

The University of the State of New York  
REGENTS HIGH SCHOOL EXAMINATION

**PHYSICAL SETTING**  
**EARTH SCIENCE**

**Tuesday, January 27, 2004 — 1:15 to 4:15 p.m., only**

This is a test of your knowledge of Earth science. Use that knowledge to answer all questions in this examination. Some questions may require the use of the *Earth Science Reference Tables*. The *Earth Science Reference Tables* are supplied separately. Be certain you have a copy of the 2001 edition of these reference tables before you begin the examination.

Your answer sheet for Part A and Part B–1 is the last page of this examination booklet. Turn to the last page and fold it along the perforations. Then, slowly and carefully, tear off your answer sheet and fill in the heading.

The answers to the questions in Part B–2 and Part C are to be written in your separate answer booklet. Be sure to fill in the heading on the front of your answer booklet.

You are to answer *all* questions in all parts of this examination according to the directions provided in the examination booklet. Record your answers to the Part A and Part B–1 multiple-choice questions on your separate answer sheet. Write your answers to the Part B–2 and Part C questions in your answer booklet. All work should be written in pen, except for graphs and drawings, which should be done in pencil. You may use scrap paper to work out the answers to the questions, but be sure to record all your answers on your separate answer sheet and in your answer booklet.

When you have completed the examination, you must sign the statement printed at the end of your separate answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet and answer booklet cannot be accepted if you fail to sign this declaration.

Notice . . .

A four-function or scientific calculator and a copy of the 2001 *Earth Science Reference Tables* must be available for your use while taking this examination.

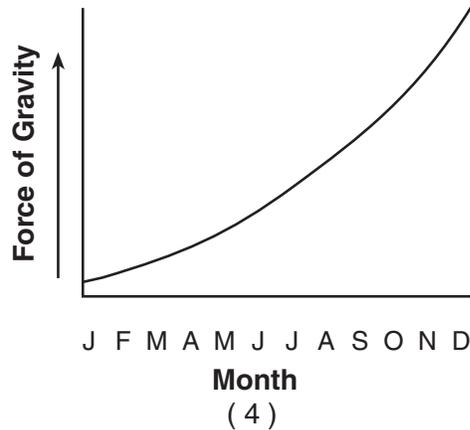
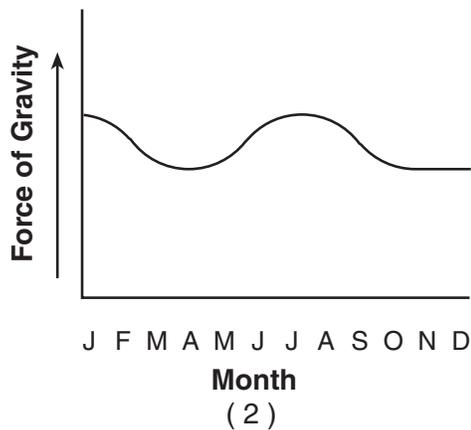
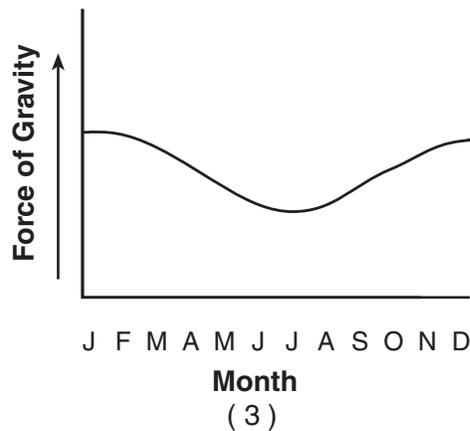
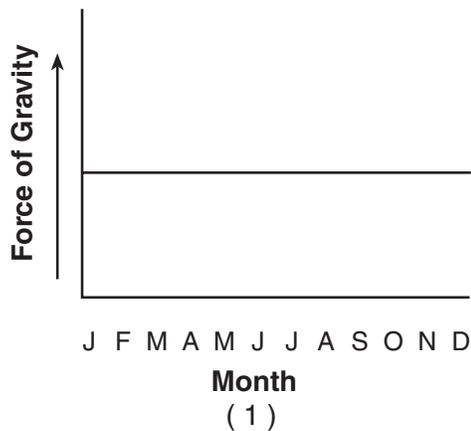
**DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.**

**Part A**

**Answer all questions in this part.**

*Directions (1–35):* For *each* statement or question, write on your separate answer sheet the *number* of the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the *Earth Science Reference Tables*.

- 1 Which graph best represents the force of gravity between Earth and the Sun during one revolution of Earth around the Sun?



- 2 Which celestial feature is largest in actual size?

- |              |                   |
|--------------|-------------------|
| (1) the Moon | (3) the Sun       |
| (2) Jupiter  | (4) the Milky Way |

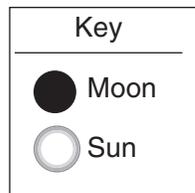
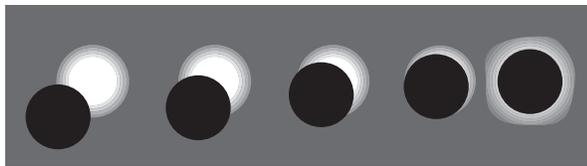
- 3 The best evidence that Earth rotates is provided by the

- (1) location of mid-oceanic ridge volcanoes and the distribution of index fossils
- (2) movement of Foucault pendulums and the Coriolis effect on air movement
- (3) pattern of changing seasons and the depth of meteor impacts
- (4) rate of uranium-238 decay and changes in atmospheric composition

- 4 How do Jupiter's density and period of rotation compare to Earth's?

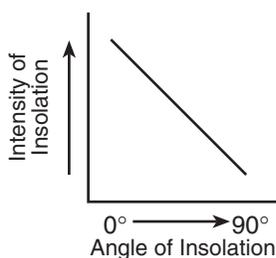
- (1) Jupiter is less dense and has a longer period of rotation.
- (2) Jupiter is less dense and has a shorter period of rotation.
- (3) Jupiter is more dense and has a longer period of rotation.
- (4) Jupiter is more dense and has a shorter period of rotation.

5 What is represented by the diagram below?

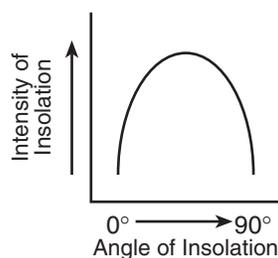


- (1) changing phases of the Sun
- (2) changing phases of the Moon
- (3) stages in an eclipse of the Sun
- (4) stages in an eclipse of the Moon

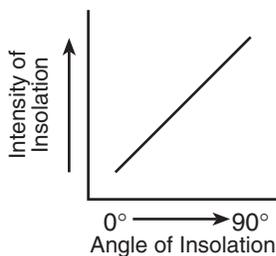
6 Which graph best represents the relationship between the angle of insolation and the intensity of insolation?



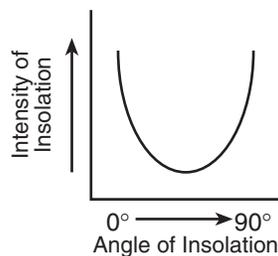
(1)



(3)



(2)



(4)

7 A square meter of surface of which of these natural areas would most likely absorb the most insolation during a clear day?

- (1) a fast-moving river
- (2) a dark-green forest
- (3) a beach with white sand
- (4) a snow-covered field

8 Which observable change would occur in New York State if Earth's rate of rotation were one-half its present rate?

- (1) The Sun would rise in the southwest each day.
- (2) The length of a day would be longer.
- (3) The time needed to complete a cycle of Moon phases would be greater.
- (4) The seasonal changes would not occur.

9 The data below represent some of the weather conditions at a New York State location on a winter morning.

Air temperature (dry-bulb temperature)	0°C
Relative humidity	81%
Present weather	snow

What was the dewpoint at this time?

- (1) 1°C
- (2) 2°C
- (3) -3°C
- (4) -5°C

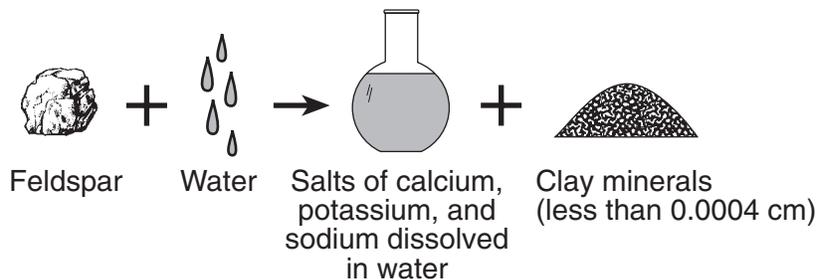
10 Students wish to study the effect of elevation above sea level on air temperature and air pressure. They plan to hike in the Adirondack Mountains from Heart Lake, elevation 2,179 feet, to the peak of Mt. Marcy, elevation 5,344 feet. Which instruments should they use to collect their data?

- (1) anemometer and psychrometer
- (2) anemometer and barometer
- (3) thermometer and psychrometer
- (4) thermometer and barometer

11 Weather-station measurements indicate that the dewpoint temperature and air temperature are getting farther apart and that air pressure is rising. Which type of weather is most likely arriving at the station?

- (1) a snowstorm
- (2) a warm front
- (3) cool, dry air
- (4) maritime tropical air

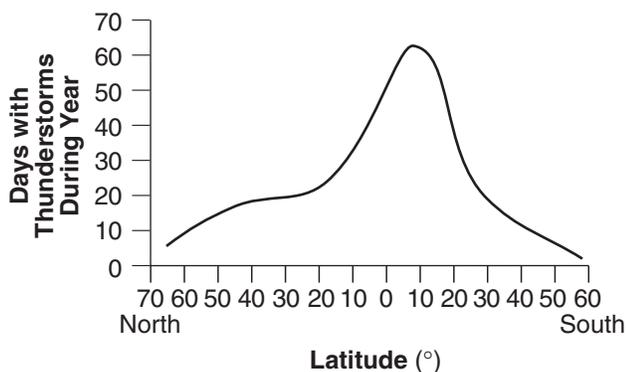
12 The diagram below represents a naturally occurring geologic process.



Which process is best illustrated by the diagram?

- (1) cementation  
 (2) erosion  
 (3) metamorphism  
 (4) weathering

13 The graph below shows the average number of days each year that thunderstorms occur at different latitudes on Earth.



According to the graph, what is the approximate number of days each year that thunderstorms occur at locations along the 40° N parallel of latitude?

- (1) 8 days  
 (2) 18 days  
 (3) 24 days  
 (4) 32 days
- 14 One result of a large volcanic eruption is that surface air temperatures decrease over a sizable region of Earth. This phenomenon occurs because volcanic eruptions usually *decrease* the
- (1) transparency of the atmosphere  
 (2) number of dust particles entering the atmosphere  
 (3) amount of moisture in the atmosphere  
 (4) reflection of sunlight within the atmosphere
- 15 When rainfall occurs, the rainwater will most likely become surface runoff if the land surface is
- (1) sandy  
 (2) impermeable  
 (3) covered with grass  
 (4) nearly flat

16 Fossil pollen has been recovered from sediments deposited in late-Pleistocene lakes. The pollen's geologic age can most accurately be measured by using

- (1) rubidium-87  
 (2) potassium-40  
 (3) oxygen-18  
 (4) carbon-14

17 Andrija Mohorovičić discovered the interface between the crust and the mantle that is now named for him. His discovery of the “Moho” was based on analysis of

- (1) landscape boundaries  
 (2) continental coastlines  
 (3) erosional surfaces  
 (4) seismic waves

18 Which phrase best describes coal?

- (1) low density, mafic  
 (2) chemical precipitate  
 (3) organic plant remains  
 (4) glassy texture, volcanic

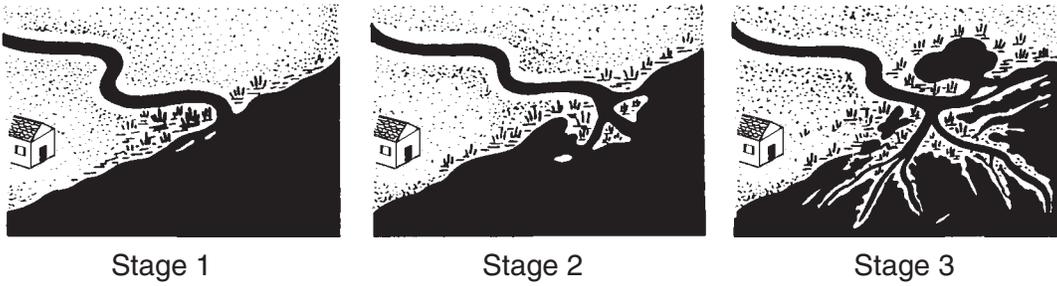
19 Which mineral will scratch glass (hardness = 5.5), but not pyrite?

- (1) gypsum  
 (2) fluorite  
 (3) orthoclase  
 (4) quartz

20 The observed difference in density between continental crust and oceanic crust is most likely due to differences in their

- (1) composition  
 (2) thickness  
 (3) porosity  
 (4) rate of cooling

21 The diagrams below show gradual stages 1, 2, and 3 in the development of a river delta where a river enters an ocean.



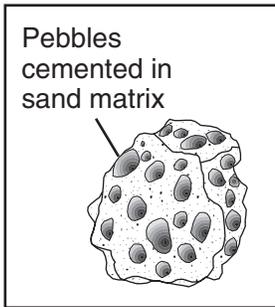
Which statement best explains why the river delta is developing at this site?

- (1) The rate of deposition is less than the rate of erosion.
- (2) The rate of deposition is greater than the rate of erosion.
- (3) Sea level is slowly falling.
- (4) Sea level is slowly rising.

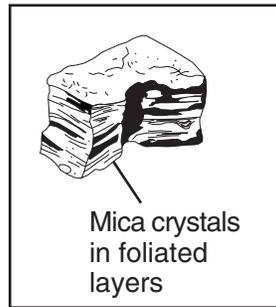
22 According to plate tectonic theory, during which geologic time interval did the continents of North America and Africa separate, resulting in the initial opening of the Atlantic Ocean?

- (1) Mesozoic Era
- (2) Paleozoic Era
- (3) Proterozoic Eon
- (4) Archean Eon

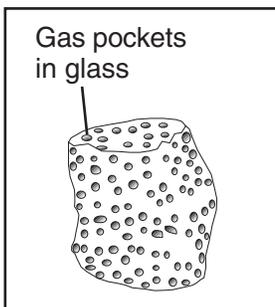
23 Which rock most probably formed directly from lava cooling quickly at Earth's surface?



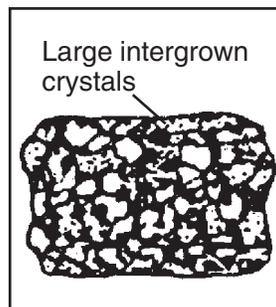
(1)



(3)

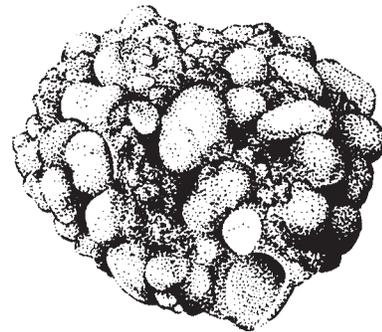


(2)



(4)

24 The diagram below shows a sedimentary rock sample.



(Shown actual size)

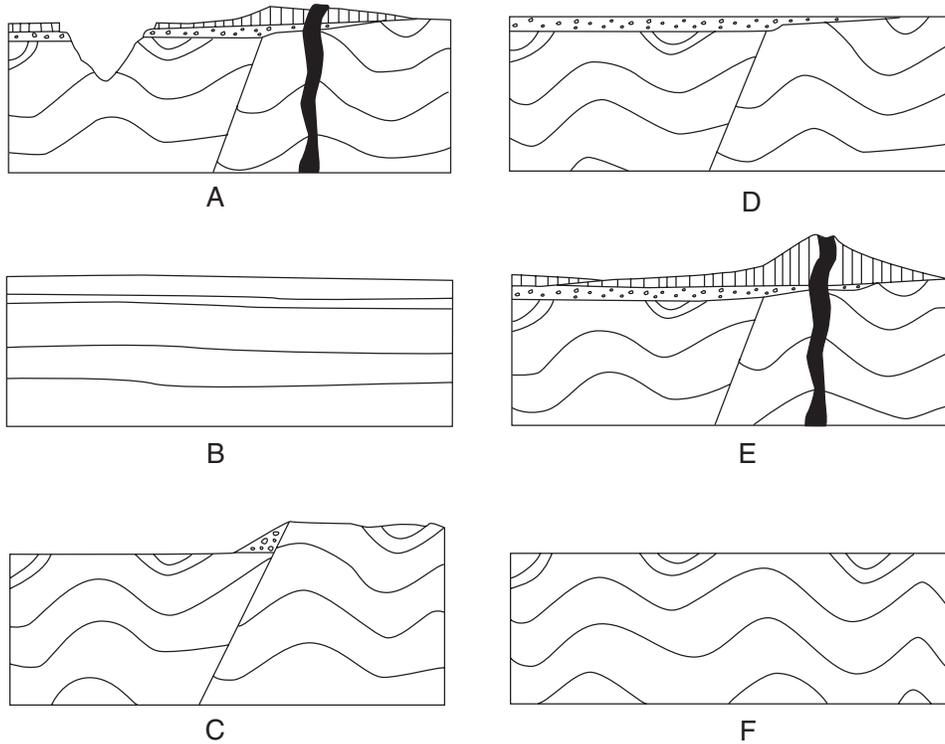
Which agent of erosion was most likely responsible for shaping the particles forming this rock?

- (1) mass movement
- (2) wind
- (3) glacial ice
- (4) running water

25 Near which location in New York State would a geologist have the greatest chance of finding dinosaur footprints in the surface bedrock?

- (1) 41° 10' N latitude, 74° W longitude
- (2) 42° 10' N latitude, 74° 30' W longitude
- (3) 43° 30' N latitude, 76° W longitude
- (4) 44° 30' N latitude, 75° 30' W longitude

26 Geologic cross sections A through F shown below represent different stages in the development of one part of Earth's crust over a long period of geologic time.



What is the correct order of development from the original (oldest) stage to the most recent (youngest) stage?

- (1)  $B \rightarrow D \rightarrow C \rightarrow F \rightarrow A \rightarrow E$       (3)  $E \rightarrow A \rightarrow D \rightarrow F \rightarrow C \rightarrow B$   
 (2)  $B \rightarrow F \rightarrow C \rightarrow D \rightarrow E \rightarrow A$       (4)  $E \rightarrow A \rightarrow F \rightarrow C \rightarrow D \rightarrow B$

27 The list below shows characteristics that vary from place to place on Earth.

- a Radioactive substances
- b Bedrock structures
- c Duration of insolation
- d Hillslopes
- e Stream patterns
- f Atmospheric composition

Observations and measurements of which three characteristics would be most useful in describing landscapes?

- (1)  $a, b,$  and  $c$       (3)  $b, d,$  and  $e$   
 (2)  $b, c,$  and  $f$       (4)  $d, e,$  and  $f$
- 28 Uranium-238 that crystallized at the same time Earth formed has undergone approximately how many half-lives of radioactive decay?
- (1) one half-life      (3) three half-lives  
 (2) two half-lives      (4) four half-lives

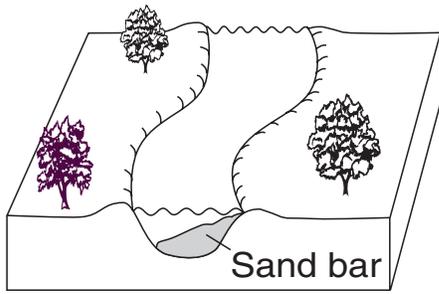
29 The photograph below shows a piece of halite that has been recently broken.



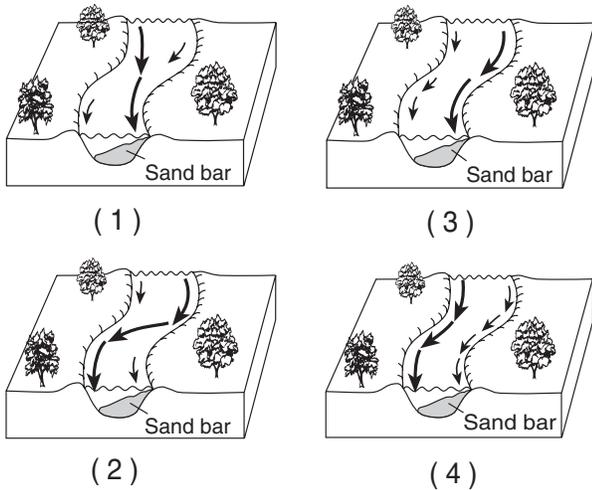
Which physical property of halite is demonstrated by this pattern of breakage?

- (1) hardness      (3) cleavage  
 (2) streak      (4) luster

- 30 The diagram below shows a meandering stream flowing across nearly flat topography and over loose sediments.

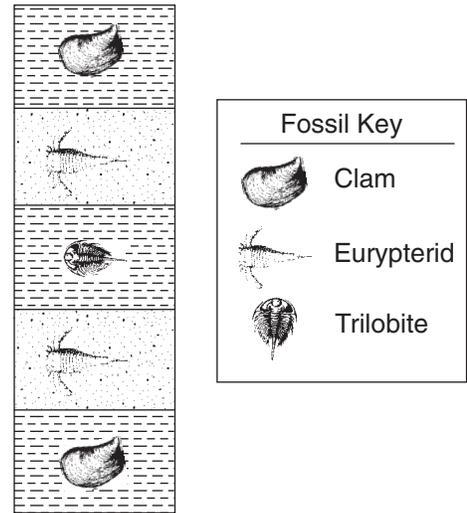


If arrow length represents stream velocity, which diagram best shows the relative stream velocities in this section of the stream?



- 31 Bedrock located near Old Forge, New York, would most likely have which characteristics?
- (1) clastic texture consisting of angular sediments of mostly quartz and feldspar cemented together
  - (2) crystalline texture composed predominantly of gypsum
  - (3) noncrystalline, glassy texture with a dark color
  - (4) foliated texture with mica and feldspar separated into bands
- 32 Bedrock of which four consecutive geologic periods is best preserved in New York State?
- (1) Cambrian, Ordovician, Silurian, Devonian
  - (2) Devonian, Carboniferous, Permian, Triassic
  - (3) Permian, Triassic, Jurassic, Cretaceous
  - (4) Jurassic, Cretaceous, Tertiary, Quaternary

- 33 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?

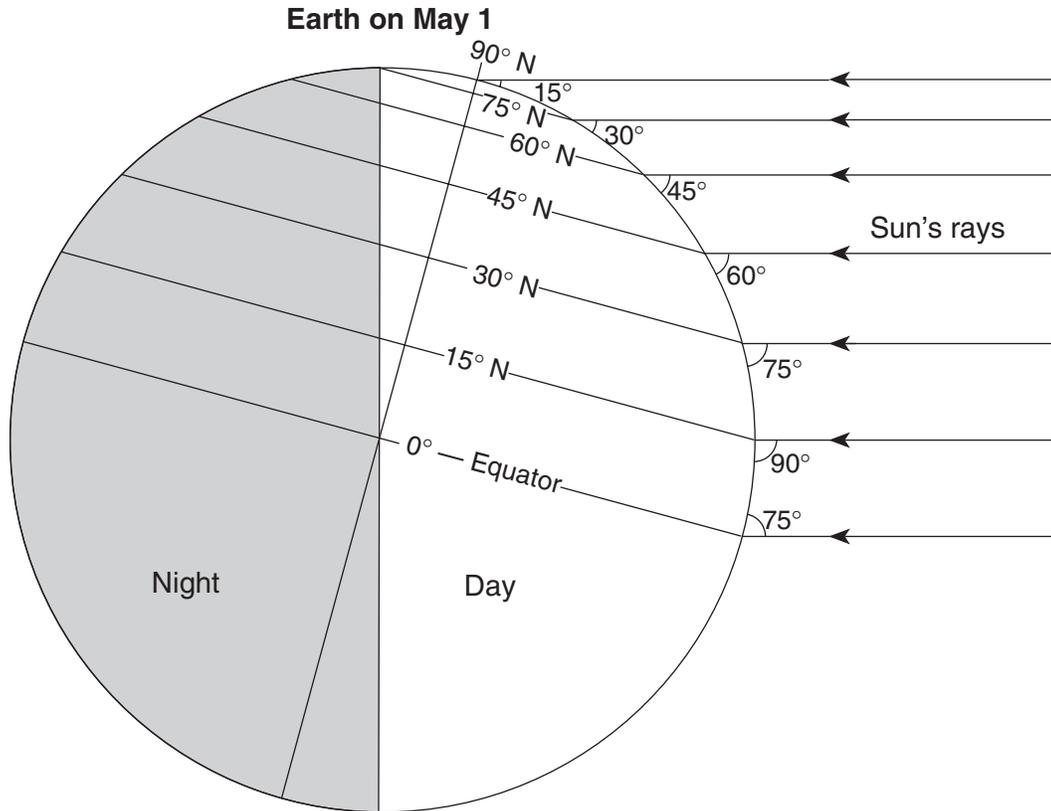
- (1) The same rock layers appear twice within the outcrop.
  - (2) The trilobite fossil is not found in all five layers.
  - (3) The sedimentary layers have the same thickness.
  - (4) The eurypterid fossil is absent in the middle layer.
- 34 A student determines the density of a mineral to be 1.5 grams per cubic centimeter. If the accepted value is 2.0 grams per cubic centimeter, what is the student's percent deviation (percent error)?
- (1) 25.0%
  - (2) 33.3%
  - (3) 40.0%
  - (4) 50.0%
- 35 What is the best way to determine if a mineral sample is calcite or quartz?
- (1) Observe the color of the mineral.
  - (2) Place the mineral near a magnet.
  - (3) Place a drop of acid on the mineral.
  - (4) Measure the mass of the mineral.

**Part B-1**

**Answer all questions in this part.**

*Directions (36–50):* For *each* statement or question, write on your separate answer sheet the *number* of the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the *Earth Science Reference Tables*.

Base your answers to questions 36 and 37 on the diagram below, which shows the angle of the Sun's noontime rays received at different Earth latitudes on May 1.



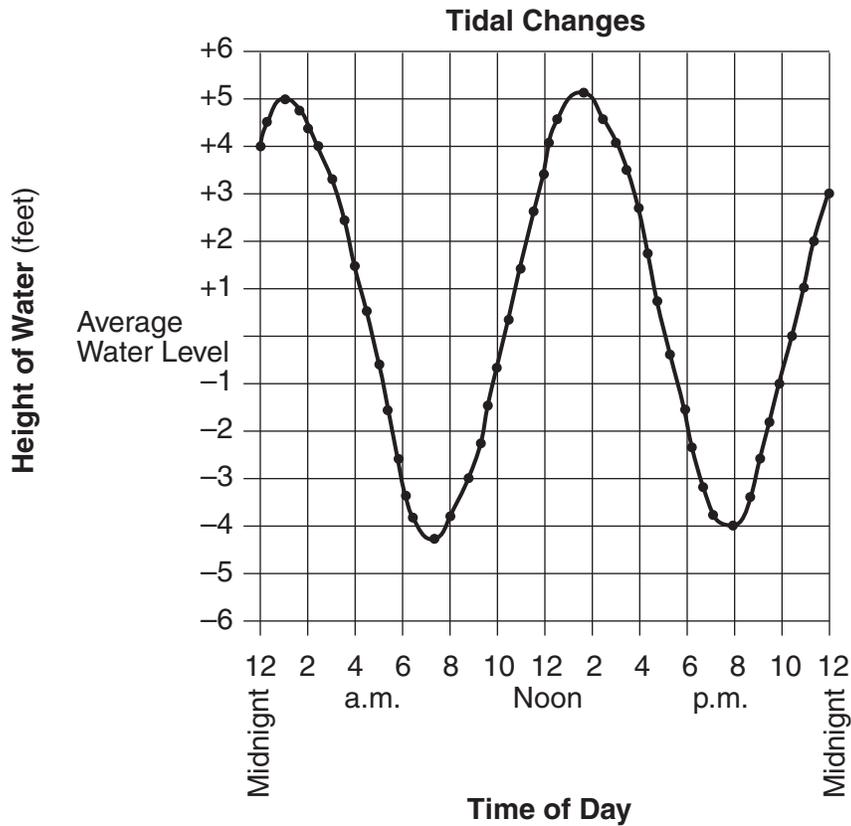
36 Which changes can be expected to occur at 45° N over the next 30 days?

- (1) The duration of insolation will decrease and the temperature will decrease.
- (2) The duration of insolation will decrease and the temperature will increase.
- (3) The duration of insolation will increase and the temperature will decrease.
- (4) The duration of insolation will increase and the temperature will increase.

37 At which latitude can the noontime Sun be observed in the northern part of the sky?

- (1) 0°
- (2) 30° N
- (3) 60° N
- (4) 90° N

Base your answers to questions 38 and 39 on the graph below. The graph shows the recorded change in water level (ocean tides) at a coastal city in the northeastern United States during 1 day.



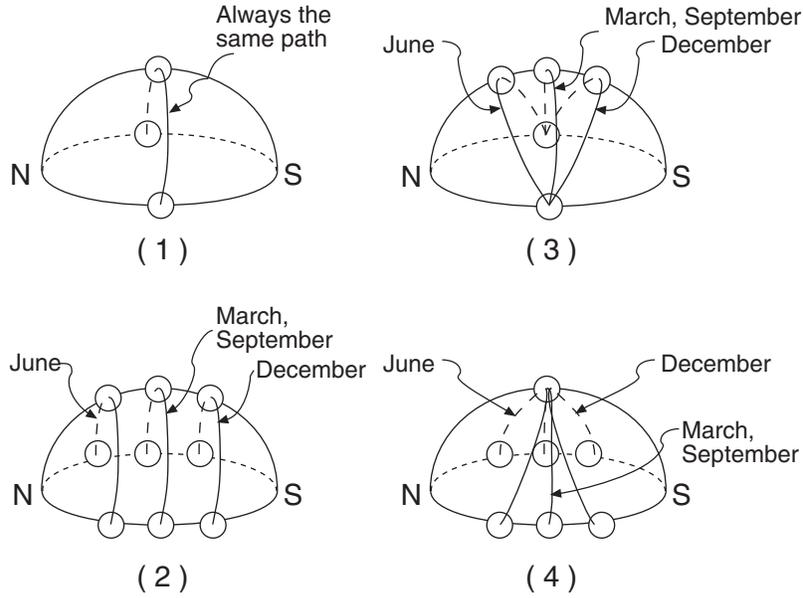
38 Which inference about tides is best made from this graph?

- (1) The hourly rate of tidal change is always the same.
- (2) The rate of tidal change is greatest at high tide.
- (3) The tidal change is a random event.
- (4) The tidal change is cyclic.

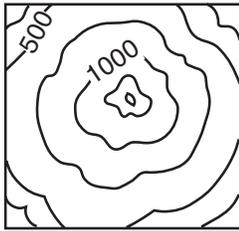
39 According to the pattern shown on the graph, the next high tide will occur on the following day at approximately

- (1) 12:30 a.m.
- (2) 2:00 a.m.
- (3) 3:15 a.m.
- (4) 4:00 a.m.

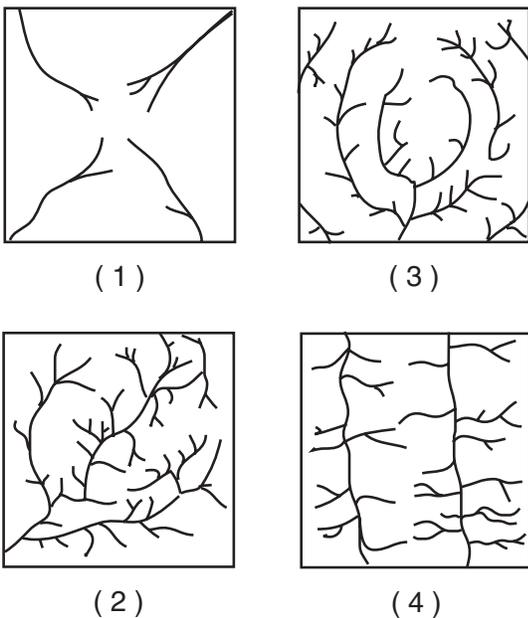
40 Which model best represents the apparent path of the Sun observed at various times during the year at the Equator?



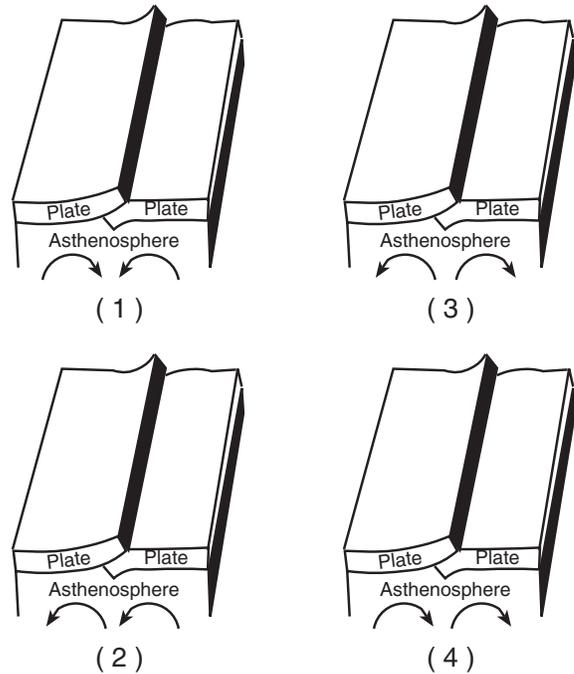
41 The topographic map below shows a particular landscape.



Which map best represents the stream drainage pattern for this landscape?



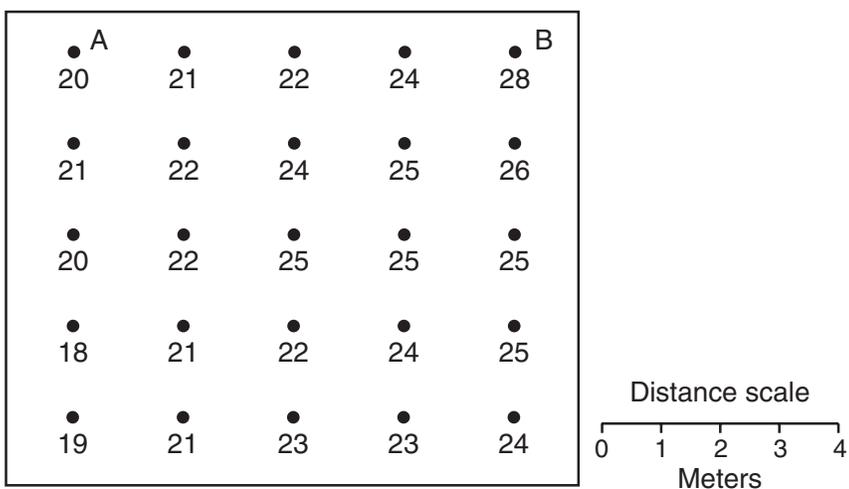
42 Which diagram correctly shows how mantle convection currents are most likely moving beneath colliding lithospheric plates?



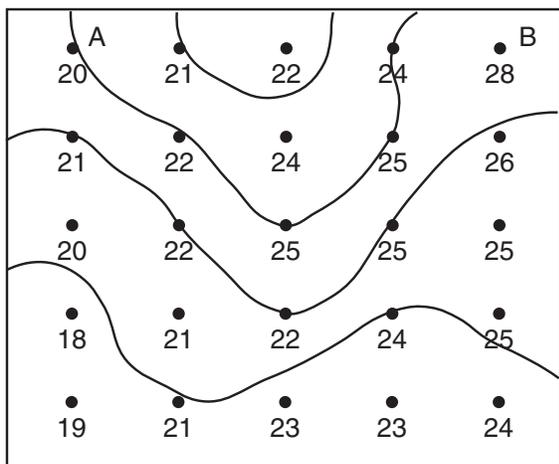
43 Which two rocks have the most similar mineral composition?

- (1) marble and rhyolite
- (2) limestone and basalt
- (3) quartzite and rock salt
- (4) granite and phyllite

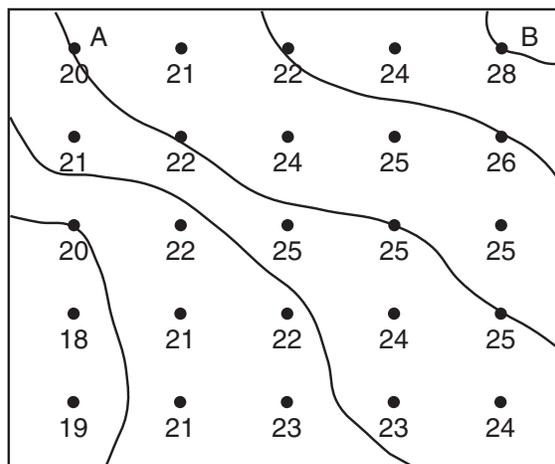
44 The field map below shows air temperature measurements, in degrees Celsius, taken at the same elevation within a closed room. Two reference points, A and B, are shown.



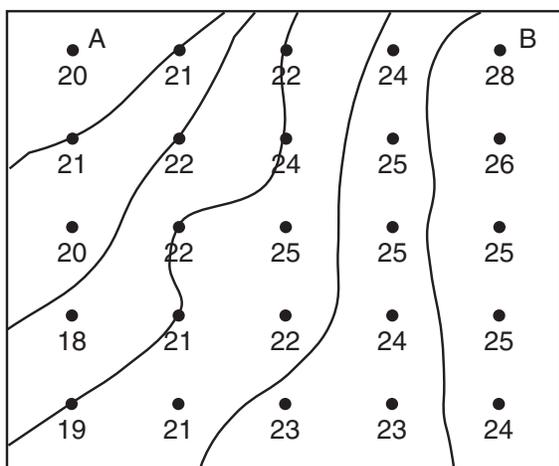
Which temperature field map shows correctly drawn isotherms?



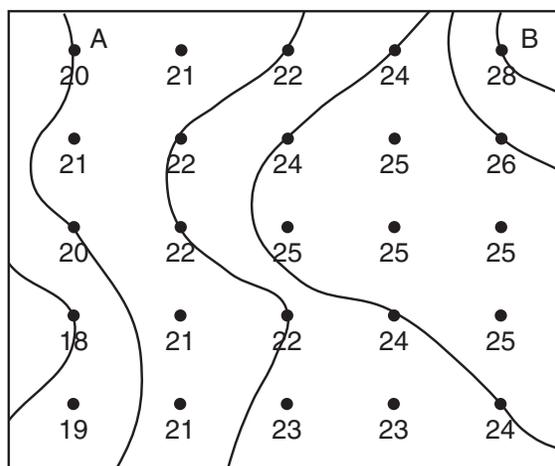
(1)



(3)

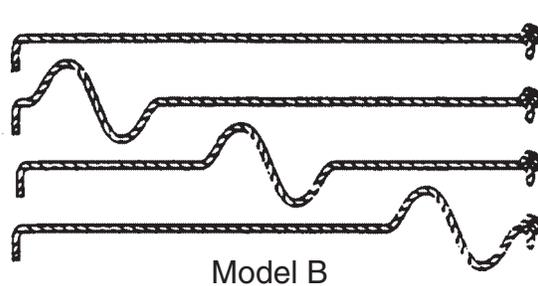
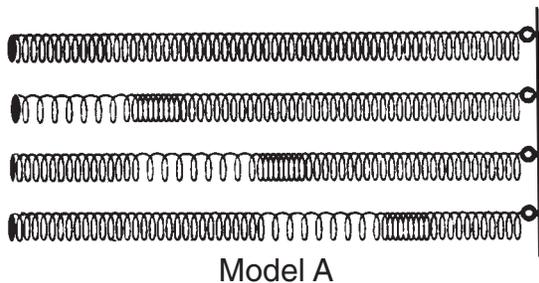


(2)



(4)

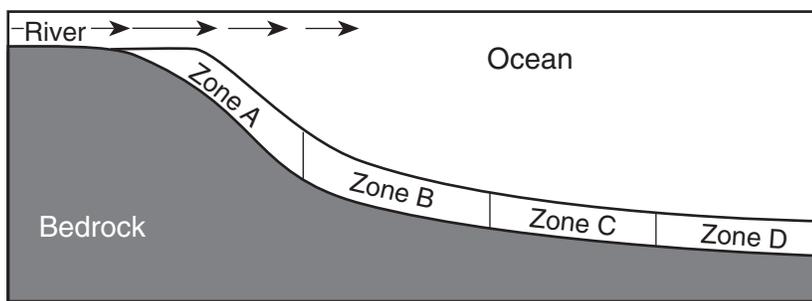
Base your answers to questions 45 and 46 on the diagram below, which shows models of two types of earthquake waves.



- 45 Model A best represents the motion of earthquake waves called
- (1) *P*-waves (compressional waves) that travel faster than *S*-waves (shear waves) shown in model B
  - (2) *P*-waves (compressional waves) that travel slower than *S*-waves (shear waves) shown in model B
  - (3) *S*-waves (shear waves) that travel faster than *P*-waves (compressional waves) shown in model B
  - (4) *S*-waves (shear waves) that travel slower than *P*-waves (compressional waves) shown in model B

- 46 The difference in seismic station arrival times of the two waves represented by the models helps scientists determine the
- (1) amount of damage caused by an earthquake
  - (2) intensity of an earthquake
  - (3) distance to the epicenter of an earthquake
  - (4) time of occurrence of the next earthquake

Base your answers to questions 47 and 48 on the cross section and data table shown below. The cross section shows a sediment-laden river flowing into the ocean. The arrows show the direction of river flow. Different zones of sorted sediments, A, B, C, and D, have been labeled. Sediments have been taken from these zones and measured. The data table shows the range of sediment sizes in each zone.



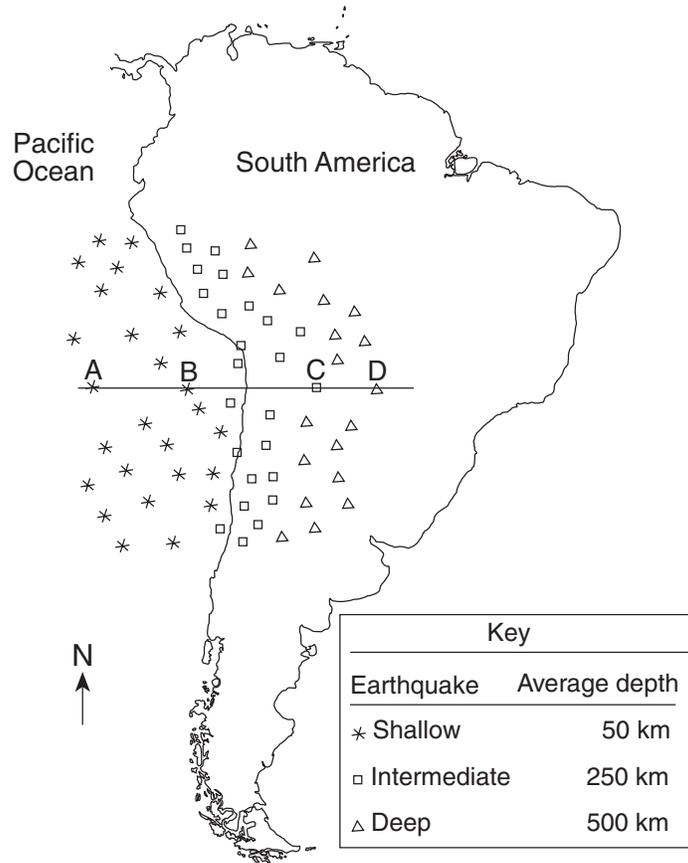
**Data Table**

Zone	Major Sediment Sizes
A	0.04 cm to 6 cm
B	0.006 cm to 0.1 cm
C	0.0004 cm to 0.006 cm
D	Less than 0.0004 cm

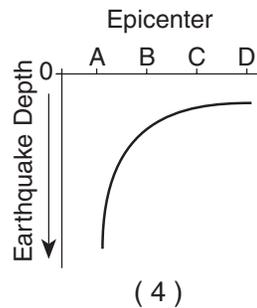
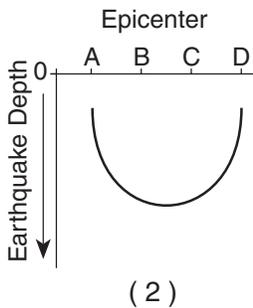
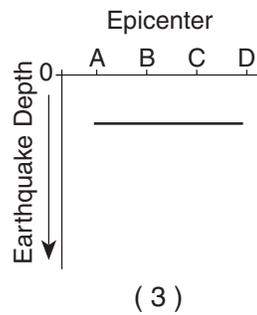
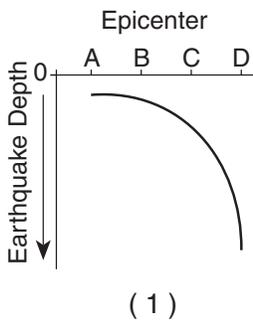
- 47 How is this pattern of horizontal sorting produced?
- (1) High-density materials generally settle more slowly.
  - (2) Rounded sediments generally settle more slowly.
  - (3) Dissolved minerals are generally deposited first.
  - (4) Bigger particles are generally deposited first.

- 48 The sedimentary rock, siltstone, will most likely form from sediments deposited in zone
- (1) A
  - (2) B
  - (3) C
  - (4) D

Base your answers to questions 49 and 50 on the map below, which shows the depths of selected earthquakes along the crustal plate boundary near the west coast of South America. Letters A, B, C, and D are epicenter locations along a west-to-east line at the surface. The relative depth of each earthquake is indicated.



49 Which graph best shows the depth of earthquakes beneath epicenters A, B, C, and D?



50 The earthquake beneath epicenter D occurred in which part of Earth's interior?

- (1) crust
- (2) rigid mantle
- (3) asthenosphere
- (4) stiffer mantle

## Part B-2

### Answer all questions in this part.

*Directions (51–60):* Record your answers in the spaces provided in your answer booklet. Some questions may require the use of the *Earth Science Reference Tables*.

Base your answers to questions 51 through 54 on the reading passage below and on your knowledge of Earth science. The reading passage provides some background information about a recent fossil discovery. The map of Canada shows the fossil site. The scale drawing shows the new trilobite fossil compared to other trilobite fossils.

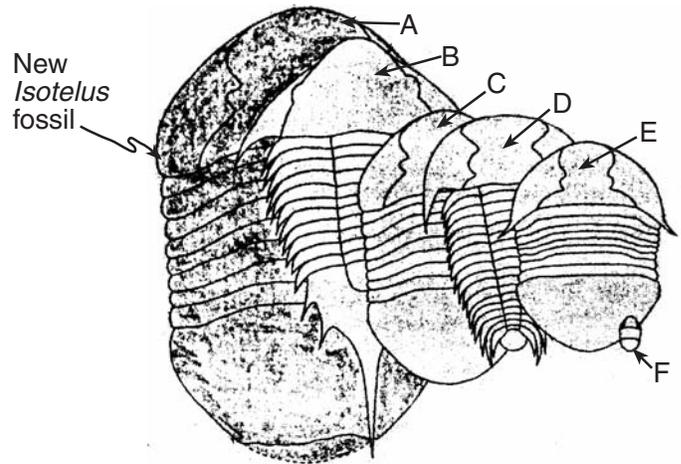
### The World's Biggest Trilobite

A team of Canadian paleontologists examining rock units along the shore of Hudson Bay in northern Manitoba has discovered the world's largest recorded complete fossil of a trilobite, a many-legged, sea-dwelling animal inferred to have lived during the late Ordovician Period. The giant creature, measuring 70 centimeters in length, is a new species of the genus *Isotelus*. This remarkable discovery adds to our knowledge of the diversity of life following one of the greatest increases in the number and types of life-forms in history. The new *Isotelus* species existed just before the end of the Ordovician Period.

Map of North America



Scale drawings of the new trilobite *Isotelus* (A), other big species reported from elsewhere (B,C,D,E), and a typical large trilobite (F).

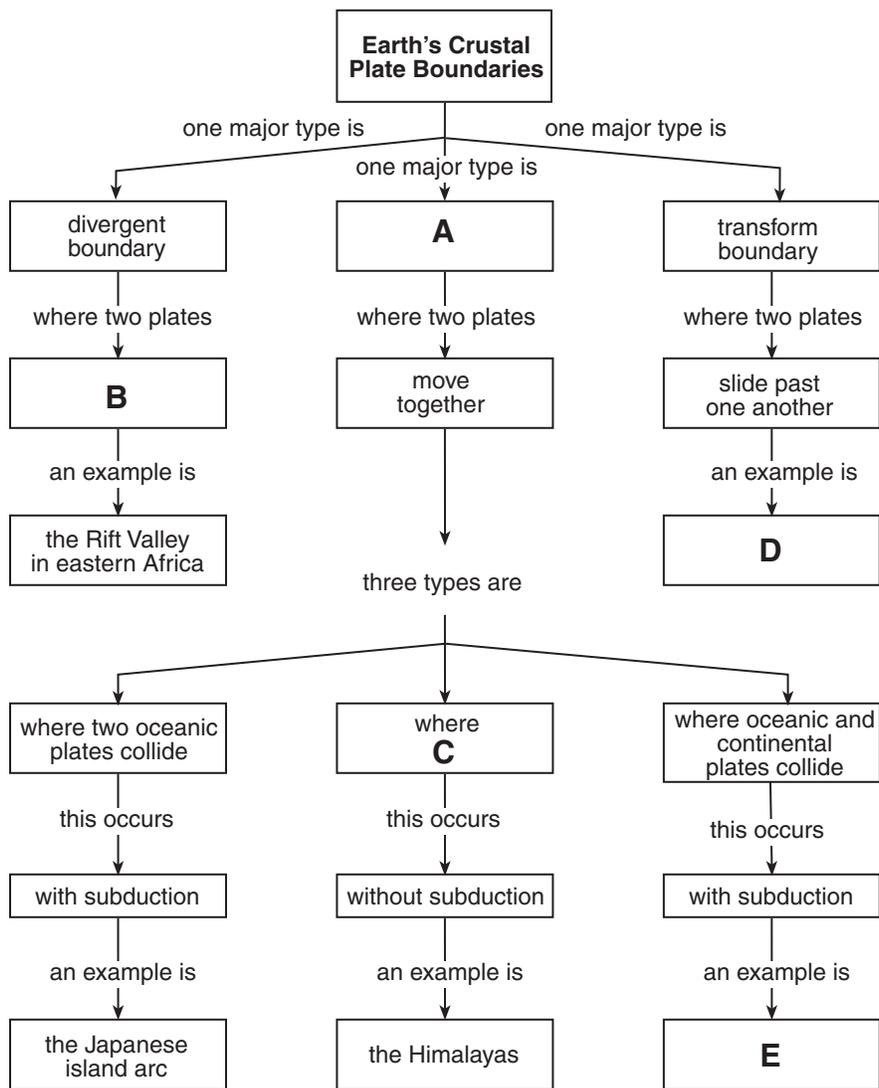


- 51 In what type of rock was the new *Isotelus* fossil most probably found? [1]
- 52 At the time the new *Isotelus* fossil lived and died, during the Ordovician Period, what was the approximate latitude of the fossil site according to plate tectonic theory? [1]
- 53 What New York State nautiloid index fossil would most likely be found in the bedrock just below the new *Isotelus* fossil? [1]
- 54 The actual new *Isotelus* fossil is approximately how many times larger than scale drawing A? [1]
-

Base your answers to questions 55 through 58 on the weather map provided *in your answer booklet*, which shows a weather system over the northeastern United States and weather data for several locations. Isobars show a low-pressure (L) center. Point ⓧ is a location in Canada.

- 55 On the weather map provided *in your answer booklet*, draw a curved arrow through point ⓧ to show the general direction of surface winds on that side of the low-pressure center. [2]
- 56 State the relationship between isobar spacing on the map and wind velocity. [1]
- 57 Describe the *five* specific weather conditions for Charleston indicated by the station model on the weather map. Complete the chart provided *in your answer booklet* and include appropriate units where necessary. [2]
- 58 Describe how clouds form when warm, humid air rises along the cold front.
- a Include the terms *dewpoint* and either *expansion* or *expands* in your answer. [1]
  - b State the phase change that occurs at the dewpoint. [1]
-

Base your answers to questions 59 and 60 on the diagram below, which shows an incomplete concept map identifying the types of plate boundaries. Information in the boxes labeled *A*, *B*, *C*, *D*, and *E* has been deliberately omitted.



- 59 On the chart provided *in your answer booklet*, write the information that should be placed in the boxes labeled *A*, *B*, and *C* that will correctly complete those portions of the concept map. [2]
- 60 On the geographic map provided *in your answer booklet*, write the letters *D* and *E* on the plate boundary locations where the indicated movements are occurring. Write the letters approximately the same size as shown on the concept map and locate the letters directly on the plate boundary. [2]

## Part C

Answer all questions in this part.

*Directions (61–74):* Record your answers in the spaces provided in your answer booklet. Some questions may require the use of the *Earth Science Reference Tables*.

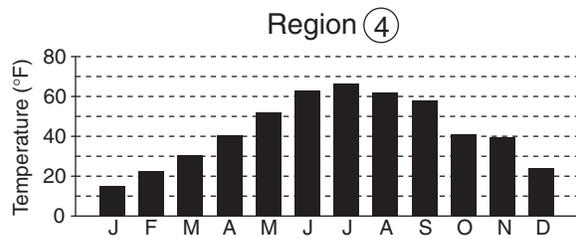
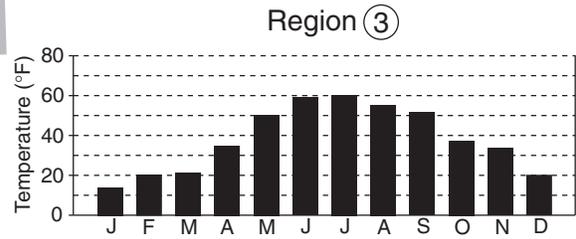
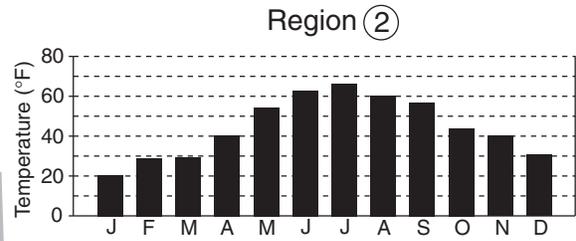
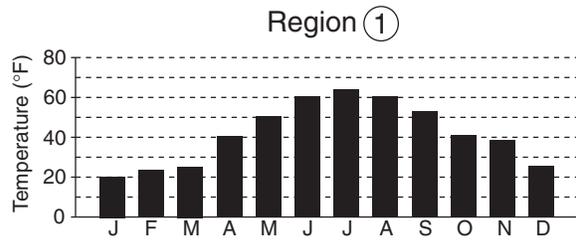
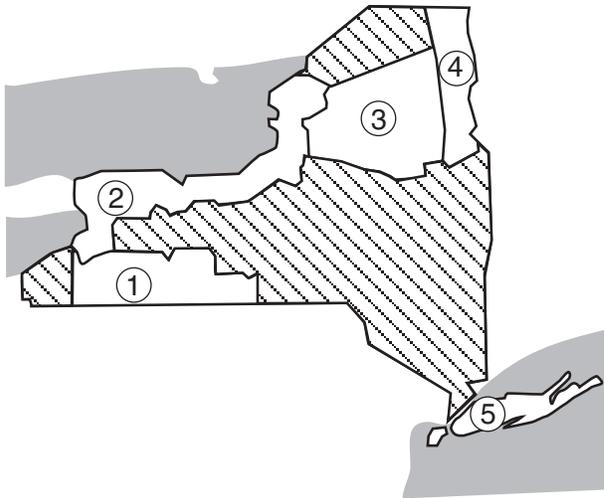
Base your answers to questions 61 and 62 on the photograph below, which shows a mountainous region cut by a large valley in its center.



- 61 What characteristic of this large valley supports the inference that glacial ice formed the valley? [1]
- 62 Describe additional geologic evidence that might be found on the valley floor that would support the idea that glacial ice formed this valley. [1]
-

Base your answers to questions 63 through 67 on the map and graphs below. The map shows five climate regions of New York State. The bar graphs show average monthly temperatures of four of these climate regions.

Some Climate Regions of New York State



- 63 The average monthly temperatures for climate regions 1, 2, 3, and 4 show a similar yearly pattern of change. Identify one climate control factor that these four climate regions have in common that most probably causes this similarity in temperature pattern. [1]
- 64 What climate variable, other than temperature, was also used to identify these areas as four different climate regions? [1]
- 65 What landscape characteristic of climate region 3 most likely causes it to have both cooler summer temperatures and cooler winter temperatures than climate region 2? [1]

- 66 On the grid provided *in your answer booklet*, construct a bar graph of the average monthly temperatures provided below for climate region 5. January has been completed for you. [2]

**Average Temperatures for Climate Region 5**

Month	°F
January	34
February	36
March	42
April	52
May	61
June	72
July	79
August	74
September	68
October	55
November	49
December	39

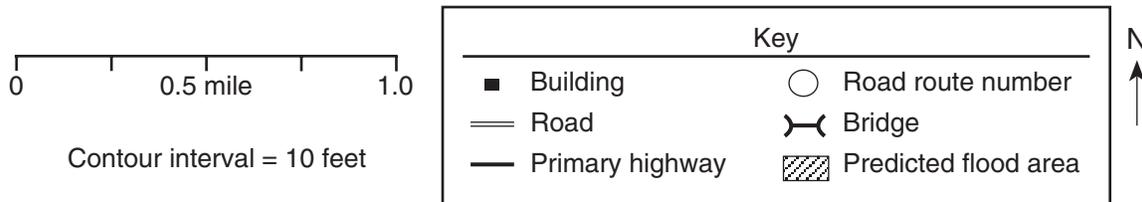
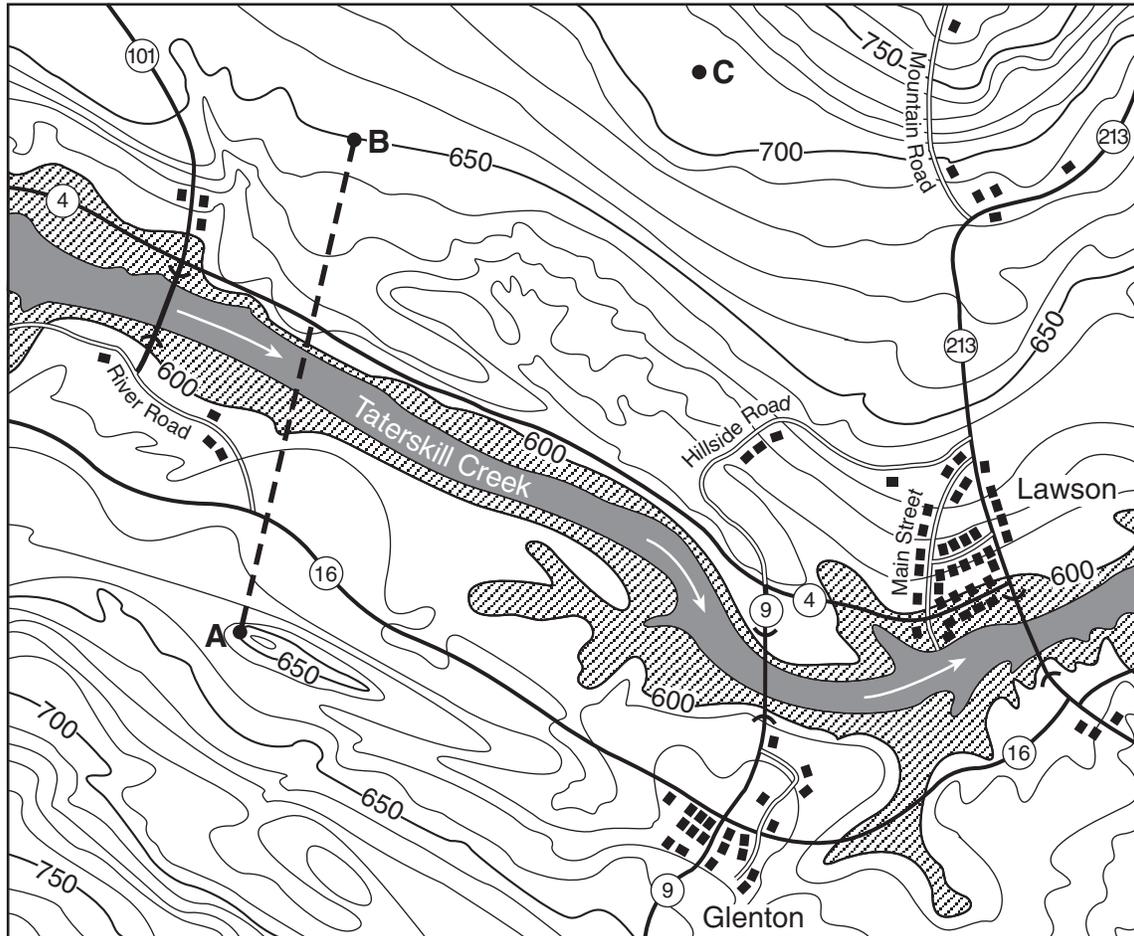
- 67 Describe how the Atlantic Ocean surrounding climate region 5 has most probably influenced the average temperatures of this region during January, February, and March. [1]
- 

Base your answers to questions 68 through 70 on the diagram provided *in your answer booklet*, which shows a model of the orbital path of Earth and the partial orbital path of Jupiter around the Sun. A partial orbit of another celestial object, labeled object A, is also shown. Celestial object A is a natural object that is part of our solar system. [All distances are measured to scale from the center of the Sun in this model.]

- 68 *a* On the diagram provided *in your answer booklet*, place an **X** to represent the position of Mars at the properly scaled distance from the Sun in this model. [1]
- b* On the diagram provided *in your answer booklet*, starting at your plotted position of Mars, draw a scale model of Mars' orbital path. Be careful to show the correct shape of the orbit. [1]
- 69 Identify what type of solar-system object is most probably represented by celestial object A. [1]
- 70 State one reason why determining the exact orbital path and period of revolution of celestial object A might be important to the continued existence of life on Earth. [1]
-

Base your answers to questions 71 through 74 on the topographic map below. The map shows a portion of the Taterskill Creek flowing past the towns of Lawson and Glenton. The shaded area is Taterskill Creek. The arrows in the creek show its direction of flow. Points A, B, and C are locations on the map. Points A and B are connected with a reference line.

Mercado Dam is located 32 miles upstream from Lawson. In the remote possibility of a failure of the Mercado Dam, the Taterskill Creek is expected to rise to the 600-foot contour line in the vicinity of the two towns.



- 71 On the grid provided *in your answer booklet*, construct a topographic profile from point *A* to point *B*, following the directions below.
- a* Write numbers along the vertical axis to show an appropriate scale for the elevations crossed by line *AB*. Your number scale should label at least half of the lines along the vertical axis and should not extend beyond the grid provided. [1]
  - b* Plot the elevation along line *AB* by marking an **X** at *each* point where a contour line is crossed. Point *A* and point *B* have been plotted for you. [1]
  - c* Connect all the **Xs** to complete a profile that accurately reflects the elevation of the land. [1]
- 72 State a possible elevation for point *C* on the map. [1]
- 73 If Mercado Dam ruptured, the first floodwater would take exactly 4 hours to reach the town of Lawson. In the space provided *in your answer booklet*, calculate the average rate of travel for the leading edge of the floodwater. Label your answer with the correct units. [2]
- 74 Identify *two* emergency preparedness activities that town officials in Lawson could take before a dam failure to protect people and property from the flood. [2]
-

Tear Here

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING  
EARTH SCIENCE

Tuesday, January 27, 2004 — 1:15 to 4:15 p.m., only

ANSWER SHEET

Student ..... Sex:  Male  Female Grade .....

Teacher ..... School .....

Record your answers to Part A and Part B-1 on this answer sheet.

Part A

- 1 ..... 13 ..... 25 .....
- 2 ..... 14 ..... 26 .....
- 3 ..... 15 ..... 27 .....
- 4 ..... 16 ..... 28 .....
- 5 ..... 17 ..... 29 .....
- 6 ..... 18 ..... 30 .....
- 7 ..... 19 ..... 31 .....
- 8 ..... 20 ..... 32 .....
- 9 ..... 21 ..... 33 .....
- 10 ..... 22 ..... 34 .....
- 11 ..... 23 ..... 35 .....
- 12 ..... 24 .....

Part A Score

Part B-1

- 36 ..... 44 .....
- 37 ..... 45 .....
- 38 ..... 46 .....
- 39 ..... 47 .....
- 40 ..... 48 .....
- 41 ..... 49 .....
- 42 ..... 50 .....
- 43 .....

Part B-1 Score

Write your answers to Part B-2 and Part C in your answer booklet.

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination and that I have neither given nor received assistance in answering any of the questions during the examination.

Tear Here

Signature

# PHYSICAL SETTING EARTH SCIENCE

Tuesday, January 27, 2004 — 1:15 to 4:15 p.m., only

## ANSWER BOOKLET

Student ..... Sex:  Male  
 Female

Teacher .....

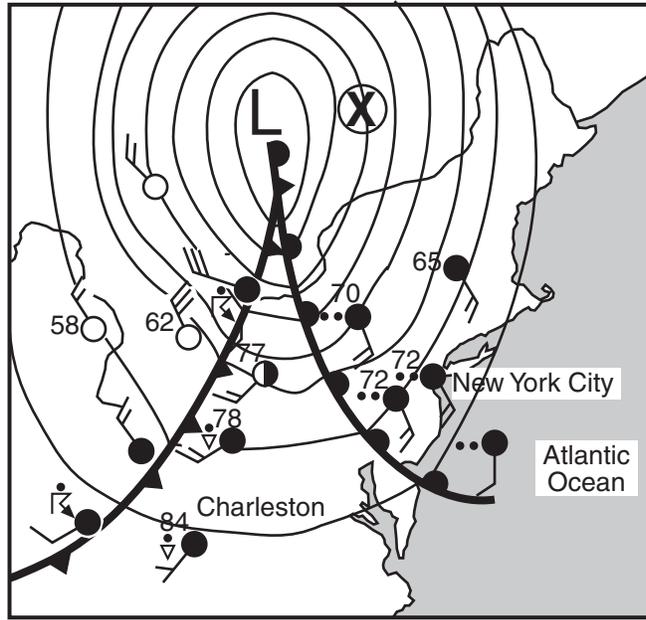
School ..... Grade .....

Answer all questions in Part B-2 and Part C. Record your answers in this booklet.

<input type="text"/>	<b>Performance Test Score</b> (Maximum Score: 23)	
.....		
<b>Part</b>	<b>Maximum Score</b>	<b>Student's Score</b>
A	35	
<hr/>		
B-1	15	
<hr/>		
B-2	15	
<hr/>		
C	20	
<b>Total Written Test Score</b> (Maximum Raw Score: 85)		<input type="text"/>
<b>Final Score</b> (from conversion chart)		<input type="text"/>
<hr/>		
<b>Raters' Initials:</b>		
Rater 1 ..... Rater 2 .....		

<b>Part B-2</b>		<b>For Raters Only</b>
51	_____	51 <input type="text"/>
52	_____	52 <input type="text"/>
53	_____	53 <input type="text"/>
54	_____	54 <input type="text"/>

55



55

56

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56

57

Weather Conditions	Description
(1) Air temperature	
(2) Present weather	
(3) Wind speed	
(4) Wind direction	From
(5) Cloud cover	

57

For Raters Only

58 a \_\_\_\_\_

58a

\_\_\_\_\_

b \_\_\_\_\_

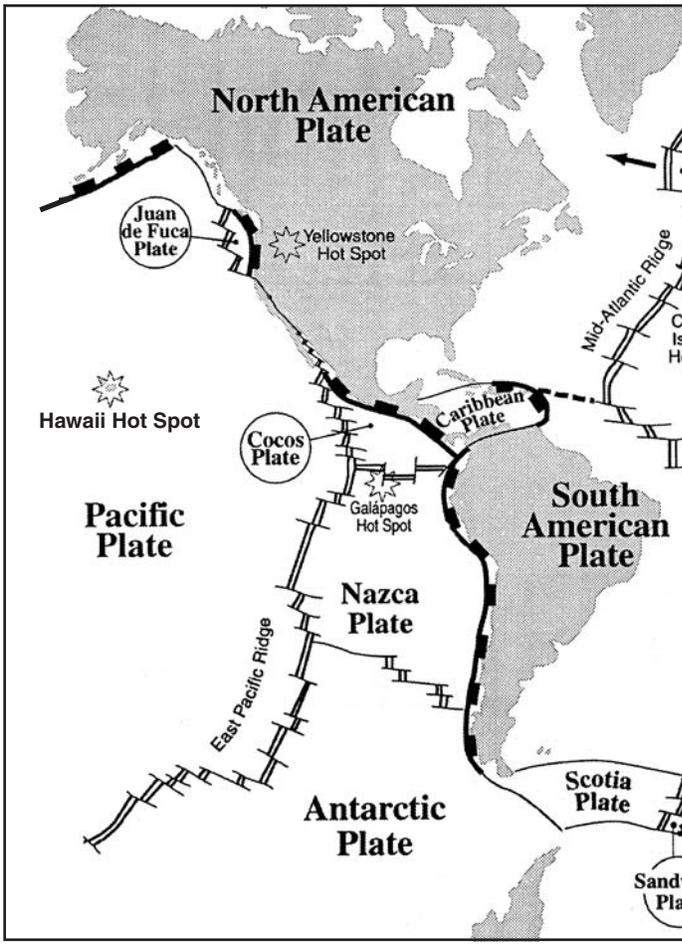
b

59

Letter	Information That Should Be Placed in Each Box
A	
B	
C	

59

60



60

Total Score for Part B-2

Part C

For Raters Only

61

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61

62

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62

63

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63

64

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64

65

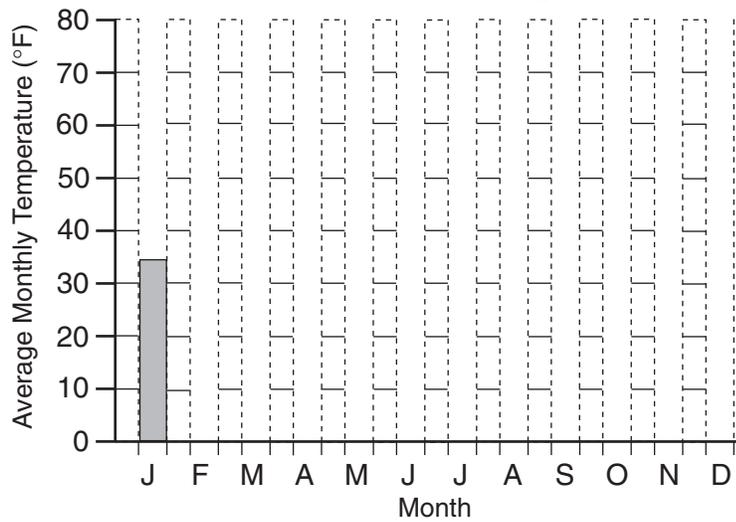
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65

66

Average Monthly Temperatures  
of Climate Area ⑤



66

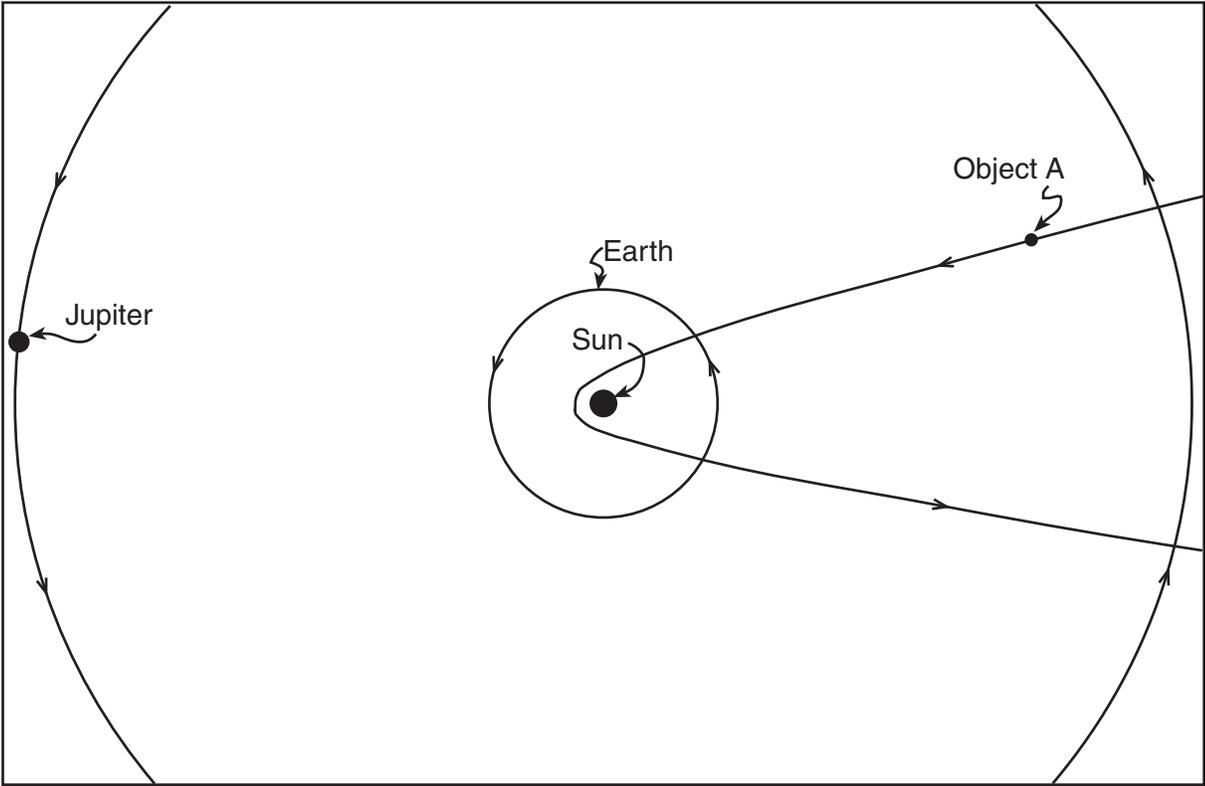
67

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67

68 a and b



68a

b

Distance scale 1 cm = 100 million kilometers

(Object size not drawn to scale )

69 \_\_\_\_\_

69

70 \_\_\_\_\_

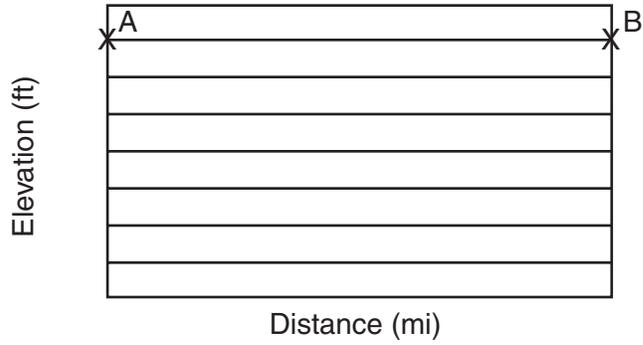
\_\_\_\_\_

\_\_\_\_\_

70

For Raters Only

71 a-c



71a

b

c

72 \_\_\_\_\_ feet

72

73

73

Rate = \_\_\_\_\_

74 (1) \_\_\_\_\_

74

(2) \_\_\_\_\_

Total Score for Part C

# FOR TEACHERS ONLY

The University of the State of New York  
REGENTS HIGH SCHOOL EXAMINATION

## PS-ES PHYSICAL SETTING/EARTH SCIENCE

Tuesday, January 27, 2004 — 1:15 to 4:15 p.m., only

### SCORING KEY AND RATING GUIDE

**Directions to the Teacher:**

Refer to the directions on page 3 before rating student papers.

**Part A and Part B-1**

**Allow 1 credit for each correct response.**

Part A			Part B-1	
1 . . . . . <b>3</b> . . . . .	13 . . . . . <b>2</b> . . . . .	25 . . . . . <b>1</b> . . . . .	36 . . . . . <b>4</b> . . . . .	44 . . . . . <b>4</b> . . . . .
2 . . . . . <b>4</b> . . . . .	14 . . . . . <b>1</b> . . . . .	26 . . . . . <b>2</b> . . . . .	37 . . . . . <b>1</b> . . . . .	45 . . . . . <b>1</b> . . . . .
3 . . . . . <b>2</b> . . . . .	15 . . . . . <b>2</b> . . . . .	27 . . . . . <b>3</b> . . . . .	38 . . . . . <b>4</b> . . . . .	46 . . . . . <b>3</b> . . . . .
4 . . . . . <b>2</b> . . . . .	16 . . . . . <b>4</b> . . . . .	28 . . . . . <b>1</b> . . . . .	39 . . . . . <b>2</b> . . . . .	47 . . . . . <b>4</b> . . . . .
5 . . . . . <b>3</b> . . . . .	17 . . . . . <b>4</b> . . . . .	29 . . . . . <b>3</b> . . . . .	40 . . . . . <b>2</b> . . . . .	48 . . . . . <b>3</b> . . . . .
6 . . . . . <b>2</b> . . . . .	18 . . . . . <b>3</b> . . . . .	30 . . . . . <b>2</b> . . . . .	41 . . . . . <b>1</b> . . . . .	49 . . . . . <b>1</b> . . . . .
7 . . . . . <b>2</b> . . . . .	19 . . . . . <b>3</b> . . . . .	31 . . . . . <b>4</b> . . . . .	42 . . . . . <b>1</b> . . . . .	50 . . . . . <b>3</b> . . . . .
8 . . . . . <b>2</b> . . . . .	20 . . . . . <b>1</b> . . . . .	32 . . . . . <b>1</b> . . . . .	43 . . . . . <b>4</b> . . . . .	
9 . . . . . <b>3</b> . . . . .	21 . . . . . <b>2</b> . . . . .	33 . . . . . <b>1</b> . . . . .		
10 . . . . . <b>4</b> . . . . .	22 . . . . . <b>1</b> . . . . .	34 . . . . . <b>1</b> . . . . .		
11 . . . . . <b>3</b> . . . . .	23 . . . . . <b>2</b> . . . . .	35 . . . . . <b>3</b> . . . . .		
12 . . . . . <b>4</b> . . . . .	24 . . . . . <b>4</b> . . . . .			

**Directions to the Teacher**

Follow the procedures below for scoring student answer papers for the Physical Setting/Earth Science examination. Additional information about scoring is provided in the publication *Information Booklet for Administering and Scoring Regents Examinations in the Sciences*.

Use only *red* ink or *red* pencil in rating Regents papers. Do *not* correct the student's work by making insertions or changes of any kind.

On the detachable answer sheet for Part A and Part B–1, indicate by means of a checkmark each incorrect or omitted answer. In the box provided at the end of each part, record the number of questions the student answered correctly for that part.

At least two science teachers must participate in the scoring of each student's responses to the Part B–2 and Part C open-ended questions. Each of these teachers should be responsible for scoring a selected number of the open-ended questions on each answer paper. No one teacher is to score all the open-ended questions on a student's answer paper.

Students' responses must be scored strictly according to the Scoring Key and Rating Guide. For open-ended questions, credit may be allowed for responses other than those given in the rating guide if the response is a scientifically accurate answer to the question and demonstrates adequate knowledge as indicated by the examples in the rating guide. In the student's answer booklet, record the number of credits earned for each answer in the box printed to the right of the answer lines or spaces for that question.

Fractional credit is *not* allowed. Only whole-number credit may be given to a response. Units need not be given when the wording of the questions allows such omissions.

Raters should enter the scores earned for Part A, Part B–1, Part B–2, and Part C on the appropriate lines in the box printed on the answer booklet and then should add these four scores and enter the total in the box labeled "Total Written Test Score." The student's score for the Earth Science Performance Test should be entered in the space provided. Then, the student's raw scores on the performance test and written test should be converted to a scaled score by using the conversion chart printed at the end of this Scoring Key and Rating Guide. The student's scaled score should be entered in the labeled box on the student's answer booklet. The scaled score is the student's final examination score.

All student answer papers that receive a scaled score of 60 through 64 **must** be scored a second time. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions that he/she scored in the first rating of the paper. The school principal is responsible for assuring that the student's final examination score is based on a fair, accurate, and reliable scoring of the student's answer paper.

Because scaled scores corresponding to raw scores in the conversion chart may change from one examination to another, it is crucial that for each administration, the conversion chart provided in the scoring key for that administration be used to determine the student's final score. The chart in this scoring key is usable only for this administration of the examination.

**Part B–2**

**Allow a total of 15 credits for this part. The student must answer all questions in this part.**

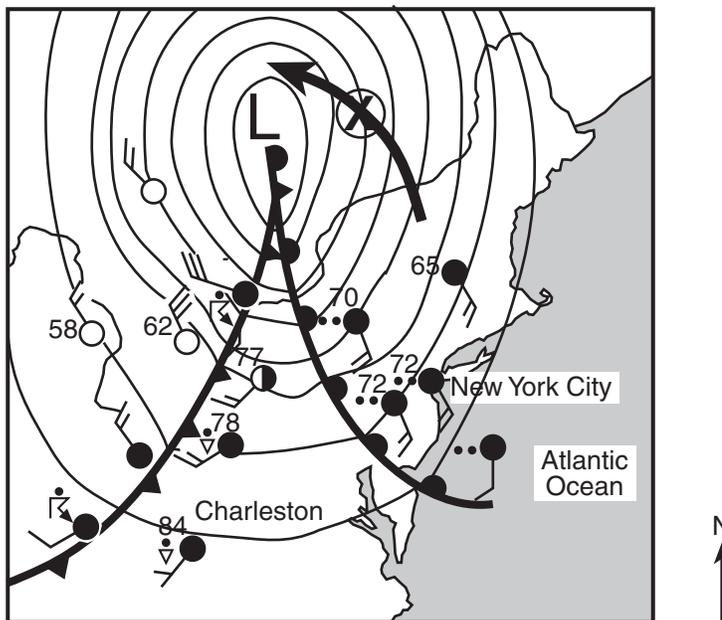
- 51 [1] Allow 1 credit for **sedimentary rock** or any specific type of sedimentary rock.
- 52 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:  
 0° ( $\pm 10^\circ$ ) latitude  
 Equator
- 53 [1] Allow 1 credit for ***Valcouroceras***.
- 54 [1] Allow 1 credit for **11** ( $\pm 1$ ).
- 55 [2] Allow 1 credit for an arrow showing counterclockwise direction of movement around the low.

*and*

Allow 1 credit for an arrow curving inward toward the low.

**Note:** Allow credit for a correctly drawn arrow even if the arrow does not go through the center of the **X**.

An example of an acceptable response is shown below.



- 56** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Closely spaced isobars represent a region of high wind velocity.

As isobars become closer, wind speed increases.

- 57** [2] Allow 2 credits if four or five answers including units are correct.

Allow only 1 credit if only two or three answers including units are correct.

Acceptable responses include, but are not limited to, these examples:

<b>Weather Conditions</b>	<b>Description</b>
(1) Air temperature	<b>84°F</b>
(2) Present weather	<b>Rain showers or rain</b>
(3) Wind speed	<b>5 knots</b>
(4) Wind direction	From <b>southwest</b>
(5) Cloud cover	<b>100% or overcast or full cloud cover</b>

- 58** [2] **a** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:

Clouds form when rising air expands and cools to the dewpoint.

- b** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

from gas to liquid

Water vapor condenses.

deposition

gas to solid

- 59** [2] Allow 2 credits if all three answers are correct.

Allow only 1 credit if only one or two answers are correct.

Acceptable responses include, but are not limited to, these examples:

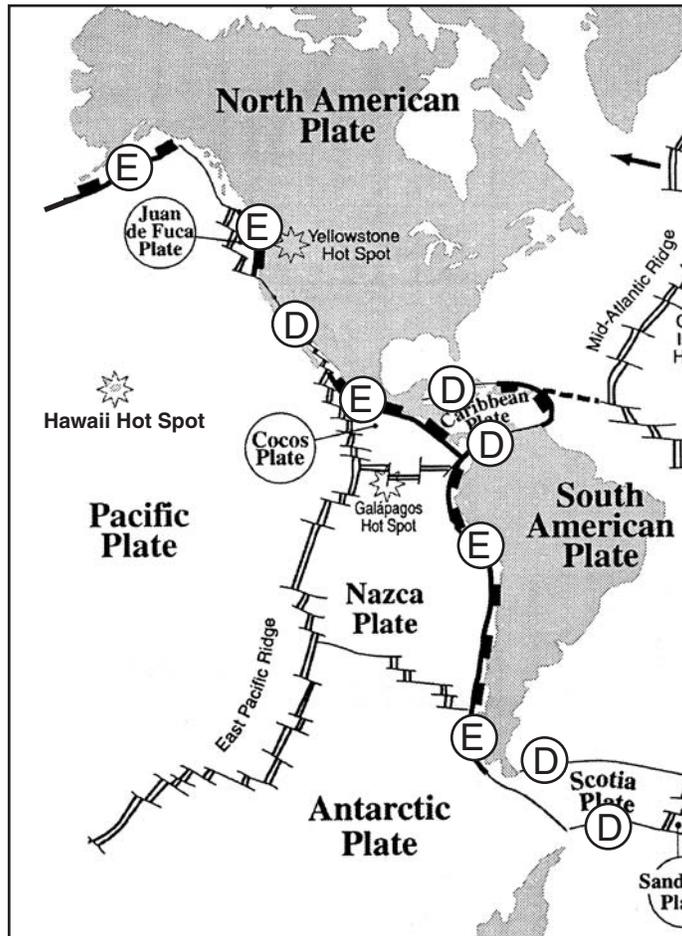
<b>Letter</b>	<b>Information That Should Be Placed in Each Box</b>
<b>A</b>	<b>Convergent boundary</b>
<b>B</b>	<b>Move apart or separate</b>
<b>C</b>	<b>Two continental plates collide.</b>

- 60 [2] Allow 1 credit for writing the letter *D* on any transform plate boundary. Student answers locating *D* over major transform ocean-ridge faults should also be accepted for credit.

*and*

Allow 1 credit for writing the letter *E* on any subduction plate boundary between an oceanic plate and a continental plate.

The diagram below shows examples of locations where the letters *D* and *E* could be placed.

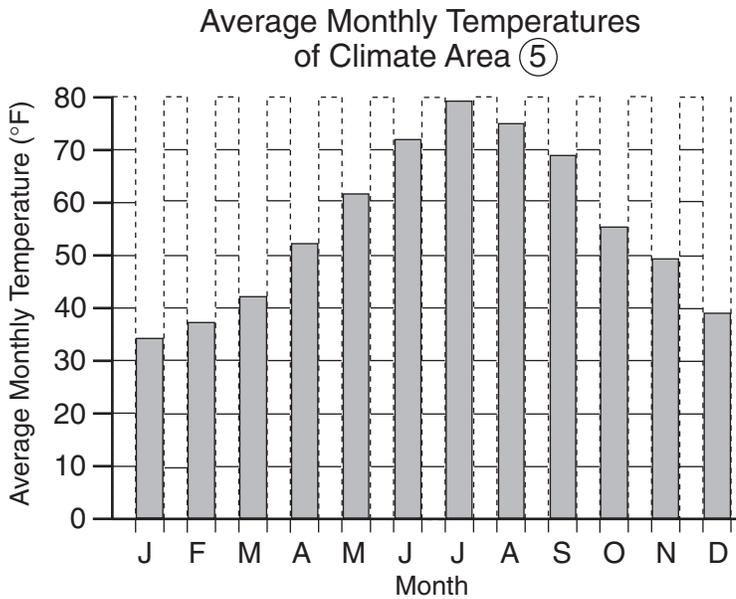


**Part C**

**Allow a total of 20 credits for this part. The student must answer all questions in this part.**

- 61** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- The valley has a U-shaped cross section.
  - The bottom of the valley is round.
  - Nonglaciaded mountain valleys are V-shaped; this one is U-shaped.
- 62** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- piles of unsorted sediments deposited across the valley floor (moraines)
  - parallel scratches and/or grooves in the bedrock (striations)
- 63** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- similar latitudes
  - similar duration of insolation
  - similar intensity of insolation
  - similar monthly changes in the altitude of the Sun
- 64** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- humidity
  - precipitation
  - moisture
- 65** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- The elevation of area 3 is higher.
  - Climate region 3 is located in a mountainous region.

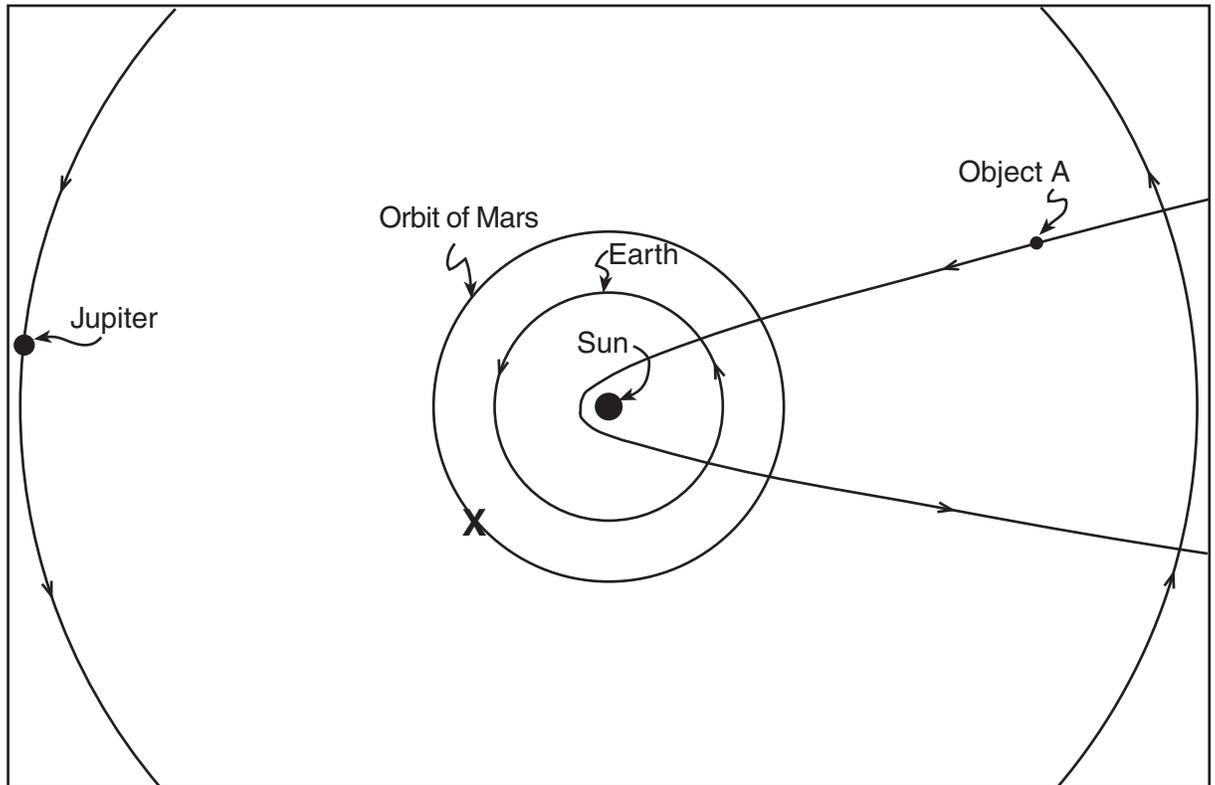
- 66** [2] Allow 2 credits if ten or eleven bars are correctly drawn ( $\pm 2^{\circ}\text{F}$ ).  
 Allow only 1 credit if only six to nine bars are correctly drawn ( $\pm 2^{\circ}\text{F}$ ).  
 An example of an acceptable response is shown below.



- 67** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:  
 The ocean has moderated temperatures, making the temperatures warmer.  
 It has increased the temperatures during these months.

- 68 [2] **a** Allow 1 credit for locating Mars 2.3 cm ( $\pm 0.2$  cm) from the center of the Sun somewhere on the drawn orbit of Mars in the diagram below.
- b** Allow 1 credit for the construction of Mars' orbit as a nearly circular path through the student-plotted **X**.

An example of an acceptable response is shown below.



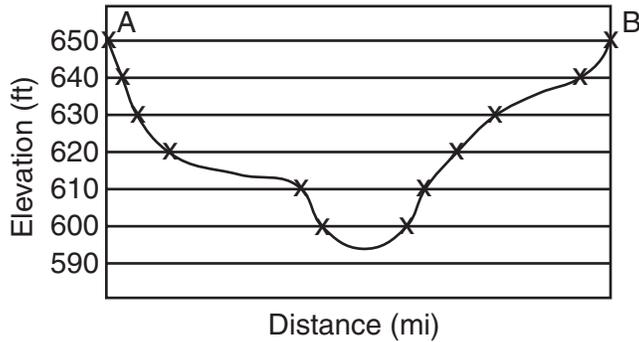
Distance scale 1 cm = 100 million kilometers

(Object size not drawn to scale )

- 69 [1] Allow 1 credit for **comet** or **asteroid** or **meteoroid**.
- 70 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- Past impact events have been correlated with mass extinctions on Earth.
  - Object A might hit Earth.
  - If object A's path crosses Earth's orbit, a collision might occur that would kill much life on Earth.

- 71 [3] **a** Allow 1 credit for an appropriate vertical scale that fits on the grid according to the directions given on the test.
- b** Allow 1 credit if nine to twelve **Xs** are correctly plotted according to the student's scale.
- c** Allow 1 credit if all the student-plotted **Xs** are correctly connected. The line must dip below the 600-ft elevation but not below the 590-ft elevation to receive credit.

An example of an acceptable response is shown below.



- 72 [1] Allow 1 credit for any response greater than 700 but less than 710 feet.
- 73 [2] Allow 1 credit for rate = **8**.
- and*
- Allow 1 credit for **miles/hour** or **mi/hr**.
- 74 [2] Allow 2 credits, 1 credit for *each* of two correct responses. Acceptable responses include, but are not limited to, these examples:

Lawson could build a levee to protect the houses in the lower areas.

An early warning system could be implemented and practiced so people have time to evacuate the area.

establish emergency procedures that would be followed if the dam broke

designate safe emergency shelters

prevent further development in flood-prone areas

# Regents Examination in Physical Setting/Earth Science — January 2004

## Chart for Determining the Final Examination Score

### (Use for January 2004 examination only.)

To determine the student's final examination score, locate the student's total performance test score across the top of the chart and the student's total written test score down the side of the chart. The point where those two scores intersect is the student's final examination score. For example, a student receiving a total performance test score of 14 and a total written test score of 68 would receive a final examination score of 85.

#### Total Performance Test Score

		Total Performance Test Score																							
		23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Total Written Test Score	85	100	99	98	97	97	97	97	96	96	95	95	94	94	93	92	92	91	90	89	89	88	87	86	85
	84	99	98	97	97	96	96	96	95	95	94	94	93	93	92	92	91	90	89	89	88	87	86	85	84
	83	99	98	97	97	96	96	96	95	95	94	94	93	93	92	92	91	90	89	89	88	87	86	85	84
	82	98	97	96	96	96	95	95	94	94	94	93	93	92	91	91	90	89	89	88	87	86	85	84	83
	81	98	97	96	96	96	95	95	94	94	94	93	93	92	91	91	90	89	89	88	87	86	85	84	83
	80	97	96	95	95	95	94	94	94	93	93	92	92	91	90	90	89	88	88	87	86	85	84	83	82
	79	97	96	94	94	94	93	93	93	92	92	91	91	90	90	89	88	88	87	86	85	84	83	83	82
	78	97	96	94	94	94	93	93	93	92	92	91	91	90	90	89	88	88	87	86	85	84	83	83	82
	77	96	95	94	93	93	93	92	92	91	91	91	90	89	89	88	87	87	86	85	84	84	83	82	81
	76	95	94	93	92	92	92	91	91	91	90	90	89	89	88	87	87	86	85	84	84	83	82	81	80
	75	95	94	93	92	92	92	91	91	91	90	90	89	89	88	87	87	86	85	84	84	83	82	81	80
	74	94	93	92	92	91	91	91	90	90	89	89	88	88	87	86	86	85	84	84	83	82	81	80	79
	73	93	92	91	91	90	90	90	89	89	88	88	87	87	86	86	85	84	83	83	82	81	80	79	78
	72	92	91	90	90	90	89	89	88	88	88	87	87	86	85	85	84	83	83	82	81	80	79	78	77
	71	92	91	90	90	90	89	89	88	88	88	87	87	86	85	85	84	83	83	82	81	80	79	78	77
	70	92	90	89	89	89	88	88	88	87	87	86	86	85	85	84	83	83	82	81	80	79	78	77	77
	69	91	90	88	88	88	88	87	87	86	86	85	85	84	84	83	82	82	81	80	79	78	78	77	76
	68	90	89	88	87	87	87	86	86	86	85	85	84	83	83	82	82	81	80	79	78	78	77	76	75
	67	89	88	87	86	86	86	85	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75	74
	66	89	88	87	86	86	86	85	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75	74
65	88	87	86	86	85	85	85	84	84	83	83	82	82	81	80	80	79	78	78	77	76	75	74	73	
64	87	86	85	85	84	84	84	83	83	82	82	81	81	80	80	79	78	78	77	76	75	74	73	72	
63	86	85	84	84	84	83	83	83	82	82	81	81	80	79	79	78	77	77	76	75	74	73	72	71	
62	86	85	83	83	83	82	82	82	81	81	80	80	79	79	78	77	77	76	75	74	73	72	72	71	
61	85	84	82	82	82	82	81	81	80	80	79	79	78	78	77	76	76	75	74	73	72	72	71	70	
60	84	83	82	81	81	81	80	80	80	79	79	78	77	77	76	76	75	74	73	72	72	71	70	69	
59	83	82	81	80	80	80	80	79	79	78	78	77	77	76	75	75	74	73	72	72	71	70	69	68	
58	82	81	80	80	79	79	79	78	78	77	77	76	76	75	75	74	73	72	72	71	70	69	68	67	
57	81	80	79	79	79	78	78	77	77	77	76	76	75	74	74	73	72	72	71	70	69	68	67	66	
56	80	79	78	78	78	77	77	77	76	76	75	75	74	73	73	72	71	71	70	69	68	67	66	65	
55	80	79	77	77	77	76	76	76	75	75	74	74	73	73	72	71	71	70	69	68	67	66	66	65	
54	79	78	77	76	76	76	75	75	74	74	74	73	72	72	71	70	70	69	68	67	67	66	65	64	
53	78	77	76	75	75	75	74	74	74	73	73	72	72	71	70	70	69	68	67	67	66	65	64	63	
52	77	76	75	75	74	74	74	73	73	72	72	71	71	70	69	69	68	67	67	66	65	64	63	62	
51	76	75	74	74	73	73	73	72	72	71	71	70	70	69	69	68	67	66	66	65	64	63	62	61	
50	75	74	73	73	73	72	72	71	71	71	70	70	69	68	68	67	66	66	65	64	63	62	61	60	
49	75	73	72	72	72	71	71	71	70	70	69	69	68	68	67	66	66	65	64	63	62	61	60	60	
48	73	72	71	70	70	70	69	69	69	68	68	67	66	66	65	65	64	63	62	61	61	60	59	58	
47	72	71	70	69	69	69	68	68	68	67	67	66	66	65	64	64	63	62	61	61	60	59	58	57	
46	71	70	69	69	68	68	68	67	67	66	66	65	65	64	63	63	62	61	61	60	59	58	57	56	
45	70	69	68	68	67	67	67	66	66	65	65	64	64	63	63	62	61	61	60	59	58	57	56	55	

**Regents Examination in Physical Setting/Earth Science — January 2004**  
**Chart for Determining the Final Examination Score**  
**(Use for January 2004 examination only.)**

**Total Performance Test Score**

**Total Written Test Score**

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
44	69	68	67	67	67	66	66	66	65	65	64	64	63	62	62	61	60	60	59	58	57	56	55	54
43	69	68	66	66	66	65	65	65	64	64	63	63	62	62	61	60	60	59	58	57	56	55	55	54
42	67	66	65	64	64	64	63	63	63	62	62	61	60	60	59	59	58	57	56	55	55	54	53	52
41	66	65	64	63	63	63	63	62	62	61	61	60	60	59	58	58	57	56	55	55	54	53	52	51
40	65	64	63	63	62	62	62	61	61	60	60	60	59	59	58	58	57	56	55	55	54	53	52	51
39	64	63	62	62	62	61	61	60	60	60	59	59	58	57	57	56	55	55	54	53	52	51	50	49
38	63	62	60	60	60	59	59	59	58	58	57	57	56	56	55	54	54	53	52	51	50	49	49	48
37	62	61	60	59	59	59	58	58	57	57	57	56	55	55	54	53	53	52	51	50	50	49	48	47
36	61	60	59	58	58	58	57	57	57	56	56	55	55	54	53	53	52	51	50	50	49	48	47	46
35	60	59	58	58	57	57	57	56	56	55	55	54	54	53	52	52	51	50	50	49	48	47	46	45
34	58	57	56	56	56	55	55	54	54	54	53	53	52	51	51	50	49	49	48	47	46	45	44	43
33	58	56	55	55	55	54	54	54	53	53	52	52	51	51	50	49	49	48	47	46	45	44	43	43
32	57	56	54	54	54	54	53	53	52	52	51	51	50	50	49	48	48	47	46	45	44	44	43	42
31	55	54	53	52	52	52	51	51	51	50	50	49	49	48	47	47	46	45	44	44	43	42	41	40
30	54	53	52	52	51	51	51	50	50	49	49	48	48	47	46	46	45	44	44	43	42	41	40	39
29	52	51	50	50	50	49	49	49	48	48	47	47	46	45	45	44	43	43	42	41	40	39	38	37
28	52	51	49	49	49	48	48	48	47	47	46	46	45	45	44	43	43	42	41	40	39	38	38	37
27	51	50	48	48	48	48	47	47	46	46	45	45	44	44	43	42	42	41	40	39	38	38	37	36
26	49	48	47	46	46	46	46	45	45	44	44	43	43	42	41	41	40	39	38	38	37	36	35	34
25	48	47	46	46	45	45	45	44	44	43	43	42	42	41	41	40	39	38	38	37	36	35	34	33
24	46	45	44	44	44	43	43	43	42	42	41	41	40	39	39	38	37	37	36	35	34	33	32	31
23	46	45	43	43	43	42	42	42	41	41	40	40	39	39	38	37	37	36	35	34	33	32	32	31
22	45	44	43	42	42	42	41	41	40	40	40	39	38	38	37	36	36	35	34	33	33	32	31	30
21	43	42	41	41	40	40	40	39	39	38	38	37	37	36	35	35	34	33	33	32	31	30	29	28
20	42	41	40	40	39	39	39	38	38	37	37	36	36	35	35	34	33	32	32	31	30	29	28	27
19	41	39	38	38	38	37	37	37	36	36	35	35	34	34	33	32	32	31	30	29	28	27	26	26
18	40	39	37	37	37	37	36	36	35	35	34	34	33	33	32	31	31	30	29	28	27	27	26	25
17	38	37	36	35	35	35	34	34	34	33	33	32	32	31	30	30	29	28	27	27	26	25	24	23
16	37	36	35	35	34	34	34	33	33	32	32	31	31	30	29	29	28	27	27	26	25	24	23	22
15	35	34	33	33	33	32	32	32	31	31	30	30	29	28	28	27	26	26	25	24	23	22	21	20
14	35	34	32	32	32	31	31	31	30	30	29	29	28	28	27	26	26	25	24	23	22	21	21	20
13	33	32	31	30	30	30	29	29	29	28	28	27	26	26	25	25	24	23	22	21	21	20	19	18
12	31	30	29	29	28	28	28	27	27	26	26	25	25	24	24	23	22	21	21	20	19	18	17	16
11	30	29	28	28	28	27	27	26	26	26	25	25	24	23	23	22	21	21	20	19	18	17	16	15
10	29	28	26	26	26	25	25	25	24	24	23	23	22	22	21	20	20	19	18	17	16	15	15	14
9	28	27	26	25	25	25	24	24	23	23	23	22	21	21	20	19	19	18	17	16	16	15	14	13
8	26	25	24	24	23	23	23	22	22	21	21	20	20	19	18	18	17	16	16	15	14	13	12	11
7	24	23	22	22	22	21	21	20	20	20	19	19	18	17	17	16	15	15	14	13	12	11	10	9
6	24	22	21	21	21	20	20	20	19	19	18	18	17	17	16	15	15	14	13	12	11	10	9	9
5	22	21	20	19	19	19	18	18	18	17	17	16	15	15	14	14	13	12	11	10	10	9	8	7
4	21	20	19	18	18	18	17	17	17	16	16	15	15	14	13	13	12	11	10	9	8	7	6	6
3	19	18	17	17	16	16	16	15	15	14	14	13	13	12	12	11	10	10	9	8	7	6	5	4
2	18	17	15	15	15	14	14	14	13	13	12	12	11	11	10	9	9	8	7	6	5	4	4	3
1	17	16	14	14	14	14	13	13	12	12	11	11	10	10	9	8	8	7	6	5	4	4	3	2
0	15	14	13	12	12	12	12	11	11	10	10	9	9	8	7	7	6	5	4	4	3	2	1	0

## Map to Core Curriculum

<b>January 2004 Physical Setting/ Earth Science</b>			
<b>Question Numbers</b>			
Key Ideas/Performance Indicators	Part A	Part B	Part C
<b>Standard 1</b>			
Math Key Idea 1	34		73
Math Key Idea 2	1,6,13,30	49	
Math Key Idea 3		44,54	
Sci. Inq. Key Idea 1		51	64
Sci. Inq. Key Idea 2			
Sci. Inq. Key Idea 3	19,22,25		61
Eng. Des. Key Idea 1			
<b>Standard 2</b>			
Key Idea 1			
Key Idea 2			
Key Idea 3			
<b>Standard 6</b>			
Key Idea 1			62,63,69
Key Idea 2	6	40,41,42,44,45, 50,52,57,59,60	66,69,71
Key Idea 3		53,54,55	68,71,72
Key Idea 4		56	
Key Idea 5		38,39,46,47,48, 49,52,58,59	63,65,66,67
Key Idea 6			
<b>Standard 7</b>			
Key Idea 1			70,74
Key Idea 2			
<b>Standard 4</b>			
Performance Indicator 1	1,2,3,4,5,6,8, 15,16,25,26,28, 32,33	36,37,38,39,40, 51,52,53,54	68,69,70,73
Performance Indicator 2	6,7,9,10,11,12, 13,14,17,20,21, 22,24,27,30	36,41,42,44,45, 46,47,48,49,50, 55,56,57,58,59, 60	61,62,63,64,65, 66,67,71,72,73,74
Performance Indicator 3	18,19,23,29,31, 34,35	43,48	
<b>Reference Tables</b>			
ESRT 2001 edition	2,9,16,19,22, 23,25,28,31,32, 34,35	42,43,45,46,48, 50,52,53,57,59, 60	65,68,73