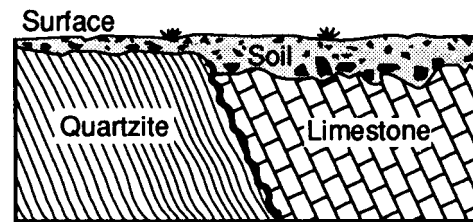


- Chemical weathering occurs most rapidly in climates which are
  - moist and warm
  - moist and cold
  - dry and cold
  - dry and warm
- At high elevations in New York State, which is the most common form of physical weathering?
  - abrasion of rocks by the wind
  - alternate freezing and melting of water
  - dissolving of minerals into solution
  - oxidation by oxygen in the atmosphere
- Water is a major agent of chemical weathering because water
  - cools the surroundings when it evaporates
  - dissolves many of the minerals that make up rocks
  - has a density of about one gram per cubic centimeter
  - has the highest specific heat of all common earth materials
- Which process involves either a physical or chemical breakdown of earth materials?
  - deposition
  - sedimentation
  - weathering
  - cementing
- Which change in the climate of New York State would most likely cause the greatest increase in chemical weathering of local bedrock?
  - lower temperature in winter
  - lower humidity in winter
  - higher atmospheric pressure in summer
  - greater precipitation in summer
- Chemical weathering will occur most rapidly when rocks are exposed to the
  - hydrosphere and lithosphere
  - mesosphere and thermosphere
  - hydrosphere and atmosphere
  - lithosphere and atmosphere
- Rock samples brought back from the Moon show absolutely no evidence of chemical weathering. This is most likely due to
  - the lack of an atmosphere on the Moon
  - extremely low surface temperatures on the Moon
  - lack of biological activity on the Moon
  - large quantities of water in the lunar "seas"
- Why will a rock weather more rapidly if it is broken into smaller particles?
  - The mineral structure of the rock has been changed.
  - The smaller particles are less dense.
  - The total mass of the rock and the particles is reduced.
  - There is more surface area exposed.

- In which climate does physical weathering by frost action most easily occur?
  - dry and hot
  - dry and cold
  - moist and hot
  - moist and cold
- A large rock is broken into several smaller pieces. Compared to the rate of weathering of the large rock, the rate of weathering of the smaller pieces is
  - less
  - greater
  - the same
- The cross section below shows residual soils that developed on rock outcrops of metamorphic quartzite and sedimentary limestone.



- Which statement best explains why the soil is thicker above the limestone than it is above the quartzite?
- The quartzite formed from molten magma.
  - The limestone is thicker than the quartzite.
  - The quartzite is older than the limestone.
  - The limestone is less resistant to weathering than the quartzite.
- Which change would cause the topsoil in New York State to increase in thickness?
    - an increase in slope
    - an increase in biologic activity
    - a decrease in rainfall
    - a decrease in air temperature
  - Which factors most directly control the development of soils?
    - soil particle sizes and method of deposition
    - bedrock composition and climate characteristics
    - direction of prevailing winds and storm tracks
    - earthquake intensity and volcanic activity
  - The mineral composition of a residual soil is most affected by the
    - depth of the water table
    - elevation of the surface
    - steepness of hillslopes
    - type of bedrock material
  - Soil horizons develop as a result of
    - evaporation and transpiration
    - compacting and cementing
    - weathering and biological activity
    - faulting and folding

16. When minerals are dissolved, how are the resulting ions carried by rivers?
- (1) by precipitation
  - (2) by tumbling and rolling
  - (3) in suspension
  - (4) in solution
17. What is the source of most dissolved minerals in seawater?
- (1) weathering of seafloor rocks
  - (2) weathering and erosion of continental rocks
  - (3) deep-ocean organic-matter sediments
  - (4) gases from underwater volcanic eruptions
18. The composition of sediments on the Earth's surface usually is quite different from the composition of the underlying bedrock. This observation suggests that most
- (1) bedrock is formed from sediments
  - (2) bedrock is resistant to weathering
  - (3) sediments are residual
  - (4) sediments are transported
19. Large igneous boulders have been found on surface sedimentary bedrock in Syracuse, New York. Which statement best explains the presence of these boulders?
- (1) Sedimentary bedrock is composed of igneous boulders.
  - (2) Boulders were transported to the area by ice.
  - (3) The area has had recent volcanic activity.
  - (4) The area was once part of a large mountain range.
20. Which statement best characterizes the soils found in New York State?
- (1) All the soil has been removed by glaciation.
  - (2) Wind erosion has been the dominant agent in soil formation.
  - (3) Transported soils are similar in composition to underlying bedrock.
  - (4) Transported soils are far more common than residual soils.
21. Which rock material was most likely transported to its present location by a glacier?
- (1) rounded sand grains found in a river delta
  - (2) rounded grains found in a sand dune
  - (3) residual soil found on a flat plain
  - (4) unsorted loose gravel found in hills
22. What change will a pebble usually undergo when it is transported a great distance by streams?
- (1) It will become jagged and its mass will decrease.
  - (2) It will become jagged and its volume will increase.
  - (3) It will become rounded and its mass will increase.
  - (4) It will become rounded and its volume will decrease.
23. Which statement identifies a result of glaciation that has had a positive effect on the economy of New York State?
- (1) Large amounts of oil and natural gas were formed.
  - (2) The number of usable water reservoirs was reduced.
  - (3) Many deposits of sand and gravel were formed.
  - (4) Deposits of fertile soil were removed.
24. A large, scratched boulder is found in a mixture of unsorted, smaller sediments forming a hill in central New York State. Which agent of erosion most likely transported and then deposited this boulder?
- (1) wind
  - (2) a glacier
  - (3) ocean waves
  - (4) running water
25. Which erosional force acts alone to produce avalanches and landslides?
- (1) gravity
  - (2) winds
  - (3) running water
  - (4) sea waves
26. As the slope of a streambed increases, the average velocity of the stream generally
- (1) decreases
  - (2) increases
  - (3) remains the same
27. A mixture of the sediments listed below is being carried by a river that empties into a lake. Assuming that all four sediments arrived at the mouth of the river together, which sediment will probably be carried farthest into the lake by the river current? [Refer to the *Earth Science Reference Tables*.]
- (1) sand
  - (2) pebbles
  - (3) silt
  - (4) clay
28. Stream *A* has a steeper slope than stream *B*. However, the average water velocity of stream *B* is greater than that of stream *A*. Which is the most reasonable explanation for this?
- (1) Stream *B* has more friction to overcome along its banks.
  - (2) Stream *B* has a higher average temperature.
  - (3) Stream *B* has a greater volume of water.
  - (4) Stream *B* has a curved streambed.
29. According to the *Earth Science Reference Tables*, a stream flowing at a velocity of 100 centimeters per second can transport
- (1) silt, but not sand, pebbles, or cobbles
  - (2) silt and sand, but not pebbles or cobbles
  - (3) silt, sand, and pebbles, but not cobbles
  - (4) silt, sand, pebbles, and cobbles

30. Base your answer to the following question on the *Earth Science Reference Tables*.

What is the lowest stream velocity that would keep a cobble-sized particle moving downstream?

- (1) 100 cm/sec
- (2) 180 cm/sec
- (3) 220 cm/sec
- (4) 290 cm/sec

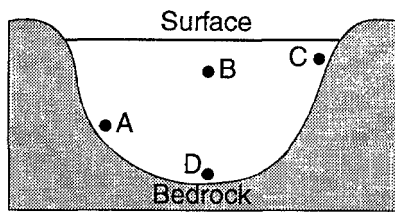
31. According to the *Earth Science Reference Tables*, which material would most easily be carried in suspension by a slow-moving stream?

- (1) clay
- (2) silt
- (3) sand
- (4) gravel

32. Which statement best describes a stream with a steep gradient?

- (1) It flows slowly, producing a V-shaped valley.
- (2) It flows slowly, producing a U-shaped valley.
- (3) It flows rapidly, producing a V-shaped valley.
- (4) It flows rapidly, producing a U-shaped valley.

33. The diagram below shows a cross section of a river. Letters *A*, *B*, *C*, and *D* represent points in the river.



At which point is the water most likely to have the greatest velocity?

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

34. As the velocity of a stream decreases, the amount of sediment in the water of the stream

- (1) decreases
- (2) increases
- (3) remains the same

35. A landscape region that has broad, U-shaped valleys with polished and grooved bedrock was most likely formed by

- (1) glaciers
- (2) wind
- (3) wave action
- (4) running water

36. At the present time, glaciers occur mostly in areas of

- (1) high latitude or high altitude
- (2) low latitude or low altitude
- (3) middle latitude and high altitude
- (4) middle latitude and low altitude

37. Which statement provides the best evidence that New York State's Finger Lakes formed as a result of continental glaciation?

- (1) The lake surfaces are above sea level.
- (2) The lakes fill long, narrow U-shaped valleys.
- (3) The lakes are partially filled with sorted beds of sediment.
- (4) The lakes are surrounded by sharp, jagged peaks and ridges.

38. Which characteristic of a transported rock would be most helpful in determining its agent of erosion?

- (1) age
- (2) density
- (3) composition
- (4) physical appearance

39. Sharp-edged, irregularly shaped sediment particles found at the base of a rock cliff were probably transported by

- (1) gravity
- (2) wind
- (3) ocean waves
- (4) running water

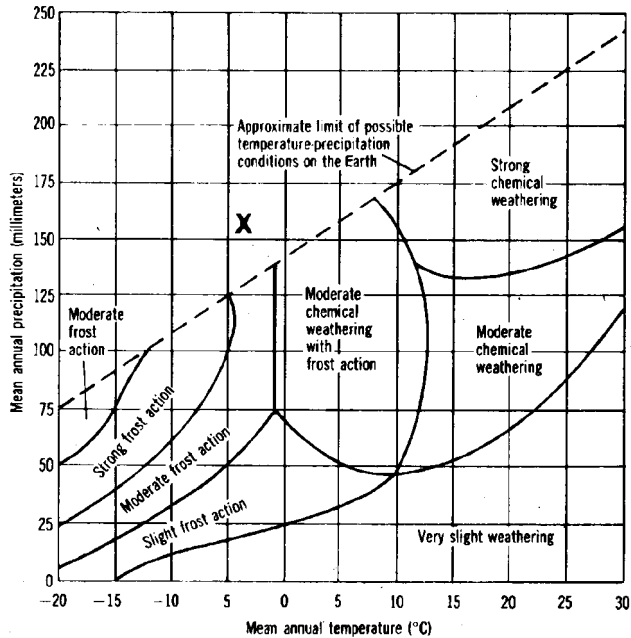
40. The greatest mass of rock material is transported to the Earth's oceans by

- (1) wind
- (2) rivers
- (3) glaciers
- (4) extraterrestrial events

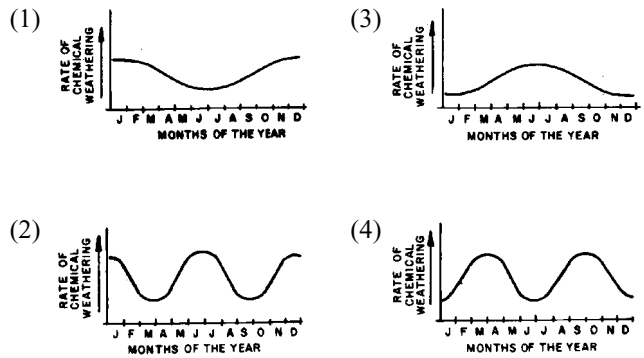
41. Based on current trends in the climate of New York State, which erosional agent will be the most dominant during the next 20 years?

- (1) streams
- (2) wind
- (3) glaciers
- (4) ocean waves

Base your answers to questions 42 through 45 on the diagram below which represents the dominant type of weathering for various climatic conditions.

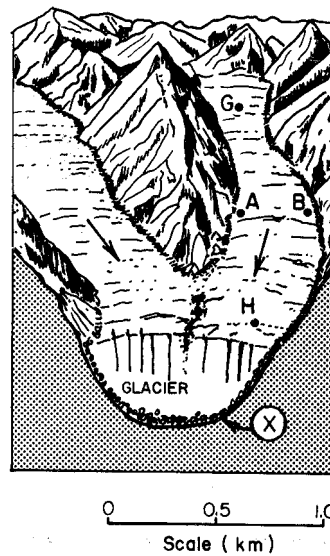


45. Assume that the rate of precipitation throughout the year is a constant. Which graph would most probably represent the chemical weathering of most New York State bedrock?



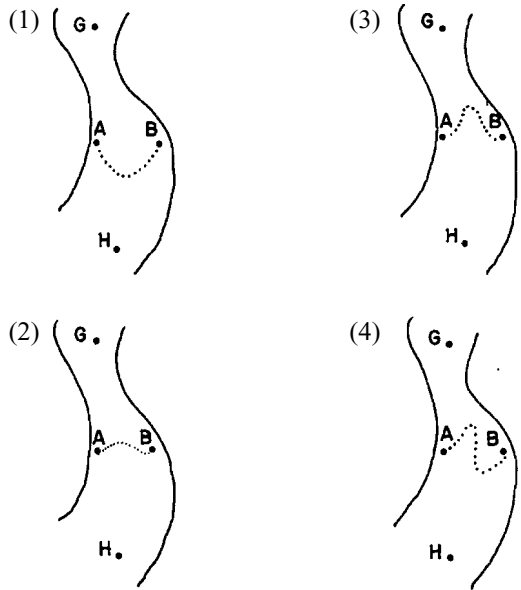
42. Which climatic conditions would produce very slight weathering?
- (1) a mean annual temperature of 25°C and a mean annual precipitation of 100 mm
  - (2) a mean annual temperature of 15°C and a mean annual precipitation of 25 mm
  - (3) a mean annual temperature of 5°C and a mean annual precipitation of 50 mm
  - (4) a mean annual temperature of -5°C and a mean annual precipitation of 50 mm
43. Why is no frost action shown for locations with a mean annual temperature greater than 13°C?
- (1) Very little freezing takes place at these locations.
  - (2) Large amounts of evaporation take place at these locations.
  - (3) Very little precipitation falls at these locations.
  - (4) Large amounts of precipitation fall at these locations.
44. There is no particular type of weathering or frost action given for the temperature and precipitation values at the location represented by the letter X. Why is this the case?
- (1) Only chemical weathering would occur under these conditions.
  - (2) Only frost action would occur under these conditions.
  - (3) These conditions create both strong frost action and strong chemical weathering.
  - (4) These conditions probably do not occur on the Earth.

Base your answers to questions 46 through 49 on the *Earth Science Reference Tables* and the diagram below. The diagram represents two branches of a valley glacier. Points A, B, G, and H are located on the surface of the glacier. Point X is located at the interface between the ice and the bedrock. The arrows indicate the general direction of ice movement.

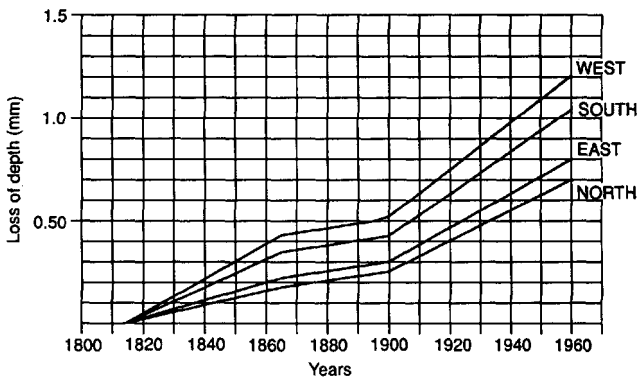


46. Which type of weathering most likely is dominant in the area represented by the diagram?
- (1) biologic activity
  - (2) frost action
  - (3) acid reactions
  - (4) chemical reactions
47. Which force is primarily responsible for the movement of the glacier?
- (1) ground water
  - (2) running water
  - (3) gravity
  - (4) wind
48. The sediment deposited by the valley glacier at position X is best described as
- (1) sorted according to particle size
  - (2) sorted according to particle density
  - (3) sorted according to particle texture
  - (4) unsorted

49. Metal stakes were placed on the surface of the glacier in a straight line from position *A* to position *B*. Which diagram best shows the position of the metal stakes several years later?



Base your answers to questions 50 through 53 on the graph below. The graph represents the loss of lettering depth due to weathering on the surface of four tombstones in a cemetery in New York State. The tombstones are all the same size and shape and are made from the same type of rock. Each tombstone faces a different direction (north, east, south, or west).



50. Which statement best explains why weathering of the tombstones occurred?

- (1) They were made of relatively hard materials.
- (2) They were made of rock with small particle sizes.
- (3) They were exposed to a warm, dry climate.
- (4) They were exposed to air and water.

51. The tombstone with the *least* weathering is facing

- (1) north
- (2) south
- (3) east
- (4) west

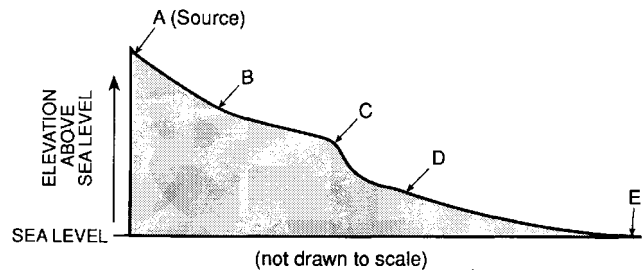
52. During which time period did the tombstones weather at the *slowest* rate?

- (1) 1840-1850
- (2) 1880-1890
- (3) 1920-1930
- (4) 1940-1950

53. Two other tombstones, *A* and *B*, are in the same cemetery. Both *A* and *B* face the same direction, have the same style and size of lettering, and have been standing for 100 years. The lettering is clear on *A* but not clear on *B*. Which is the most likely explanation for the difference?

- (1) Stone *B* is less porous than stone *A*.
- (2) Stone *B* is larger than stone *A*.
- (3) Stone *B* is composed of minerals that are less resistant to weathering than those of stone *A*.
- (4) Stone *B* was sheltered from weathering and stone *A* was not sheltered.

Base your answers to questions 54 through 57 on the *Earth Science Reference Tables* and the diagram below. The diagram represents a profile of a stream. Points *A* through *E* are locations along the stream.



54. The primary force responsible for the flow of water in this stream is

- (1) solar energy
- (2) magnetic fields
- (3) wind
- (4) gravity

55. The largest particles of sediment transported by the stream at location *C* are sand particles. What is the approximate velocity of the stream at location *C*?

- (1) 50 cm/sec
- (2) 200 cm/sec
- (3) 300 cm/sec
- (4) 600 cm/sec

56. In what way would a sediment particle most likely change while it is being transported by the stream?

- (1) It will become more dense.
- (2) It will become more angular.
- (3) Its size will decrease.
- (4) Its hardness will increase.

57. At which location would the amount of deposition be greatest?

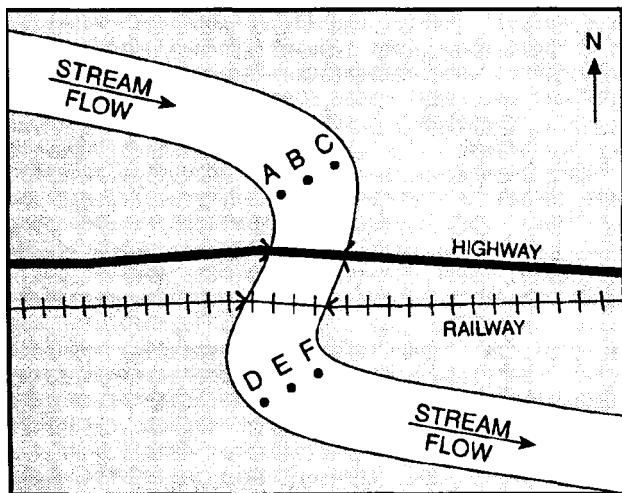
- (1) *A*
- (2) *B*
- (3) *E*
- (4) *D*

Base your answers to questions 58 and 59 on the chart below. The chart shows the salinity of three different water samples and their densities. Salinity is a measure of total amount of dissolved minerals in the sea water expressed as parts per thousand (%). The temperature of all three water masses is 20°C.

Water Sample	Salinity (‰)	Density (g/cm <sup>3</sup> )
A	36.3	1.026
B	34.0	1.024
C	35.3	1.025

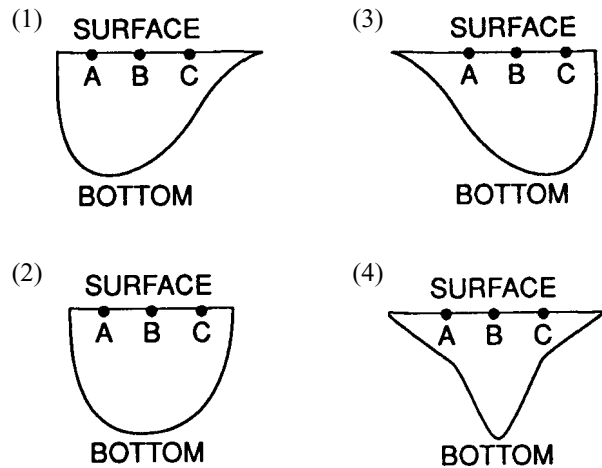
58. The three water samples were found in the same calm region of the ocean. What are their relative vertical positions?
- (1) C would be above A but below B
  - (2) A would be above both B and C
  - (3) B would be below both A and C
  - (4) C would be below A but above B
59. What is the major source of the dissolved minerals that affect the salinity of ocean water?
- (1) submarine volcanoes
  - (2) sediments eroded from land
  - (3) deep ocean sediments
  - (4) shells of sea animals

Base your answers to questions 60 through 64 on the *Earth Science Reference Tables* and the map below. The map represents a meandering stream with a constant gradient. The arrows show the direction of stream flow. Points A through F are locations in the stream.

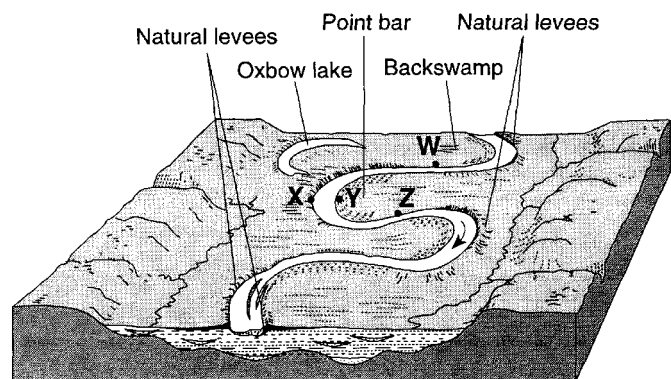


60. At which point would the most material be deposited by the stream?
- (1) F
  - (2) B
  - (3) C
  - (4) D

61. Which sediment would usually be deposited by the stream first?
- (1) clay
  - (2) silt
  - (3) sand
  - (4) pebbles
62. With which landscape feature would this meandering stream most likely be associated?
- (1) a canyon
  - (2) a gently sloping plain
  - (3) a large area of rapids
  - (4) a mountainous area
63. At which point would the stream most likely be flowing fastest?
- (1) A
  - (2) B
  - (3) C
  - (4) F
64. Which diagram best represents the cross section of the stream through points A, B, and C?



Base your answers to questions 65 through 69 on the *Earth Science Reference Tables* and the diagram below. The diagram represents the landscape features associated with a meandering stream. Points W, X, Y, and Z are locations along the stream bank.



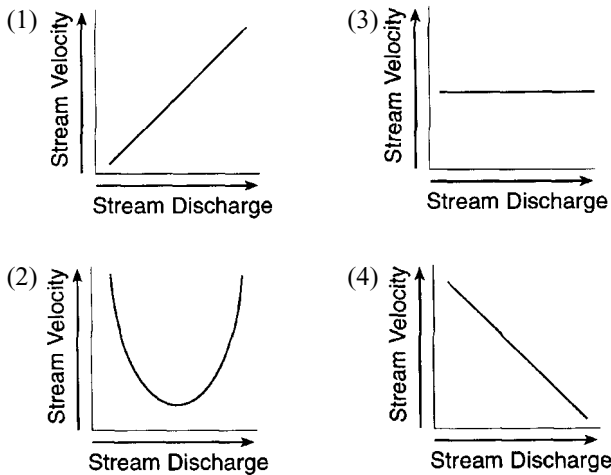
65. At which location is erosion greatest?
- (1) W
  - (2) X
  - (3) Y
  - (4) Z

66. The oxbow lake most likely formed when a
- (1) stream changed its path
  - (2) crater flooded
  - (3) cavern roof collapsed
  - (4) fault block subsided

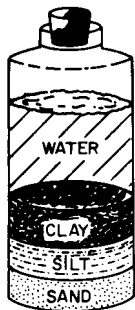
67. Sediment is usually deposited by the stream at locations where the stream
- (1) decreases in velocity
  - (2) decreases in width
  - (3) increases in potential energy
  - (4) increases in slope

68. Which material does the stream carry in solution?
- (1) sand
  - (2) silt
  - (3) colloids
  - (4) ions

69. Which graph shows how changes in stream discharge usually affect stream velocity?

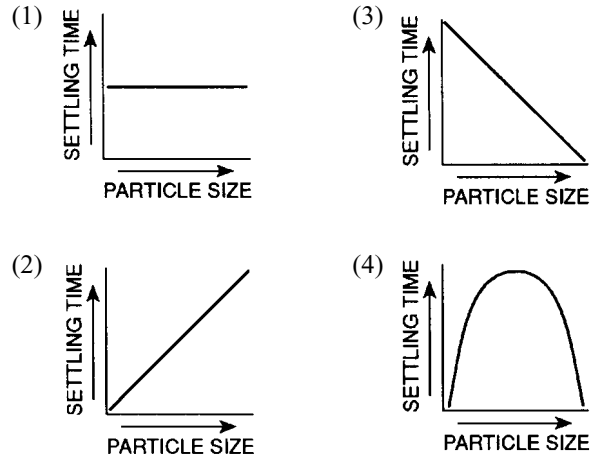


70. Clay, silt, and sand are added to a jar of water. The jar is shaken and then allowed to stand quietly for a number of hours. The result of this demonstration could be best used as a model to show that



- (1) particles with the lowest density settle the fastest
- (2) particles with the largest diameter settle the fastest
- (3) water has a higher specific gravity than clay, silt, and sand
- (4) the bottom layer of a series of sediments is the youngest

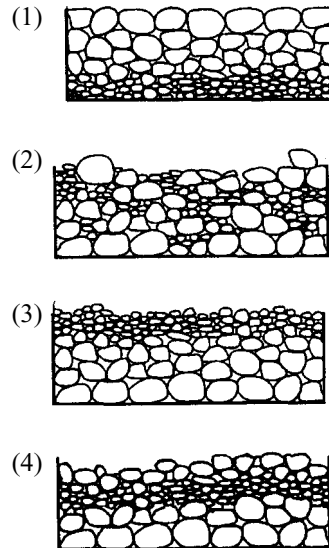
71. In a soil sample, the particles have the same shape but different sizes. Which graph best represents the relationship between particle size and settling time when these particles are deposited in a quiet body of water?



72. Which statement best describes pebbles?

- (1) Pebbles are rocks that form due to melting and solidification.
- (2) Pebbles are rocks that form due to cementation and compaction.
- (3) Pebbles are sediments that weather from larger sand grains.
- (4) Pebbles are sediments that range in size from 0.2 cm to 6.4 cm.

73. Quartz particles of varying sizes are dropped at the same time into deep, calm water. Which cross section best represents the settling pattern of these particles?

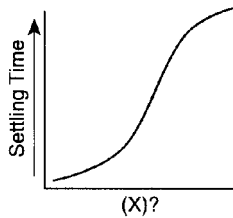


74. The chart below shows the results of an activity in which three samples of copper (*A*, *B*, and *C*) of equal mass were timed as they settled to the bottom of a column of water.

Sample A	Sample B	Sample C
13.10 sec	13.75 sec	13.50 sec

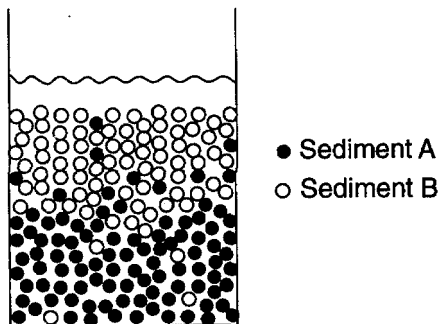
The differences in the settling time of the three samples are probably due to differences in their

- (1) density (3) color  
 (2) composition (4) shape
75. The graph below is incomplete because it does not identify the sediment characteristic (X) that would produce the line plotted on the graph.



Which label should be placed on the horizontal axis to accurately complete the graph?

- (1) Low → High Particle Density (3) Light → Heavy Particle Mass  
 (2) Small → Large Particle Size (4) Round → Flat Particle Shape
76. Particles of sediment *A* and sediment *B* were mixed in a container of water. They settled in the pattern shown in the diagram below.

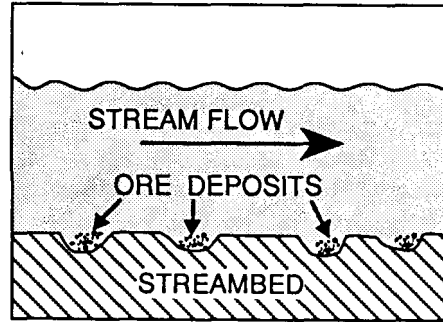


The pattern indicates that, compared to particles of sediment *B*, particles of sediment *A* have a

- (1) smaller volume (3) smaller volume  
 (2) greater density (4) rougher texture

77. A sedimentary particle is dropped into a cylinder of water. The particle will take the longest time to settle if the particle has
- (1) low density, small size, and spherical shape  
 (2) low density, small size, and flattened shape  
 (3) high density, large size, and spherical shape  
 (4) high density, large size, and flattened shape

78. The diagram below shows mineral ore sediments deposited in depressions on the bottom of a stream.

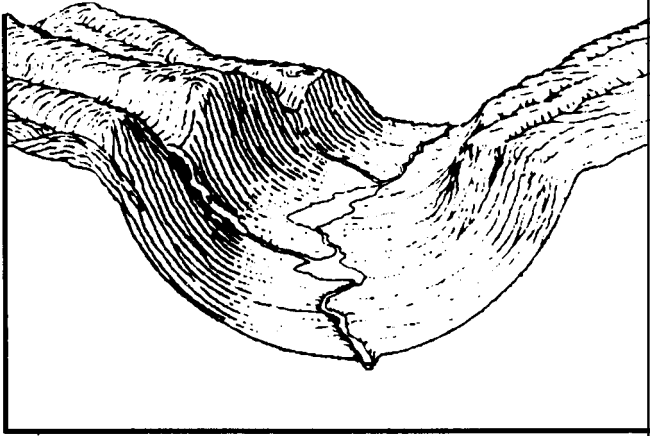


These deposits accumulated because the

- (1) stream velocity increased  
 (2) stream volume increased  
 (3) ore particles are smaller than other sediments  
 (4) ore particles are more dense than other sediments
79. More deposition than erosion will take place in a streambed when the
- (1) density of the rock particles carried by the stream decreases  
 (2) slope of the stream increases  
 (3) discharge of the stream increases  
 (4) velocity of the stream decreases
80. Two streams, *A* and *B*, carry the same volume of water, but stream *A* has a greater velocity. The most likely cause of this greater velocity would be that stream *A*
- (1) has more tributaries  
 (2) has a wider streambed  
 (3) flows down a steeper slope  
 (4) travels over less resistant bedrock



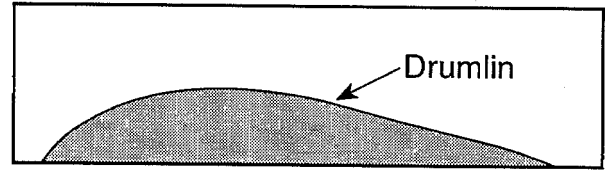
81. The diagram below represents the surface topography of a mountain valley.



Which agent of erosion most likely created the shape of the valley shown in the diagram?

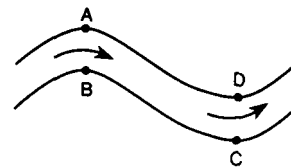
- (1) wind (2) glaciers (3) ocean waves (4) running water
82. Over the past 2 million years, which erosional agent has been most responsible for producing the present landscape surface features of New York State?
- (1) ground water (2) wind (3) glaciation (4) human activities
83. Which is the best evidence that more than one glacial advance occurred in a region?
- (1) ancient forests covered by glacial deposits  
 (2) river valleys buried deeply in glacial deposits  
 (3) scratches in bedrock that is buried by glacial deposits  
 (4) glacial deposits that overlay soils formed from glacial deposits
84. In which location is erosion usually greater than deposition?
- (1) in a stream channel that is being deepened  
 (2) along a coast where a sandbar is being enlarged  
 (3) at a point where a stream enters a lake  
 (4) at the base of a cliff where a pile of rock fragments is accumulating
85. Which landscape features are primarily the result of wind erosion and deposition?
- (1) U-shaped valleys containing unsorted layers of sediment  
 (2) V-shaped valleys containing well-sorted layers of sediment  
 (3) terraces of gravel containing unsorted layers of sediment  
 (4) cross-bedded sand deposits containing finely sorted layers of sediment

86. The diagram below represents a side view of a hill (drumlin) that was deposited by a glacier in central New York.

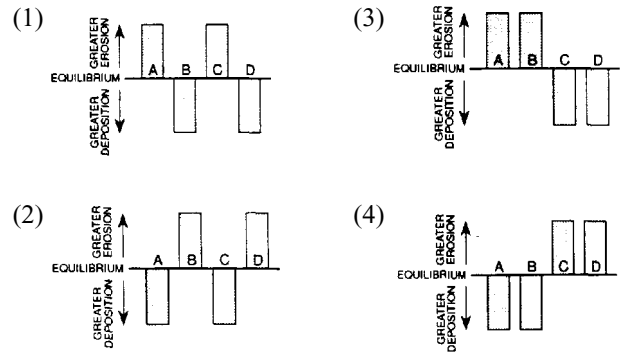


This hill is most likely composed of

- (1) cemented sediments  
 (2) unsorted sediments  
 (3) vertically layered sediments  
 (4) horizontally layered sediments
87. The diagram below represents a stream flowing in the direction indicated by the arrows.

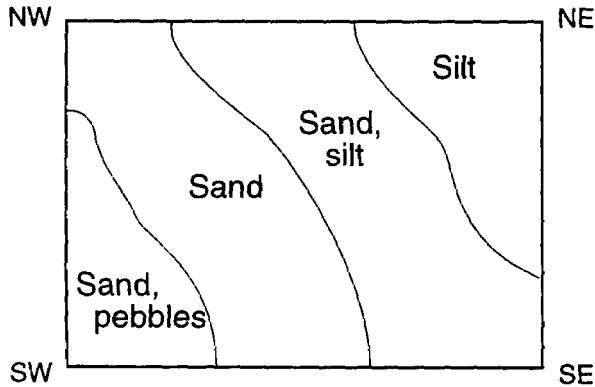


Which bar graph best represents the relative amounts of erosion and deposition at locations A, B, C, and D in the streambed?



88. Base your answer to the following question on the *Earth Science Reference Tables* and on your knowledge of Earth Science.

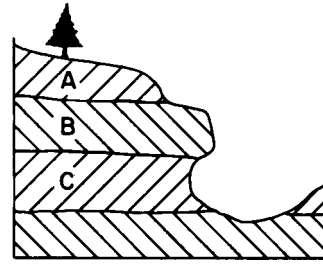
A stream entering a lake deposits sediments on the lake bottom in the pattern shown on the map below.



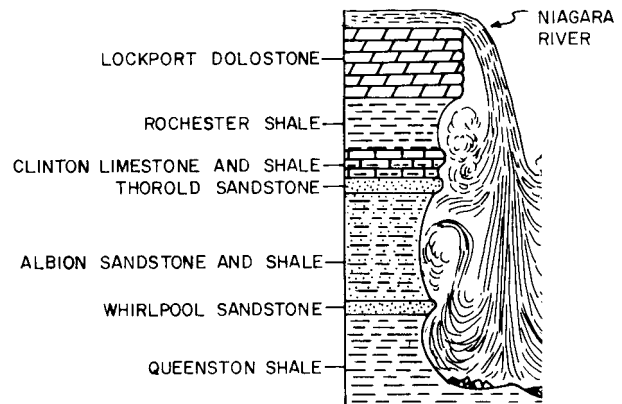
Which corner of the map is nearest to the point where the stream flows into the lake?

- (1) northeast (NE)
  - (2) northwest (NW)
  - (3) southeast (SE)
  - (4) southwest (SW)
89. At a particular location within a stream, the erosional rate and the depositional rate have the same value. What condition exists at this location?
- (1) Uplifting forces are now dominant over leveling forces.
  - (2) A state of dynamic equilibrium has been reached.
  - (3) The stream's velocity will no longer change.
  - (4) All of the stream's kinetic energy has been changed to potential energy.
90. If the gradient of a stream increases at a certain location, the probability that sediment will be deposited at that location
- (1) decreases
  - (2) increases
  - (3) remains the same
91. Which evidence best indicates that a landscape has been eroded primarily by streams?
- (1) parallel sets of U-shaped valleys
  - (2) sand dunes
  - (3) thick residual soil
  - (4) sorted layers of cobbles and sand
92. In which type of landscape are meandering streams most likely found?
- (1) regions of waterfalls
  - (2) gently sloping plains
  - (3) steeply sloping hills
  - (4) V-shaped valleys
93. Which substance found in a soil sample collected in an arid region would most likely be absent in a soil sample collected in a humid region?
- (1) rock salt
  - (2) quartz
  - (3) obsidian
  - (4) pyroxene

94. What is the best explanation for the shape of the cliff in the diagram?



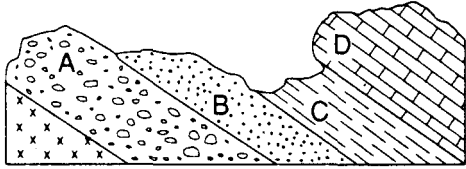
- (1) Rocks *A* and *C* are made of larger particles than rock *B*.
  - (2) The particles in rocks *A* and *C* are more firmly cemented than those in rock *B*.
  - (3) The minerals in rocks *A* and *C* erode faster than those in rock *B*.
  - (4) Rocks *A* and *C* have not been exposed to weathering as long as rock *B*.
95. The composition of residual soil is most likely determined by the
- (1) amount of average annual insolation
  - (2) type of bedrock material
  - (3) range of yearly temperature extremes
  - (4) amount of potential evapotranspiration
96. 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?

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

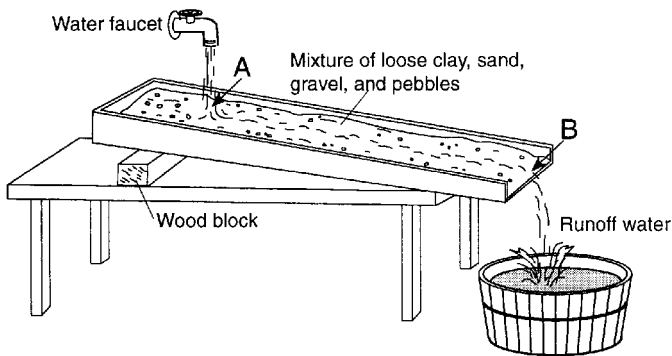
97. The diagram below represents a cross section of a portion of the Earth's crust showing four different rock layers, A, B, C, and D.



Which rock layer shows the greatest evidence of erosion?

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

Base your answers to questions 98 through 100 on the *Earth Science Reference Tables* and the diagram below. The diagram represents a laboratory stream table.



98. Which particles are transported most easily by the water in this stream?

- (1) clay (3) silt  
(2) sand (4) pebbles

99. When stream volume increases after the faucet is opened, stream velocity will

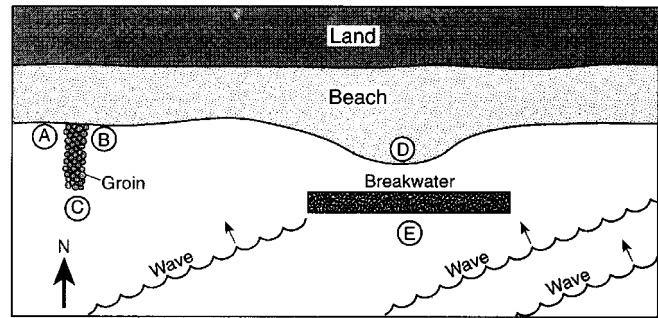
- (1) decrease (3) remain the same  
(2) increase

100. How do streams transport sediments?

- (1) in suspension, only  
(2) by rolling, only  
(3) in suspension and by rolling, only  
(4) in solution, in suspension, and by rolling

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Base your answers to questions 101 through 104 on the diagram below, which shows ocean waves approaching a shoreline. A groin (a short wall of rocks perpendicular to the shoreline) and a breakwater (an offshore structure) have been constructed along the beach. Letters A, B, C, D, and E represent locations in the area.



101. What is the most common cause of the approaching waves?

- (1) underwater earthquakes  
(2) variations in ocean-water density  
(3) the gravitational effect of the Moon  
(4) winds at the ocean surface

102. This shoreline is located along the east coast of North America. Which ocean current would most likely modify the climate of this shoreline?

- (1) Florida Current (3) Brazil Current  
(2) Canaries Current (4) California Current

103. At which location will the beach first begin to widen due to sand deposition?

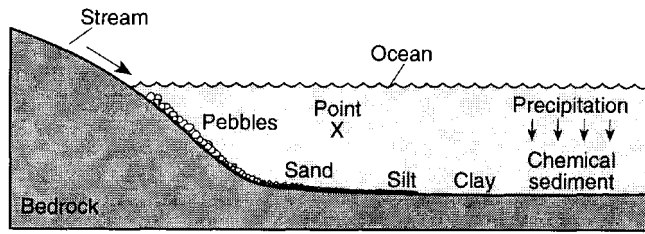
- (1) A (3) C  
(2) B (4) E

104. The size of the bulge in the beach at position D will

- (1) decrease (3) remain the same  
(2) increase

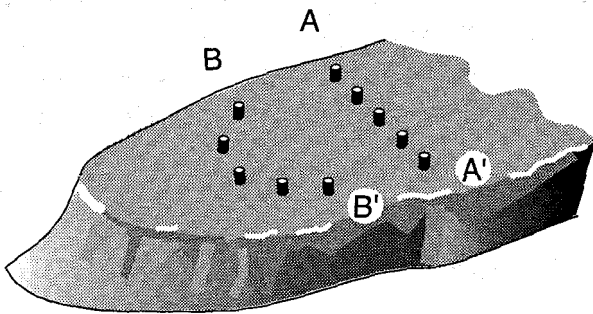
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Base your answers to questions 105 through 108 on the *Earth Science Reference Tables* and the profile shown below. The profile shows the pattern of horizontal sorting produced at a particular time when a sediment-laden stream enters the ocean.



105. Why is this pattern of horizontal sorting produced?
- (1) Sediments with a flatter shape settle faster.  
 (2) Lower density particles settle faster.  
 (3) Dissolved minerals are deposited first.  
 (4) Larger particles are deposited first.
106. Deposition of these sediments occurs when a stream enters the ocean because the stream current
- (1) decreases in width      (2) decreases in kinetic energy      (3) increases in potential energy      (4) increases in velocity
107. What is the approximate velocity of the remaining stream current at point X?
- (1) 100 cm/sec      (2) 70 cm/sec      (3) 30 cm/sec      (4) 5 cm/sec
108. Which change in the stream would cause pebbles to be deposited farther offshore?
- (1) a decrease in the stream's gradient      (3) an increase in the stream's discharge  
 (2) a decrease in the amount of sediment in the stream      (4) an increase in the density of the sediment

109. Which factor has the *least* effect on the weathering of a rock?
- (1) climatic conditions  
 (2) composition of the rock  
 (3) exposure of the rock to the atmosphere  
 (4) the number of fossils found in the rock
110. Wooden stakes were placed on a glacier in a straight line as represented by A–A' in the diagram below. The same stakes were observed later in the positions represented by B–B'.



The pattern of movement of the stakes provides evidence that

- (1) glacial ice does not move  
 (2) glacial ice is melting faster than it accumulates  
 (3) the glacier is moving faster in the center than on the sides  
 (4) friction is less along the sides of the glacier than in the center