

## Part B

Base your answers to questions 18 through 21 on the following diagrams. Diagram A shows the paths of two streams over Earth's surface. Diagram B shows the longitudinal profile of the major stream.

Diagram A

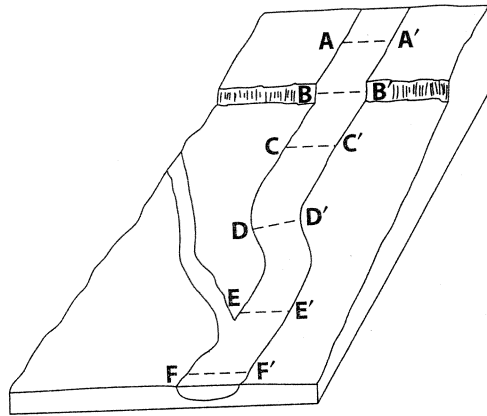
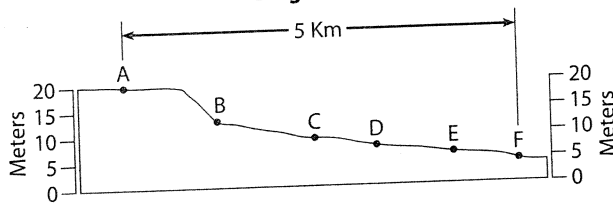
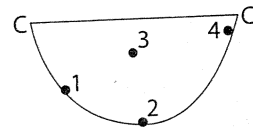


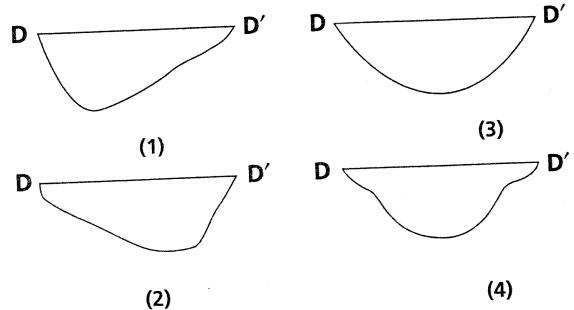
Diagram B



- 18 The following diagram shows the cross section of the stream at C-C'. At which position in the stream channel would the velocity of the water be greatest?



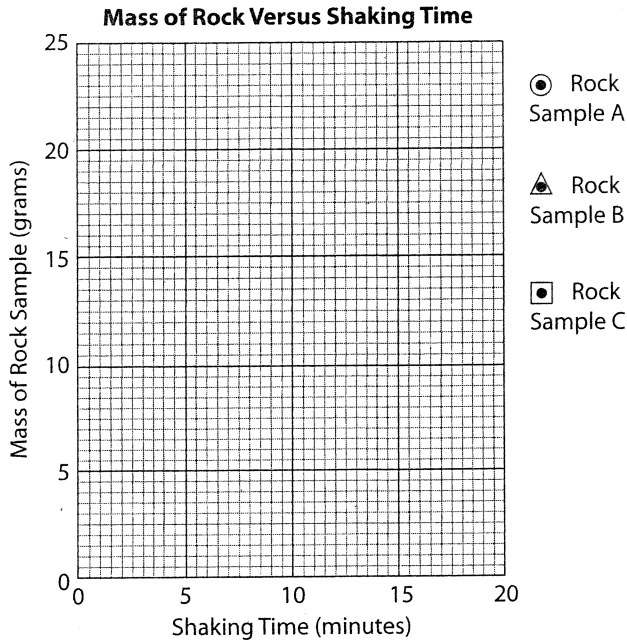
- 19 What is the approximate average gradient of this stream between points A and F? [1]  
 20 The greatest volume of water would most likely be moving past which location? [1]  
 21 Which cross-section best represents the shape of the stream at D-D'?



Base your answers to questions 22 through 27 on the following data table. Samples of three different rock materials, A, B, and C, were placed in different containers of water and shaken vigorously for 20 minutes. At 5-minute intervals, the contents of each container were strained through a sieve screening. The mass of the material remaining in the sieve was measured and recorded as shown in the data table.

Data Table: Mass of Material Remaining in Sieve			
Shaking Time (minutes)	Rock Material A (grams)	Rock Material B (grams)	Rock Material C (grams)
0	25.0	25.0	25.0
5	24.5	20.0	17.5
10	24.0	18.5	12.5
15	23.5	17.0	7.5
20	23.5	12.5	5.0

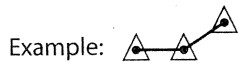
Following the directions in questions 22 through 24, use the information in the data table to construct a line graph on a grid such as the one shown.



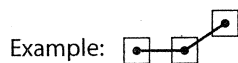
22 Plot the data for rock sample A for the 20 minutes of the investigation. Surround each point with a small circle and connect the points. [1]



23 Plot the data for rock sample B for the 20 minutes of the investigation. Surround each point with a small triangle and connect the points. [1]



24 Plot the data for rock sample C for the 20 minutes of the investigation. Surround each point with a small square and connect the points. [1]



25 State the most likely reason for the differences in the weathering rate of the three rock materials. [1]

26 Describe the most likely appearance of the corners and edges of rock material C at the end of the 20 minutes. [1]

27 Calculate the rate of change in the mass of rock material C at the end of the 20 minutes. [1]

## Part C

Use data from the paragraph below about sediment and your knowledge of earth science to answer questions 28 through 36.

A cobble-sized sediment is naturally broken off the steep sides of a valley in a mountainous region. The sediment falls onto a glacier that occupies much of the valley. Over several years, the sediment “falls through” the glacier and is then dragged along the glacier’s bottom. Next, the sediment is deposited in a pile of debris at the end of the glacier. A few years later, the sediment becomes part of a sand dune many miles from the glacier. The sediment is then transported to a stream from which, after a few months, it is deposited in a delta out in the ocean. Finally, the sediment becomes part of a child’s sand castle on a beach tens of miles from the delta.

28 What natural cause broke the sediment off the side of the valley? [1]

29 What is the most likely shape of the sediment just after it fell onto the glacier? Explain the reason for your answer. [2]

30 Explain how the sediment can be considered a “tool” or aid to erosion while it is in the glacier and describe a landscape feature the sediment could help create. [2]

31 Tell how the sediment would most likely end up in a sand dune due to natural processes. [1]

32 Provide three reasons to explain why the stream would transport the sediment at varying speeds. [3]

33 Explain how the sediment could have naturally moved from the delta to the beach. [2]

34 What evidence in the paragraph suggests that a human was an agent of erosion for the sediment? [1]

35 Based on your reading of the paragraph, list five natural agents of erosion that could have been responsible for moving the sediment. [2]

36 Describe three likely changes in the appearance of sediment as it was transported from the valley wall to the beach, and indicate the cause or causes of the changes. [3]