassic Lowlands

11) The diagram represents a surface stream drainage pattern.



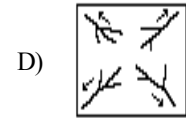
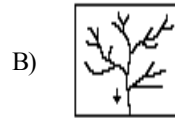
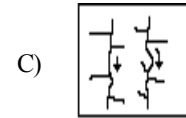
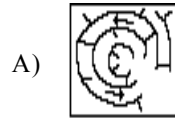
Which geological cross section represents a landscape region most likely to produce this drainage pattern?



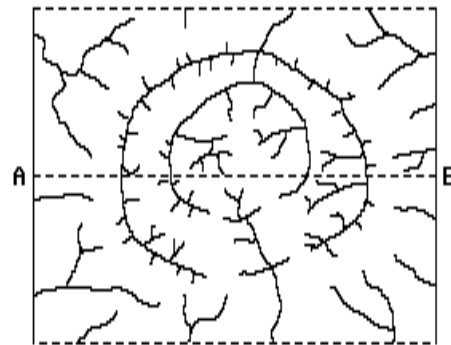
12) The boundaries between landscape regions are usually indicated by sharp changes in

- A) stream discharge rate and direction of flow
- B) weathering rate and method of deposition
- C) soil associations and geologic age
- D) bedrock structure and elevation

13) Which of the following stream patterns is most characteristic of horizontal rock structure?



14) The diagram below is a map showing the stream drainage pattern for an area of the Earth's crust.



Which geologic cross section shows the most probable underlying rock structure and surface for this area along line A-B?

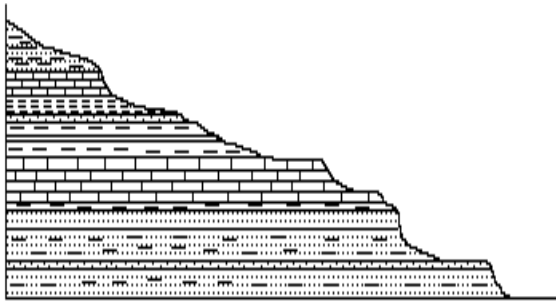


15) According to the *Earth Science Reference Tables*, what type of landscape region is located at 44° 30' N. and 74° 30' W.?

- A) mountainous area
- B) plain
- C) plateau
- D) coastal lowlands

- 16) A hilly region of Long Island is composed of unconsolidated and unsorted sediments. Which erosional agent was probably most influential in forming this landscape?
- A) wind
B) glaciers
C) streams
D) wave action
- 17) In what way do plateau landscape regions differ from mountain landscape regions?
- A) The bedrock of plateau regions is generally more horizontal.
B) The altitude of plateau regions is generally higher.
C) The climate of plateau regions is generally more humid.
D) The bedrock age of plateau regions is generally greater.
- 18) According to the *Earth Science Reference Tables*, the surface bedrock along a line from Elmira to Old Forge is best described as generally
- A) decreasing in amount of bedrock deformation
B) decreasing in latitude
C) increasing in amount of fossil material
D) increasing in geologic age
- 19) Which factor is most influential in determining the rate of landscape change in a particular location?
- A) the soil particle size
B) the local climate
C) the prevailing wind patterns
D) the age of bedrock
- 20) Most of the surface materials in New York State can be classified as
- A) igneous rocks
B) metamorphic rocks
C) transported soils
D) coastal plain deposits
- 21) What is the only difference between the Adirondacks and the Catskills that can be distinguished from the *Earth Science Reference Tables*?
- A) The Catskills have vegetation, but the Adirondacks do not.
B) The Adirondacks have mostly rounded hilltops and the Catskills have jagged hilltops.
C) The Catskills are much higher in elevation than the Adirondacks.
D) The Adirondacks have metamorphic bedrock, but the Catskills have sedimentary bedrock.
- 22) According to the *Earth Science Reference Tables*, the primary reason that several landscape regions have formed in New York State is that various regions of the State have different
- A) soil characteristics
B) latitudes
C) bedrock characteristics
D) climates
- 23) According to the *Earth Science Reference Tables*, as one travels eastward from Tug Hill Plateau into the Adirondack Mountains, the age of the rocks changes from
- A) Ordovician to Precambrian
B) Devonian to Silurian
C) Ordovician to Silurian
D) Precambrian to Cambrian
- 24) According to the *Earth Science Reference Tables*, in which part of New York State is anorthositic bedrock found?
- A) the Adirondacks
B) the Tug Hill Plateau
C) the Catskills
D) Long Island
- 25) Landscape regions are generally determined by
- A) amount of yearly precipitation
B) method of surface sediment deposition
C) underlying rock structure and elevation
D) amount of stream discharge and direction of flow
- 26) According to the *Earth Science Reference Tables*, which New York State landscape region has the lowest elevation, the most nearly level land surface, and is composed primarily of Cretaceous through Pleistocene unconsolidated sediments?
- A) the Champlain Lowlands
B) the Erie-Ontario Lowlands
C) the Atlantic Coastal Plains
D) the Hudson-Mohawk Lowlands
- 27) Humans can cause rapid changes in the environment, which may produce catastrophic events. Which statement below is the best example of this concept?
- A) Shifting crustal plates cause an earthquake.
B) Mountainside highway construction causes a landslide.
C) Changing seasonal winds cause flooding in an area.
D) Lightning causes a forest fire.
- 28) According to the *Earth Science Reference Tables*, which landscape region of New York State has a surface composed mostly of metamorphic rock?
- A) Erie-Ontario Lowlands
B) Atlantic Coastal Plains
C) Appalachian Uplands
D) Adirondack Mountains
- 29) According to the *Earth Science Reference Tables*, the landscape of Rochester, New York, consists of
- A) low-lying sedimentary rock
B) rounded hills of igneous rock
C) areas of exposed metamorphic rock
D) disturbed sedimentary layers of high relief

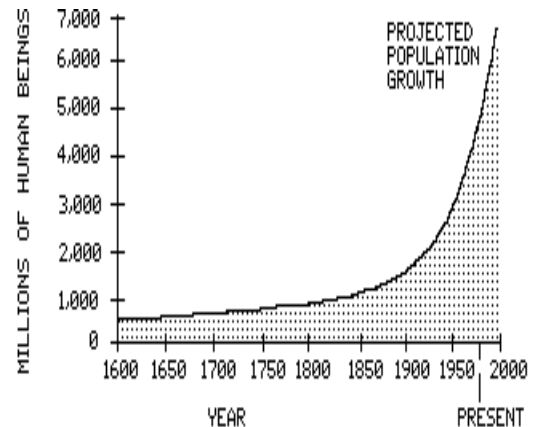
- 30) The diagram below represents a cross section of a series of horizontal sedimentary rock layers.



The variation in the steepness of the eroded hillslopes in the diagram is most likely due to the

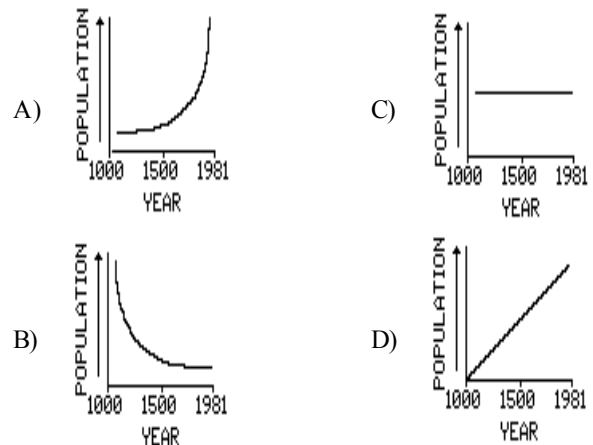
- A) age of the rock layers
 B) tilt of the rock layers
 C) resistance of the rock layers
 D) thickness of the rock layers
- 31) Which major landscape region covers the *greatest* surface area in New York State? [Refer to the *Earth Science Reference Tables*.]
- A) Atlantic Coastal Plains
 B) New England Highlands
 C) Appalachian Uplands
 D) St. Lawrence Lowlands
- 32) Which change would be occurring in a landscape region where uplifting forces are dominant over leveling forces?
- A) hill slopes that are increasing in steepness with time
 B) a state of dynamic equilibrium existing with time
 C) topographic features that are becoming smoother with time
 D) streams that are decreasing in velocity with time
- 33) Which factor has had the *greatest* influence on landscape development throughout New York State?
- A) vegetation
 B) soil type
 C) time
 D) ocean currents
- 34) Which feature would most likely indicate the boundary between two landscape regions?
- A) bedrock containing two distinctly different fossil types
 B) a sharp change in elevation between two different adjoining bedrock structures
 C) a large stream flowing down a long V-shaped valley
 D) deposits of unsorted sediments adjacent to polished and scratched bedrock
- 35) According to the *Earth Science Reference Tables*, which landscape region separates the Adirondack Mountains from the Catskills?
- A) Champlain Lowlands
 B) Hudson-Mohawk Lowlands
 C) Tug Hill Plateau
 D) Taconic Mountains

- 36) The well-defined boundaries of New York State's several distinct landscape regions are based on
- A) extreme difference in climate
 B) differences in bedrock composition and structure
 C) rate of sediment deposition
 D) varieties of vegetation
- 37) The graph below shows the growth of the world's human population in the past 400 years.



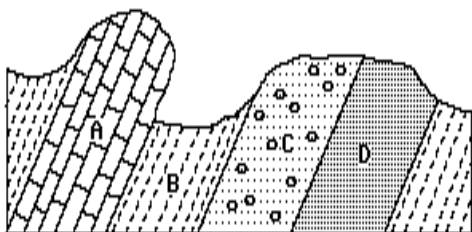
Compared to the rate at which the world's population increased between 1600 and 1700, the rate of the increase from 1900 to the present has been

- A) faster, only
 B) the same
 C) first faster, then slower
 D) slower, only
- 38) Which graph best represents human population growth?



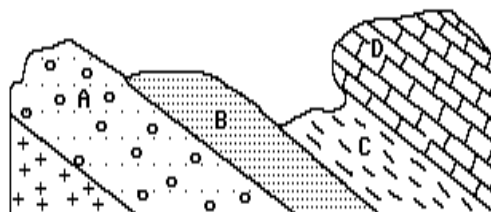
- 39) The process of developing and implementing environmental conservation programs is most dependent on
- A) public awareness and cooperation
 B) the availability of the most advanced technology
 C) stricter environmental laws
 D) the Earth's ability to restore itself

- 40) A local landscape can be changed most in the shortest amount of time by
- activities of humans
 - a changing climate
 - wind erosion
 - physical weathering
- 41) The diagram below represents a geologic cross section with sedimentary rock layers *A*, *B*, *C*, and *D* exposed to the atmosphere. Which rock layer in the diagram is most resistant to weathering and erosion?

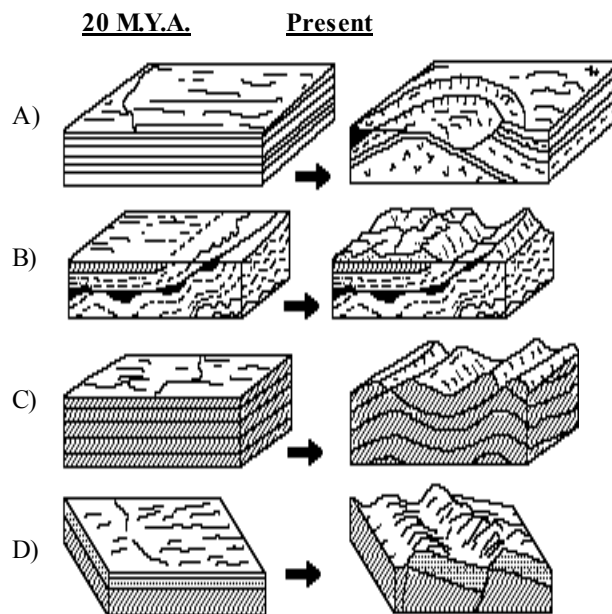


- A) *D* B) *B* C) *C* D) *A*
- 42) Which occurs as a stream is gradually uplifted?
- Its stream discharge will probably decrease.
 - Its ability to erode will probably increase.
 - Its potential energy will probably decrease.
 - Its amount of streambed deposits will probably increase.
- 43) A landscape is characterized by much transported soil, scratched rock surfaces, and wide U-shaped valleys. The developmental of this landscape is probably the result of
- glaciation
 - stream action
 - wind erosion
 - uplifting
- 44) What was one of the major effects of the continental glaciers on the landscapes of New York State?
- They deposited a covering of transported rock material over most of the State.
 - They carved the wide U-shaped valleys into narrow v-shaped valleys.
 - They folded many of the rock layers.
 - They formed numerous sharp mountain peaks and knife-edged ridges.
- 45) The Adirondack Mountains landscape region was formed primarily by
- changes in the water levels of the Great Lakes
 - mountain building and erosion
 - wind erosion in an arid climate
 - erosion by the Hudson and Mohawk Rivers
- 46) If the rate of erosion in a particular landscape on the Earth's surface increases and the uplifting forces remain constant, the elevation of that landscape will
- increase
 - remain the same
 - decrease

- 47) Over the past 2 million years, which erosional agent has been most responsible for producing the present landscape surface features of New York State?
- glaciation
 - wind
 - human activities
 - ground water
- 48) The diagram below represents a cross section of a portion of the Earth's crust showing four different rock layers, *A*, *B*, *C*, and *D*.

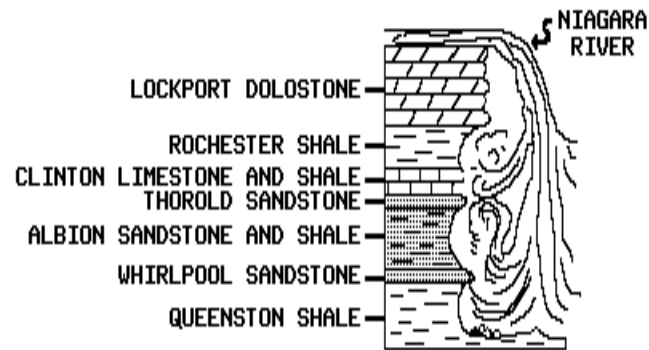


- Which rock layer shows the *greatest* evidence of erosion?
- A* B) *D* C) *B* D) *C*
- 49) The diagrams below represent four different regions that have undergone change as a result of uplifting forces and leveling forces over a period of time starting 20 million years ago (m.y.a.). Which region has had the *least* amount of uplifting during the last 20 million years?



- 50) Which characteristic of a landscape is usually the most difficult to observe?
- type of soil
 - gradient of a stream
 - rate of erosion
 - profile of the land

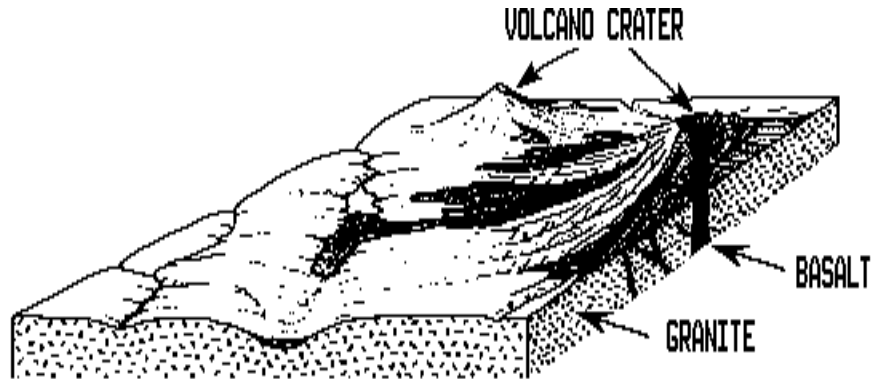
- 51) Which environmental factor probably would have the *least* effect on the development of a landscape region?
- bedrock composition and structure
 - type of climate
 - age of bedrock
 - uplifting and leveling forces
- 52) The diagram below shows a geologic cross section of the rock layers in the vicinity of Niagara Falls in western New York State.



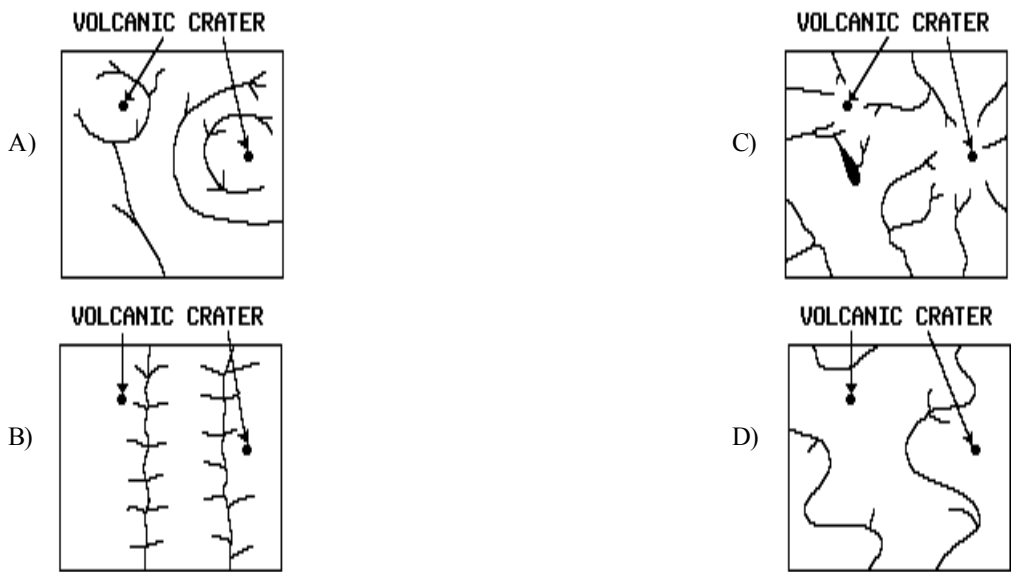
Which statement best explains the irregular shape of the rock face behind the falls?

- The Rochester and Queenston shale and the Albion sandstone and shale are less resistant to erosion than the other rock layers.
- The Thorold sandstone and the whirlpool sandstone dissolve easily in water.
- The Clinton limestone and shale contain many fossils.
- The Lockport dolostone is an evaporite.

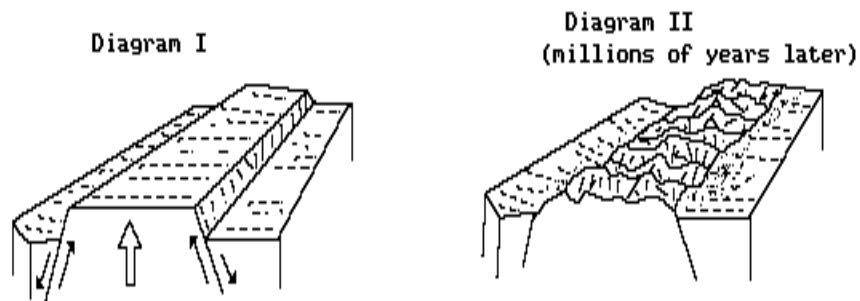
53) The diagram below shows two volcanoes with lava flows.



Which map best represents the stream drainage pattern of these volcanic mountains?



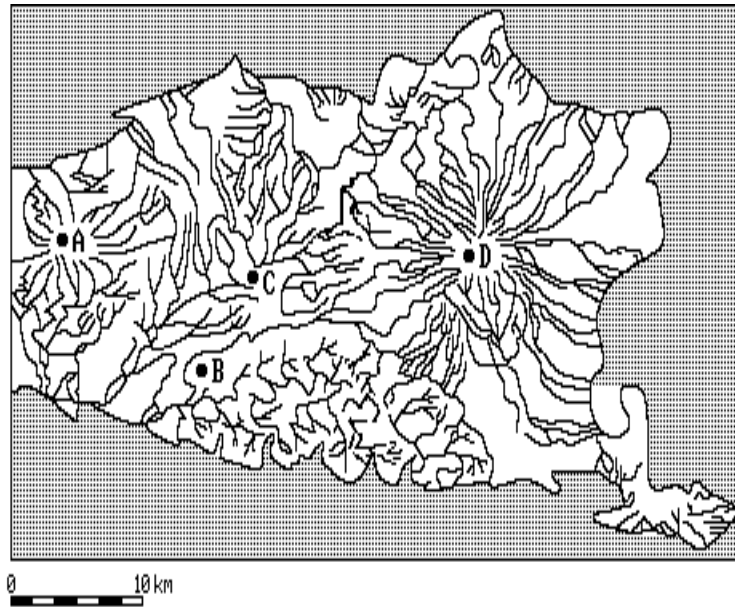
54) The diagrams below show the same region of the Earth's crust at two different times.



These diagrams seem to indicate that landscape features are the result of

- A) neither uplifting nor leveling forces acting on the Earth's crust
- B) only leveling forces within the Earth's crust
- C) only uplifting forces within the Earth's crust
- D) both uplifting and leveling forces acting on the Earth's crust

- 55) The map below shows the drainage patterns of a volcanic region.



Which two locations are most likely volcanic mountain peaks?

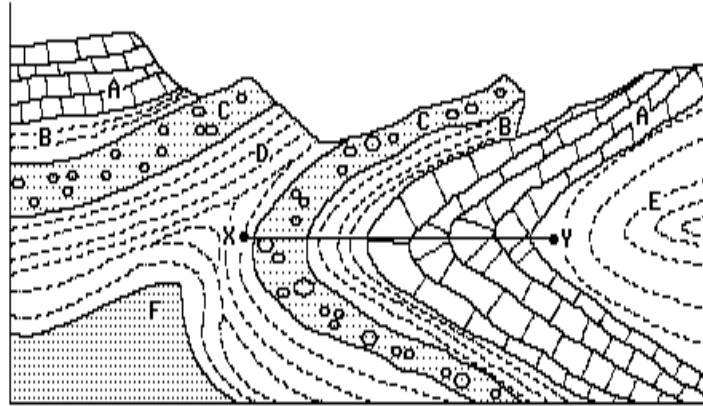
- A) *A* and *B* B) *B* and *C* C) *A* and *D* D) *B* and *D*
- 56) The diagram below represents a landscape area.



Which process is primarily responsible for the shape of the surface shown in the diagram?

- A) wave action B) stream erosion C) glacial action D) crustal subsidence

- 57) The diagram below shows a geologic cross section and landscape profile of a section of the Earth's crust.

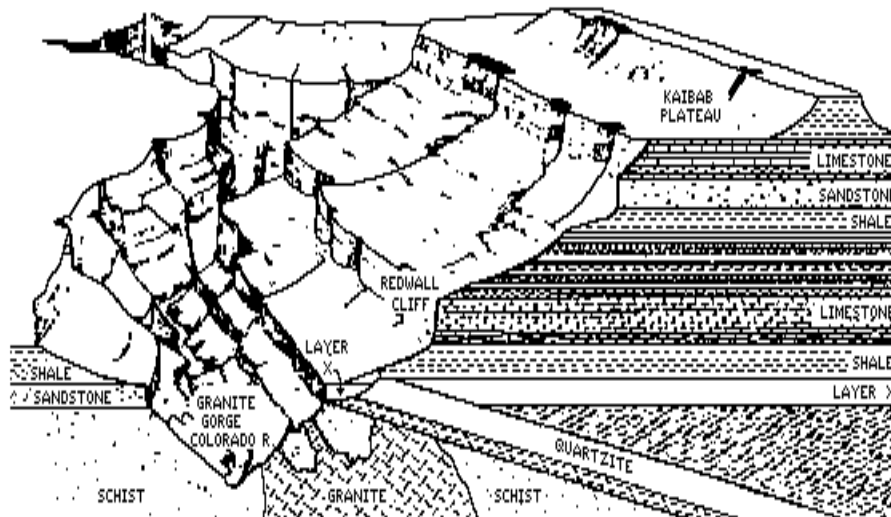


Based on the profile of this landscape, which statement is most likely correct?

- A) The folding of rock layers creates level landscapes.
- B) The erosional surface was formed before the rock layers were folded.
- C) Rock layer C is more resistant to erosion than rock layer B.
- D) Glaciers have been the major agent of erosion in this area.

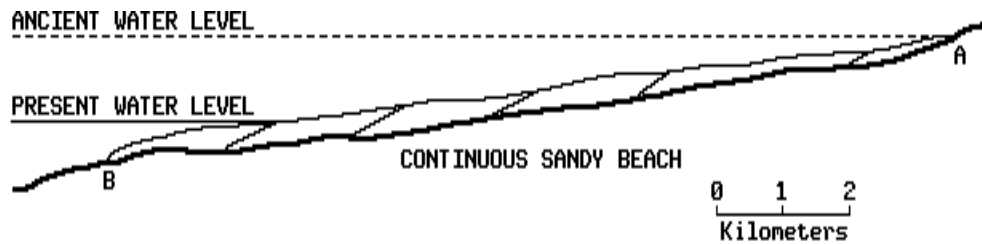
Questions 58 through 60 refer to the following:

The diagram below shows a cross section of the Grand Canyon. The rock type of layer X has been purposely left blank.



- 58) The Grand Canyon is primarily the result of erosion due to
- A) glaciers
 - B) wind
 - C) running water
 - D) volcanic activity
- 59) The most probable explanation for the development of the steep Redwall cliffs is that this limestone layer
- A) was uplifted by the granite intrusion
 - B) was deposited in a marine environment
 - C) is more resistant to erosion than the rock layers above and below the cliffs
 - D) is younger than the rock layers above the cliffs
- 60) This landscape area developed in an arid climate. If the climate of this region were to become humid, the hills would eventually
- A) become more rounded in shape
 - B) become more angular in shape
 - C) continue to erode in the same way
 - D) erode at a slower rate

- 61) The diagram below shows an area where sea level gradually dropped over a period of thousands of years. A continuous sandy beach deposit stretching from *A* to *B* was created.

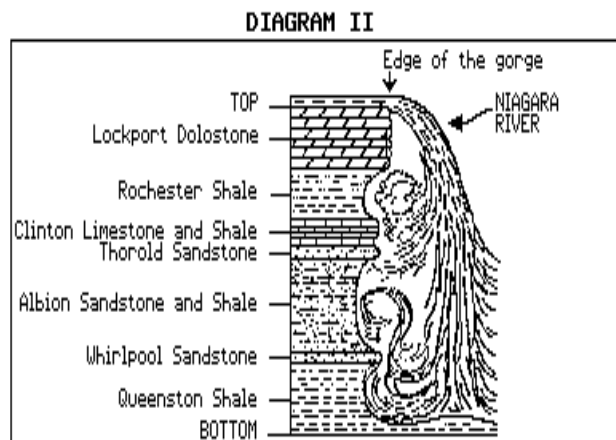
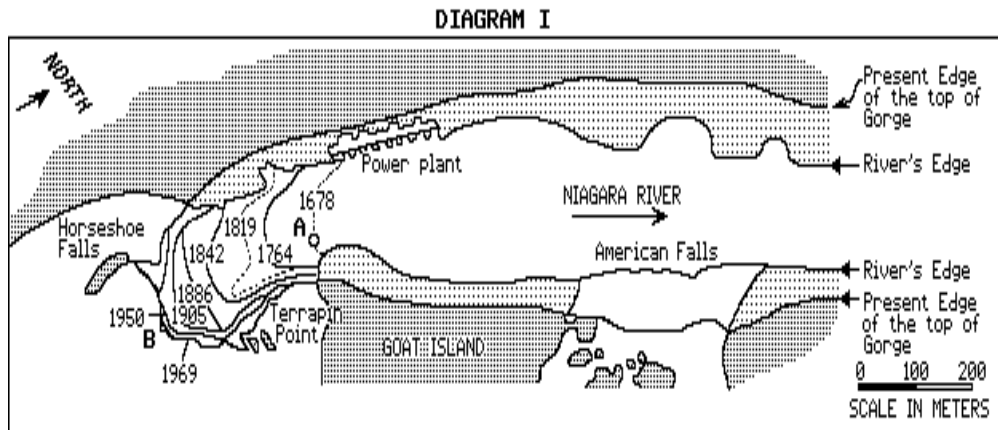


Which statement about the beach deposit would most likely be true?

- A) It is older at *A* than at *B*. B) It is older at *B* than at *A*. C) It is the same age at *A* and *B*.

Questions 62 through 66 refer to the following:

Diagram I shows a map of Niagara Falls and part of the Niagara River Gorge. The past locations of the edge of the river gorge are labeled in calendar years from 1678 to 1969. The lines show the changing locations of the edge of the Horseshoe Falls as it receded (eroded upstream) due to weathering and undercutting. Diagram II shows a geologic cross section of the rock layers at the edge of the Niagara River Gorge.



- 62) According to the geologic cross section (diagram *II*), the top rock layer at Niagara Falls consists of
- A) metamorphosed clay, sand, and volcanic ash
 - B) banded and distorted layers due to extreme pressure
 - C) crystalline minerals resulting from melting and solidification
 - D) marine-derived sediments compacted and cemented together
- 63) In which New York State landscape region is Niagara Falls located? [Refer to the *Earth Science Reference Tables*.]
- A) Erie-Ontario Lowlands
 - B) St. Lawrence Lowlands
 - C) Appalachian Plateau
 - D) Tug Hill Plateau
- 64) According to the map and scale, what is the approximate rate at which the Horseshoe Falls receded upstream from point *A* in 1678 to point *B* in 1969?
- A) 10 meters per year
 - B) 200 meters per year
 - C) 0.1 meter per year
 - D) 1 meter per year
- 65) According to the *Earth Science Reference Tables*, what is the age of the surface bedrock at Niagara Falls, New York?
- A) Devonian
 - B) Ordovician
 - C) Silurian
 - D) Cambrian
- 66) Most scientists believe that the Niagara River started flowing at the end of the last ice age. During which geologic epoch did this ice age occur? [Refer to the *Earth Science Reference Tables*.]
- A) Pleistocene
 - B) Miocene
 - C) Early Triassic
 - D) Paleocene