The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING
EARTH SCIENCE

Friday, June 17, 2016 — 9:15 a.m. to 12:15 p.m., only

The possession or use of any communications device is strictly prohibited when taking this examination. If you have or use any communications device, no matter how briefly, your examination will be invalidated and no score will be calculated for you.

Use your knowledge of Earth science to answer all questions in this examination. Before you begin this examination, you must be provided with the *2011 Edition Reference Tables for Physical Setting/Earth Science*. You will need these reference tables to answer some of the questions.

You are to answer all questions in all parts of this examination. You may use scrap paper to work out the answers to the questions, but be sure to record your answers on your answer sheet and in your answer booklet. A separate answer sheet for Part A and Part B–1 has been provided to you. Follow the instructions from the proctor for completing the student information on your answer sheet. Record your answers to the Part A and Part B–1 multiple-choice questions on this separate answer sheet. Record your answers for the questions in Part B–2 and Part C in your separate answer booklet. Be sure to fill in the heading on the front of your answer booklet.

All answers in your answer booklet should be written in pen, except for graphs and drawings, which should be done in pencil.

When you have completed the examination, you must sign the declaration printed on 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 *2011 Edition Reference Tables for Physical Setting/Earth Science* must be available for you to 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, choose the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the *2011 Edition Reference Tables for Physical Setting/Earth Science.* Record your answers on your separate answer sheet.

1 Earth's approximate rate of revolution is

(1) 1° per day
(2) 15° per day
(3) 180° per day
(4) 360° per day

2 Planetary winds in the Northern Hemisphere are deflected to the right due to the

(1) Doppler effect
(2) Coriolis effect
(3) tilt of Earth's axis
(4) polar front jet stream

3 Which star is hotter, but less luminous, than *Polaris*?

(1) *Deneb*
(2) *Aldebaran*
(3) *Sirius*
(4) *Pollux*

4 Which statement best explains why Earth and the other planets of our solar system became layered as they were being formed?

(1) Gravity caused less-dense material to move toward the center of each planet.
(2) Gravity caused more-dense material to move toward the center of each planet.
(3) Materials that cooled quickly stayed at the surface of each planet.
(4) Materials that cooled slowly stayed at the surface of each planet.

5 Which conditions on Earth's surface will allow for the greatest amount of water to seep into the ground?

(1) gentle slope and permeable
(2) gentle slope and impermeable
(3) steep slope and permeable
(4) steep slope and impermeable

6 The photograph below shows a Foucault pendulum at a museum. The pendulum knocks over pins in a regular pattern as it swings back and forth.

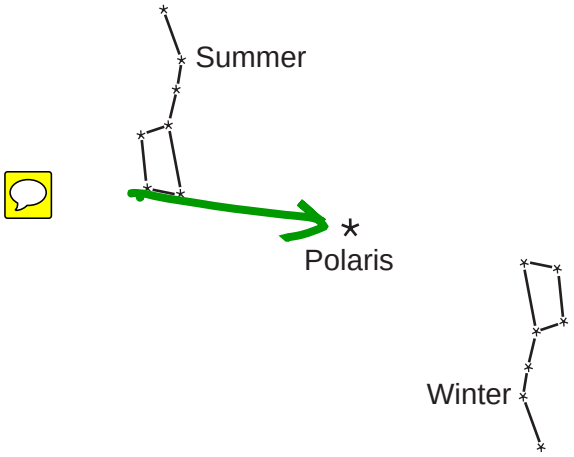
This pendulum movement, and the pattern of knocked-over pins, is evidence of Earth's

(1) nearly spherical shape
(2) gravitational attraction to the Sun
(3) rotation on its axis
(4) nearly circular orbit around the Sun

7 Earth's early atmosphere contained carbon dioxide, sulfur dioxide, hydrogen, nitrogen, water vapor, methane, and ammonia. These gases were present in the atmosphere primarily because

(1) radioactive decay products produced in Earth's core were released from Earth's surface
(2) evolving Earth life-forms produced these gases through their activity
(3) Earth's growing gravitational field attracted these gases from space
(4) volcanic eruptions on Earth's surface released these gases from the interior

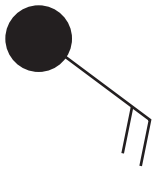
8 The diagram below represents the apparent positions of the Big Dipper, with respect to *Polaris*, as seen by an observer in New York State at midnight on the first day of summer and on the first day of winter.



The change in the apparent position of the Big Dipper between the first day of summer and the first day of winter is best explained by Earth

1) rotating for 12 hours
2) rotating for 1 day
3) revolving for 6 months
4) revolving for 1 year

9 The weather station model shown below indicates that winds are coming from the



1) southeast at 10 knots
2) northwest at 10 knots
3) southeast at 20 knots
4) northwest at 20 knots

10 Which type of air mass most likely has high humidity and high temperature?

(1) cP
(2) cT
(3) mT
(4) mP

11 What is the relative humidity if the dry-bulb temperature is 16°C and the wet-bulb temperature is 10°C?

1) 45%
2) 33%
3) 14%
4) 4%

12 The table below shows the air temperature and dewpoint at each of four locations, *A*, *B*, *C*, and *D*.

Location	A	B	C	D
Air temperature (°F)	80	60	45	35
Dewpoint (°F)	60	43	35	33

Based on these measurements, which location has the greatest chance of precipitation?

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

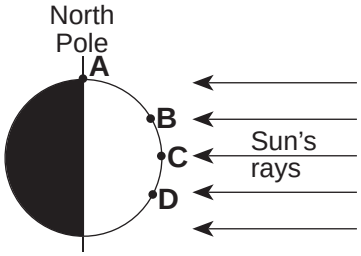
13 Which type of electromagnetic radiation has the shortest wavelength?

1) ultraviolet
2) gamma rays
(3) radio waves
(4) visible light

14 Which gas is considered a major greenhouse gas?

1) methane
2) hydrogen
(3) oxygen
(4) nitrogen

15 The diagram below represents Earth and the Sun's incoming rays. Letters *A*, *B*, *C*, and *D* represent locations on Earth's surface.



Which two locations are receiving the same intensity of insolation?

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

16 Most of the sand that makes up the sandstone found in New York State was originally deposited in which type of layers?

1) tilted
2) horizontal
3) faulted
4) folded

17 The map below shows the current location of New York State in North America.

Approximately how many million years ago (mya) was this New York State region located at the equator?

1) 59 mya
2) 119 mya
3) 359 mya
4) 458 mya

18 Many scientists infer that one cause of the mass extinction of dinosaurs and ammonoids that occurred approximately 65.5 million years ago was

1) tectonic plate subduction of most of the continents
2) an asteroid impact that resulted in climate change
3) a disease spreading among many groups of organisms
4) severe damage produced by worldwide earthquakes

19 During which geologic epoch do scientists infer that the earliest grasses first appeared on Earth?

1) Holocene
2) Pleistocene
3) Oligocene
4) Eocene

20 What are the inferred pressure and temperature at the boundary of Earth's stiffer mantle and outer core?

1) 1.5 million atmospheres pressure and an interior temperature of 4950°C
2) 1.5 million atmospheres pressure and an interior temperature of 6200°C
3) 3.1 million atmospheres pressure and an interior temperature of 4950°C
4) 3.1 million atmospheres pressure and an interior temperature of 6200°C

21 A seismic *P*-wave is recorded at 2:25 p.m. at a seismic station located 7600 kilometers from the epicenter of an earthquake. At what time did the earthquake occur?

1) 2:05 p.m.
2) 2:11 p.m.
3) 2:14 p.m.
4) 2:36 p.m.

22 A seismic station recorded the *P*-waves, but no *S*-waves, from an earthquake because *S*-waves were

1) absorbed by Earth's outer core
2) transmitted only through liquids
3) weak and detected only at nearby locations
4) not produced by this earthquake

23 The Catskills of New York State are best described as a plateau, while the Adirondacks are best described as mountains. Which factor is most responsible for the difference in landscape classification of these two regions?

1) climate variations
2) bedrock structure
3) vegetation type
4) bedrock age

24 An elongated hill that is composed of unsorted sediments deposited by a glacier is called

1) a delta
2) a drumlin
3) a sand dune
4) an outwash plain

25 Which rock was subjected to intense heat and pressure but did *not* solidify from magma?

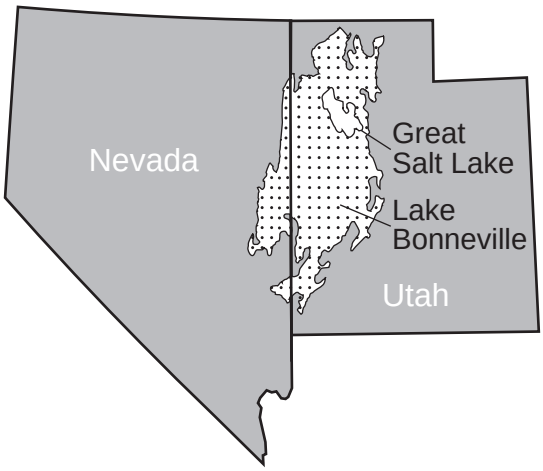
1) sandstone
2) schist
3) gabbro
4) rhyolite

26 The map below shows a stream drainage pattern where the streams radiate outward from the center.

Which landscape feature would produce this stream drainage pattern?

(1) steep cliff
(2) glacial kettle lake
(3) volcanic mountain
(4) flat plain

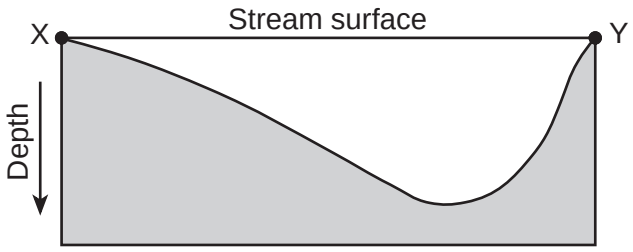
27 The map below shows the area that, at one time, was covered by ancient Lake Bonneville. Evidence of ancient shorelines indicates that, near the end of the last ice age, Lake Bonneville existed in western Utah and eastern Nevada. The Great Salt Lake in Utah is a remnant of the former Lake Bonneville.



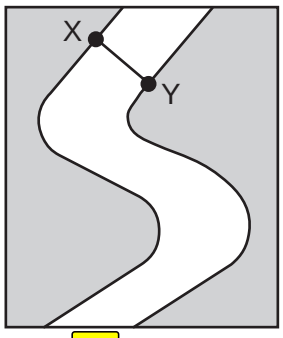
Which material that was formerly on the bottom of Lake Bonneville is most likely exposed on the land surface today?

(1) folded metamorphic bedrock
(2) flat-lying evaporite deposits
(3) coarse-grained coal beds
(4) fine-grained layers of volcanic lava

28 The cross section below represents a portion of a meandering stream. Points *X* and *Y* represent two positions on opposite sides of the stream.



Based on the cross section, which map of a meandering stream best shows the positions of points *X* and *Y*?



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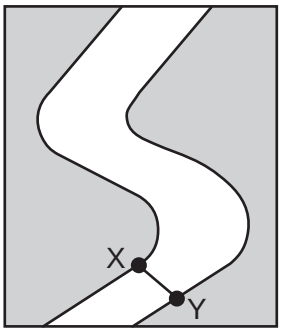

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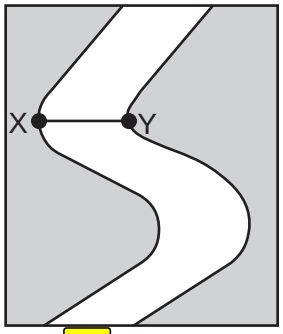

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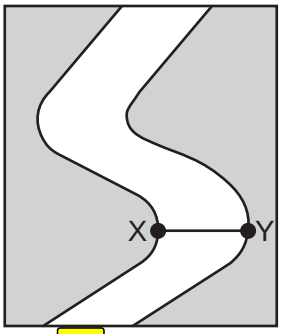
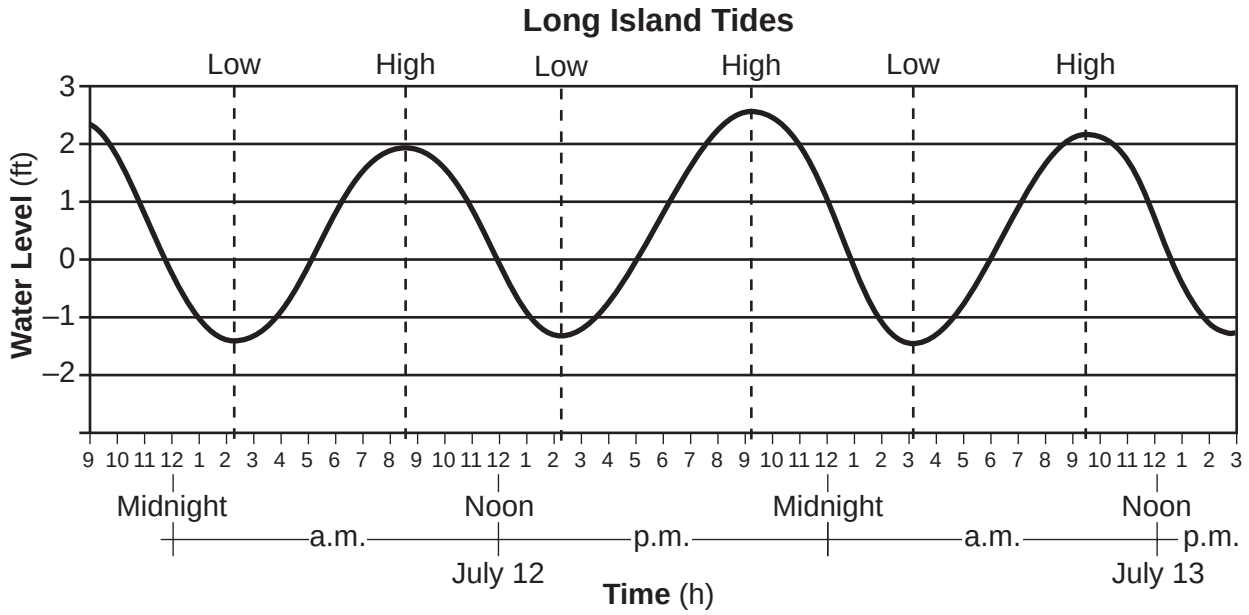


(4)

29 When wind and running water gradually decrease in velocity, the transported sediments are deposited

(1) all at once, and are unsorted
(2) all at once, and are sorted by size and density
(3) over a period of time, and are unsorted
(4) over a period of time, and are sorted by size and density

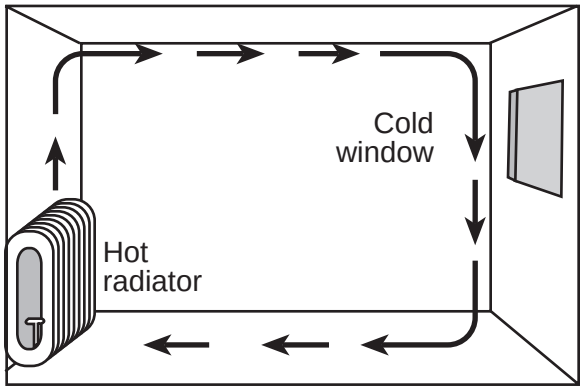
30 The graph below shows ocean water levels for a shoreline location on Long Island, New York. The graph also indicates the dates and times of high and low tides.



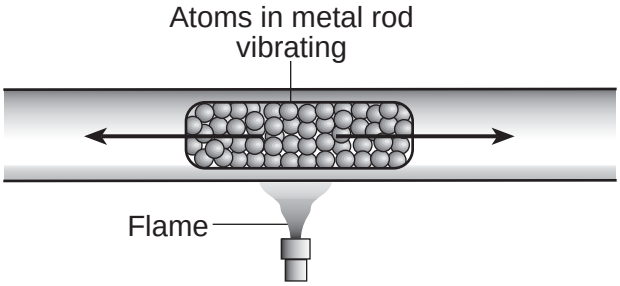
Based on the data, the next high tide occurred at approximately

(1) 4 p.m. on July 13
(2) 10 p.m. on July 13
(3) 4 p.m. on July 14
(4) 10 p.m. on July 14

31 Which diagram best represents heat transfer mainly by the process of conduction?



(1)



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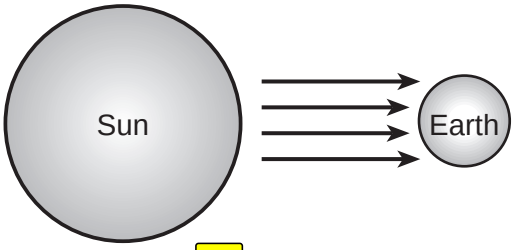
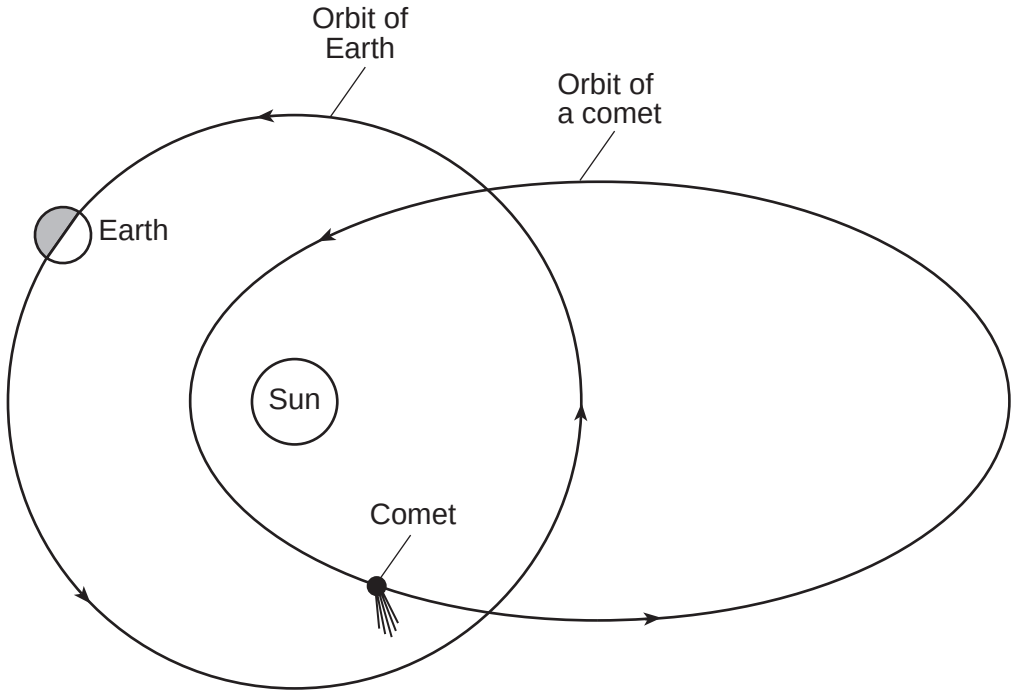


(2)

(4)

32 The diagram below represents the position of Earth in its orbit and the position of a comet in its orbit around the Sun.



(Not drawn to scale)

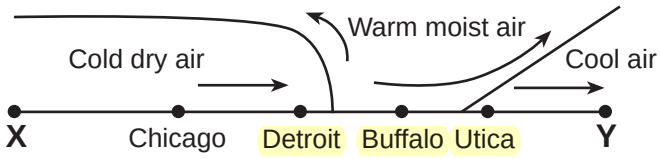
Which inference can be made about the comet's orbit, when it is compared to Earth's orbit?

(1) Earth's orbit and the comet's orbit have the same distance between foci.
(2) Earth's orbit has a greater distance between foci than the comet's orbit.
(3) The comet's orbit has one focus, while Earth's orbit has two foci.
(4) The comet's orbit has a greater distance between foci than Earth's orbit.

33 Which sequence of geologic events is in the correct order, from oldest to most recent?

(1) oceanic oxygen begins to enter the atmosphere → earliest stromatolites → initial opening of the Iapetus Ocean → dome-like uplift of the Adirondack region begins
(2) dome-like uplift of the Adirondack region begins → initial opening of the Iapetus Ocean → oceanic oxygen begins to enter the atmosphere → earliest stromatolites
(3) initial opening of the Iapetus Ocean → earliest stromatolites → oceanic oxygen begins to enter the atmosphere → dome-like uplift of the Adirondack region begins
(4) earliest stromatolites → oceanic oxygen begins to enter the atmosphere → initial opening of the Iapetus Ocean → dome-like uplift of the Adirondack region begins

34 The cross section of the atmosphere below represents the air motion near two frontal boundaries along reference line *XY* on Earth's surface.



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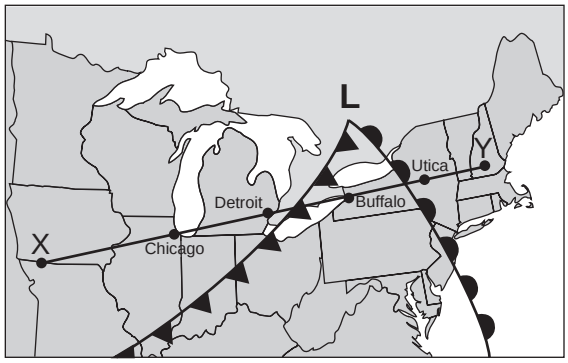
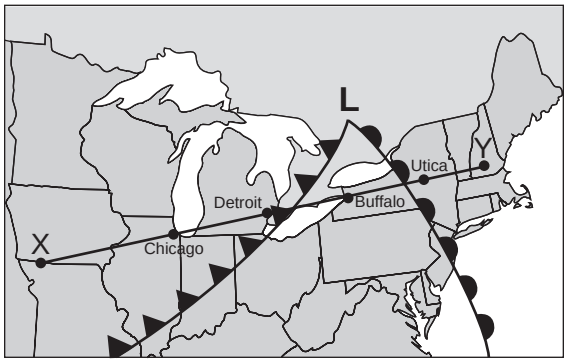
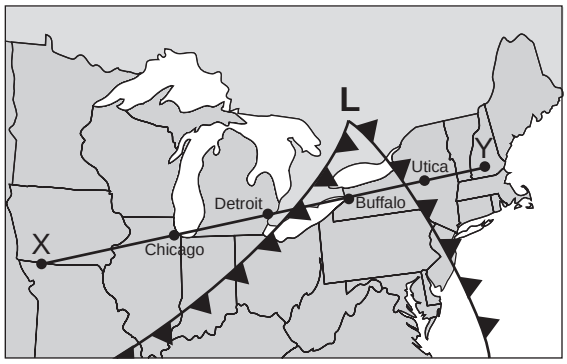
Which weather map correctly identifies these fronts and indicates the direction that these fronts are moving?



(1)



(3)



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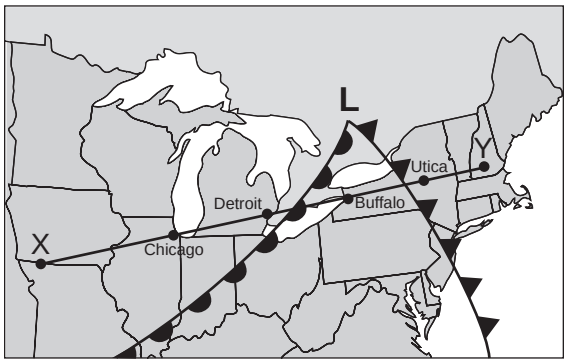
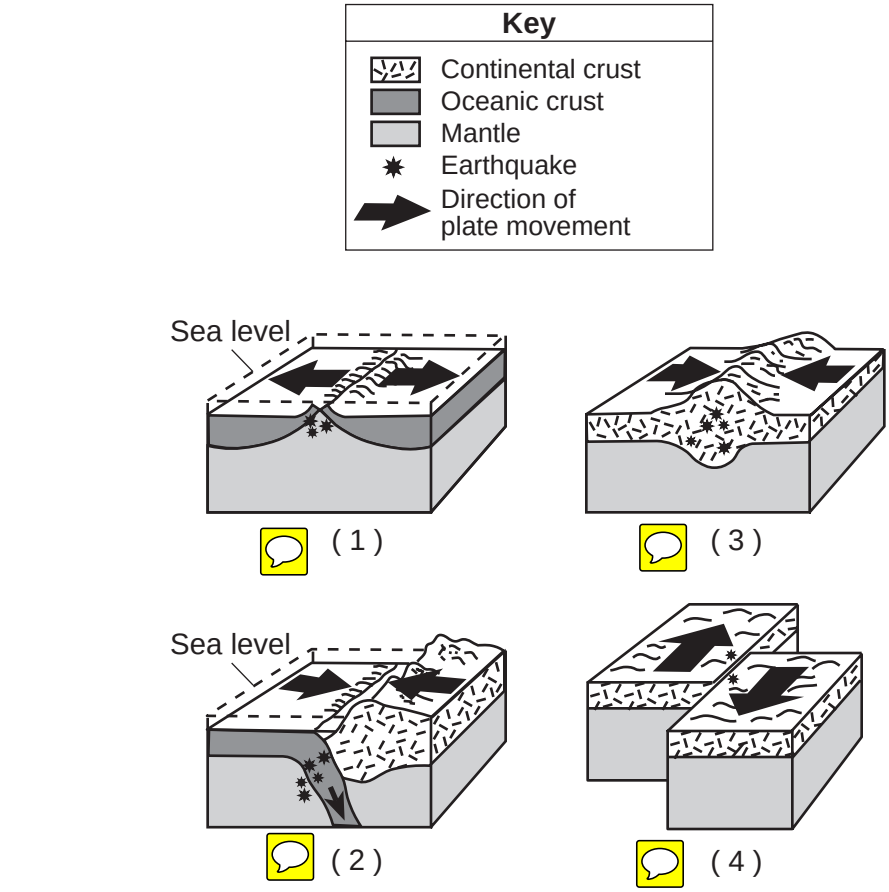


(4)

35 Which block diagram represents the plate motion that causes the earthquakes that occur along the San Andreas Fault in California?

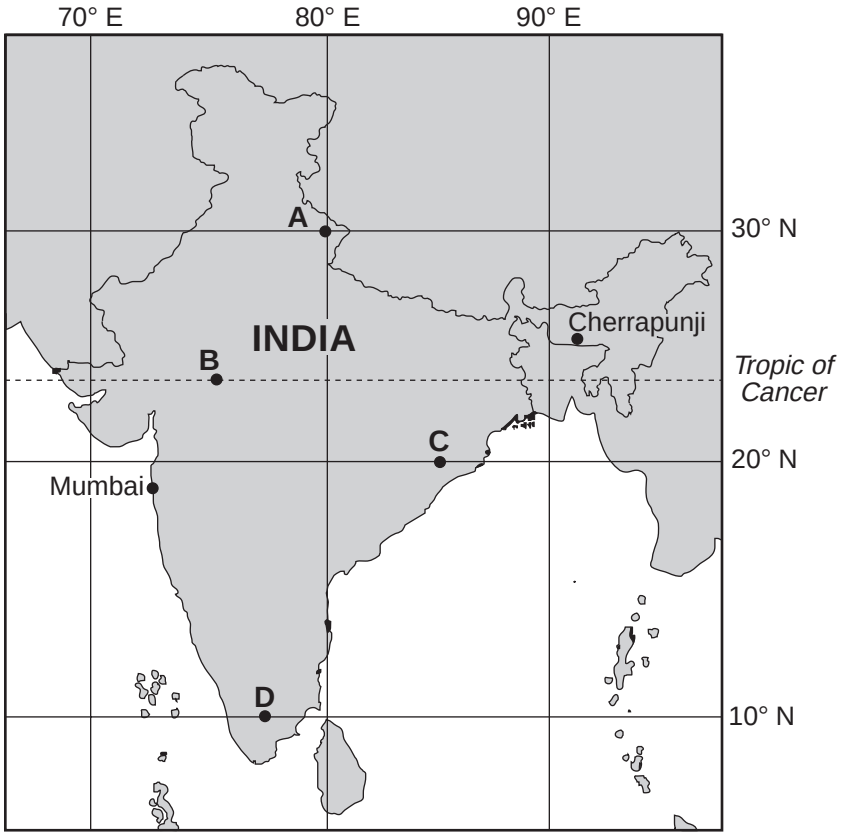


Part B–1

Answer all questions in this part.

Directions (36–50): For *each* statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the *2011 Edition Reference Tables for Physical Setting/Earth Science.* Record your answers on your separate answer sheet.

Base your answers to questions 36 through 39 on the map and the passage below and on your knowledge of Earth science. The map shows four different locations in India, labeled *A*, *B*, *C*, and *D*, where vertical sticks were placed in the ground on the same clear day. The locations of two cities in India are also shown.



Monsoons in India

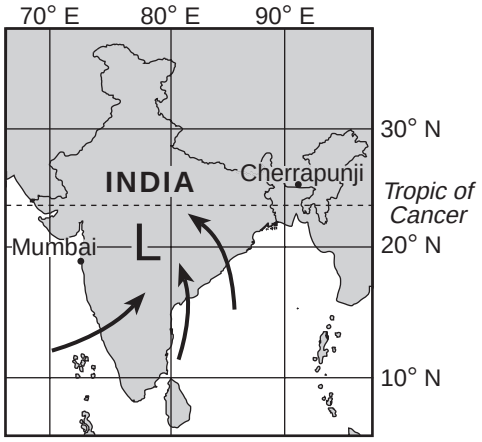
A monsoon season is caused by a seasonal shift in the wind direction, which produces excessive rainfall in many parts of the world, most notably India. Cherrapunji, in northeast India, received a record 30.5 feet of rain during July 1861. During the monsoon season from early June into September, Mumbai, India averages 6.8 feet of rain. Mumbai's total average rainfall for the other eight months of the year is only 3.9 inches.

Monsoons are caused by unequal heating rates of land and water. As the land heats throughout the summer, a large low-pressure system forms over India. The heat from the Sun also warms the surrounding ocean waters, but the water warms much more slowly. The cooler air above the ocean is more dense, creating a higher air pressure relative to the lower air pressure over India.

36 At which map location would no shadow be cast by the vertical stick at solar noon on the first day of summer?

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

37 Which map shows both the dominant air pressure system that forms over India in the summer and the direction of surface winds around this air pressure system? [High pressure = **H**, Low pressure = **L**]



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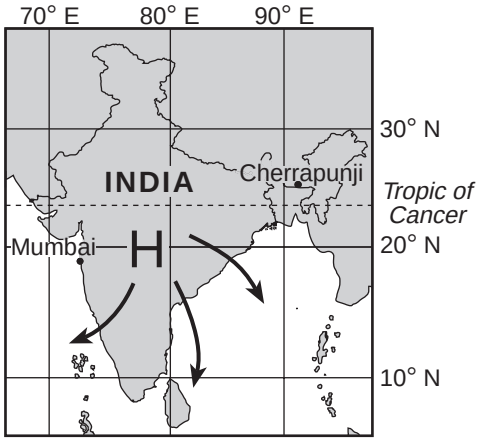

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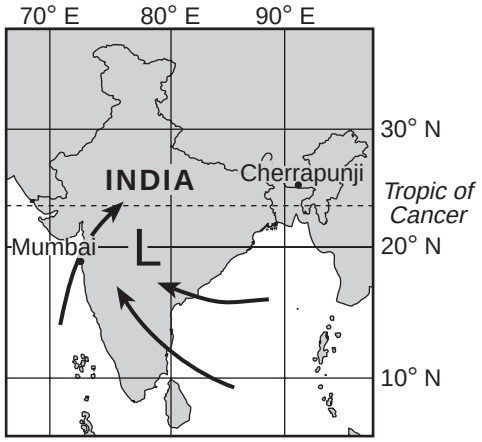

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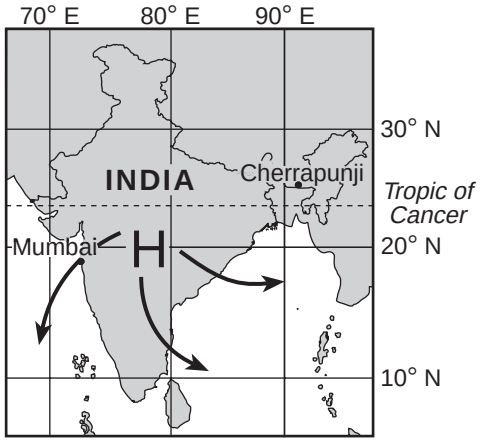


(4)

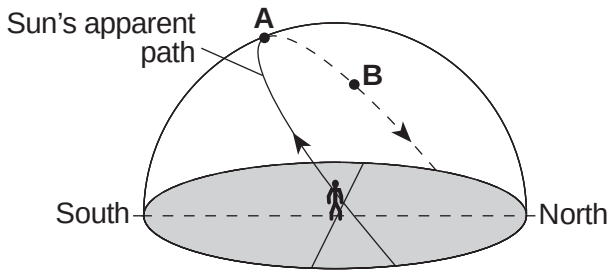
38 The unequal heating rates of India's land and water are caused by

(1) land having a higher density than water
(2) water having a higher density than land
(3) land having a higher specific heat than water
(4) water having a higher specific heat than land

39 Which processes lead to cloud formation when humid air rises over India?

(1) compression, warming to the dewpoint, and condensation
(2) compression, warming to the dewpoint, and evaporation
(3) expansion, cooling to the dewpoint, and condensation
(4) expansion, cooling to the dewpoint, and evaporation

Base your answers to questions 40 through 42 on the diagram below and on your knowledge of Earth science. The diagram represents the apparent path of the Sun across the sky at a New York State location on June 21. Point *A* represents the position of the noon Sun. Points *A* and *B* on the path are 45 degrees apart.



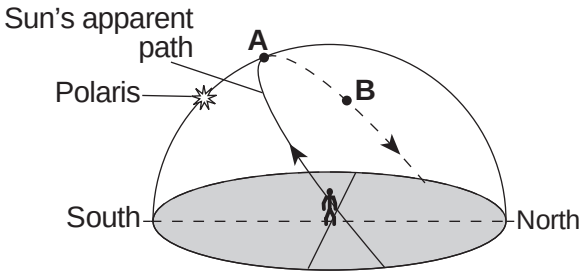
40 How many hours (h) will it take for the apparent position of the Sun to change from point *A* to point *B*?

(1) 1 h
(2) 2 h
(3) 3 h
(4) 4 h

41 Compared to the Sun's apparent path on June 21, the Sun's apparent path on December 21 at this location will

(1) be shorter, and the noon Sun will be lower in the sky
(2) be longer, and the noon Sun will be higher in the sky
(3) remain the same length, and the noon Sun will be lower in the sky
(4) remain the same length, and the noon Sun will be higher in the sky

42 Which diagram represents the correct position of *Polaris* as viewed from this New York State location on a clear night?



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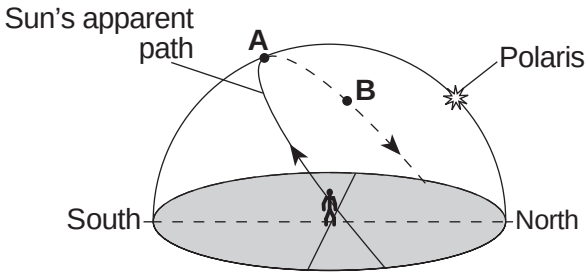

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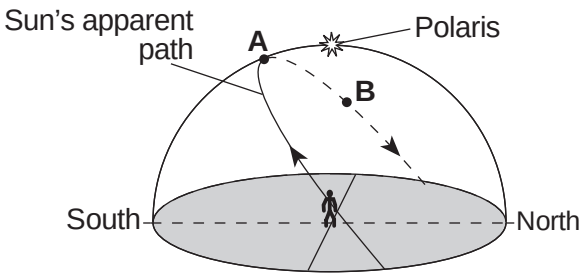

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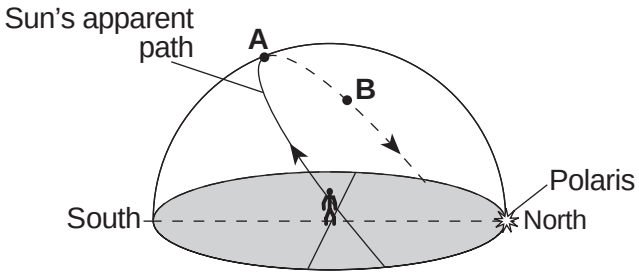
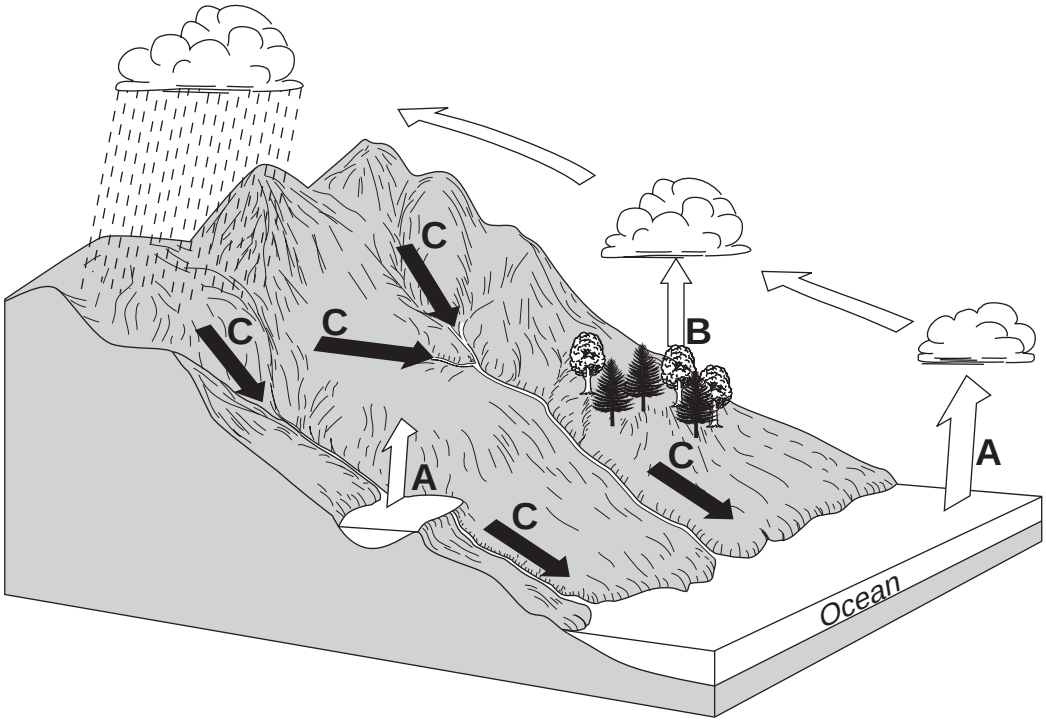


(4)

Base your answers to questions 43 and 44 on the diagram below and on your knowledge of Earth science. The diagram represents the water cycle. Letters *A* through *C* represent different processes in the water cycle.



(Not drawn to scale)

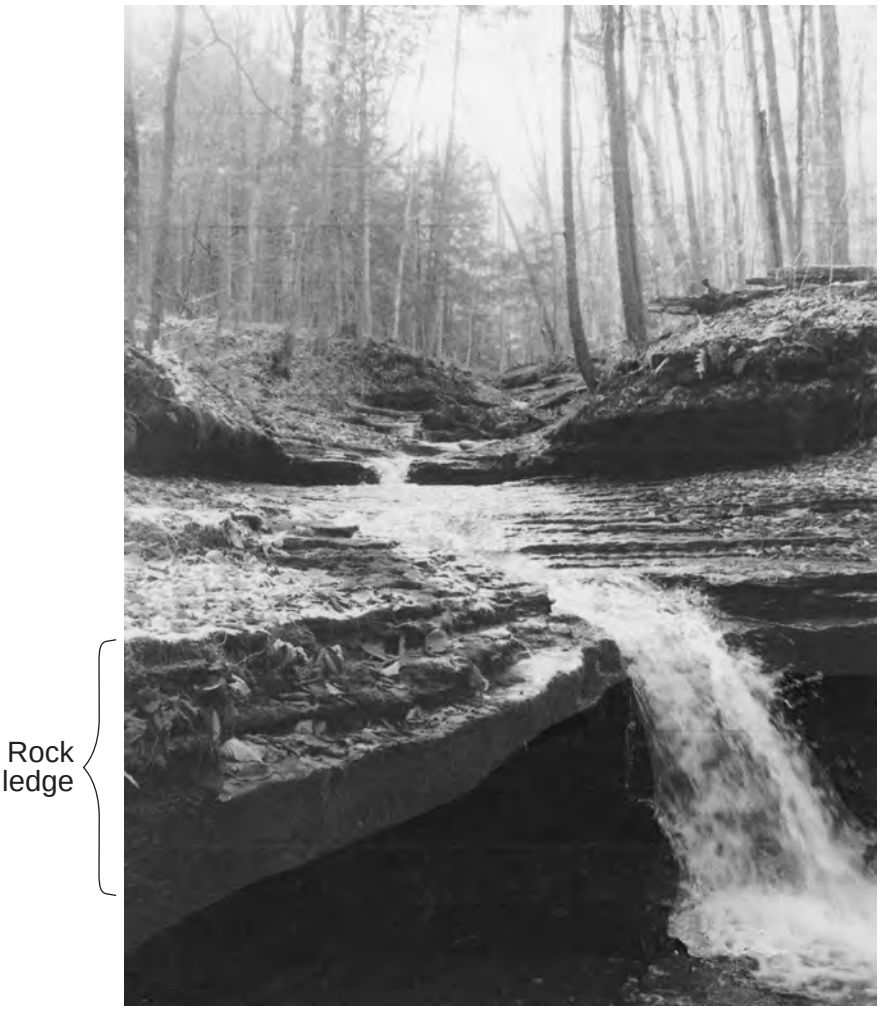
43 In order for process *A* to occur, liquid water must

(1) gain 334 Joules per gram
(2) gain 2260 Joules per gram
(3) lose 334 Joules per gram
(4) lose 2260 Joules per gram

44 Which process is represented by letter *B*?

(1) capillarity
(2) transpiration
(3) infiltration
(4) precipitation

Base your answers to questions 45 through 47 on the photograph below and on your knowledge of Earth science. The photograph shows a small waterfall located on the Tug Hill Plateau.



45 During which geologic time period was the surface bedrock at this location formed?

(1) Cretaceous
(2) Triassic
(3) Devonian
(4) Ordovician

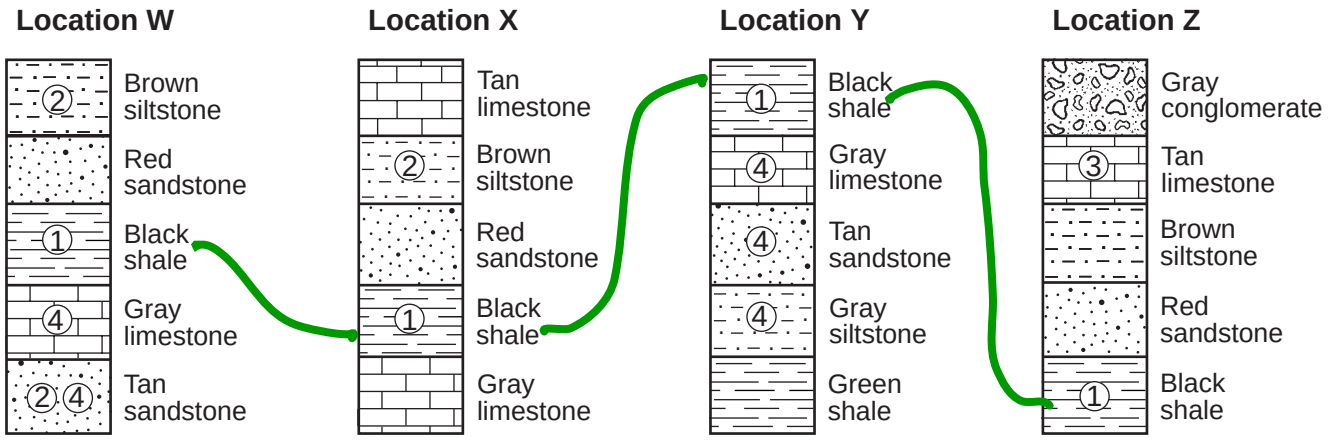
46 Compared to the bedrock layers above and below the rock ledge shown at the waterfall, the characteristic that is primarily responsible for the existence of the rock ledge is its greater

(1) resistance to weathering
(2) abundance of fossils
(3) thickness
(4) age

47 Rock fragments that are tumbled and carried over long distances by this stream are most likely becoming

(1) less dense, harder, and smaller
(2) less rounded, jagged, and larger
(3) more dense, angular, and smaller
(4) more rounded, smoother, and smaller

Base your answers to questions 48 through 50 on the rock columns below and on your knowledge of Earth science. The rock columns represent four widely separated locations, *W*, *X*, *Y*, and *Z*. Numbers 1, 2, 3, and 4 represent fossils. The rock layers have *not* been overturned.



48 Which numbered fossil best represents an index fossil?

(1) 1
(2) 2
(3) 3
(4) 4

49 Which rock layer is the oldest?

(1) tan sandstone
(2) gray limestone
(3) green shale
(4) black shale

50 Which rock layer formed from the deposition of land-derived sediments that had a uniform particle size of about 0.01 cm in diameter?

(1) brown siltstone
(2) black shale
(3) gray conglomerate
(4) red sandstone

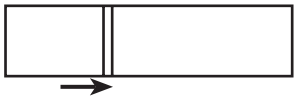
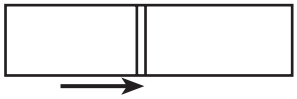
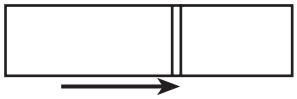
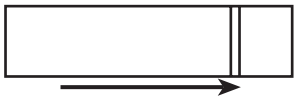
Part B–2

Answer all questions in this part.

Directions (51–65): Record your answers in the spaces provided in your answer booklet. Some questions may require the use of the *2011 Edition Reference Tables for Physical Setting/Earth Science*.

Base your answers to questions 51 through 53 on the data table below and on your knowledge of Earth science. The data table lists four constellations in which star clusters are seen from Earth. A star cluster is a group of stars near each other in space. Stars in the same cluster move at the same velocity. The length of the arrows in the table represents the amount of redshift of two wavelengths of visible light emitted by these star clusters.

Data Table

Constellation in which star cluster is seen from Earth	Redshift of two wavelengths of light absorbed by calcium	Distance from Earth (billion light years)	Velocity of star cluster moving away from Earth (km/s)
Ursa Major	Violet  Red	1.0	15,000
Corona Borealis	Violet  Red	1.4	22,000
Boötes	Violet  Red	2.5	39,000
Hydra	Violet  Red	4.0	61,000

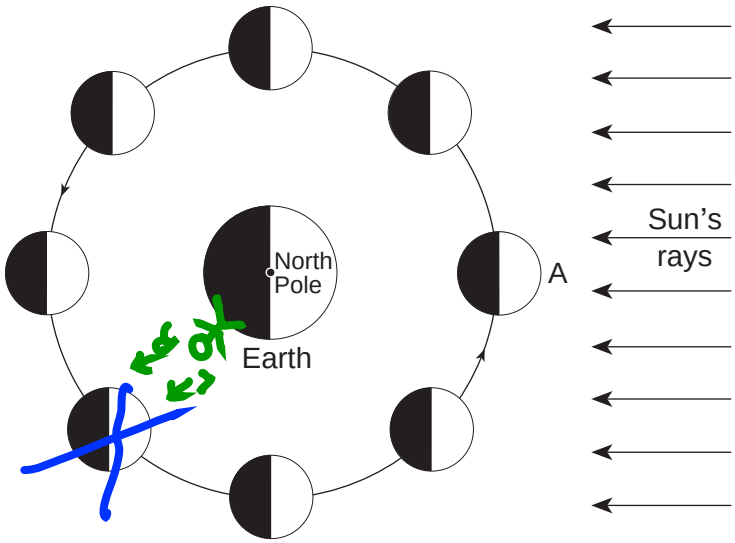
Note: One light year is the distance light travels in one year.

51 Describe the evidence shown by the light from these star clusters that indicates that these clusters are moving away from Earth. [1]

52 Write the chemical symbol for the element, shown in the table, that absorbs the two wavelengths of light. [1]

53 Identify the name of the nuclear process that is primarily responsible for producing energy in stars. [1]

Base your answers to questions 54 through 57 on the diagram below and on your knowledge of Earth science. The diagram represents the Moon in eight positions in its orbit around Earth. One position is labeled *A*.



(Not drawn to scale)

54 *In your answer booklet*, circle the type of eclipse that may occur when the Moon is at position *A*. Explain why this type of eclipse may occur when the Moon is at this position. [1]

55 The diagram below represents one phase of the Moon as observed from New York State.

On the diagram *in your answer booklet*, place an **X** on the Moon's orbit to represent the Moon's position when this phase was observed. [1]

56 State the number of days needed for the Moon to show a complete cycle of phases from one full Moon to the next full Moon when viewed from New York State. [1]

57 Explain why the Moon's revolution and rotation cause the same side of the Moon to always face Earth. [1]

Base your answers to questions 58 through 61 on the weather map in your answer booklet and on your knowledge of Earth science. The weather map shows atmospheric pressures, recorded in millibars (mb), at locations around a low-pressure center (**L**) in the eastern United States. Isobars indicate air pressures in the western portion of the mapped area. Point *A* represents a location on Earth's surface.

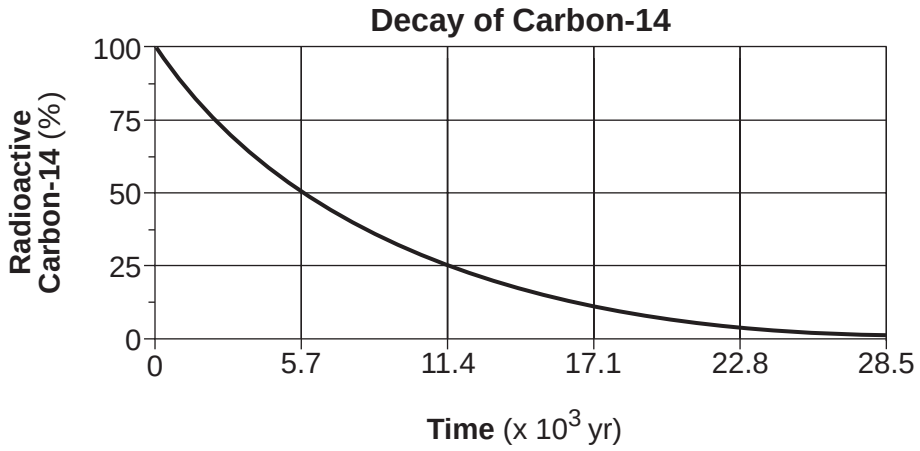
58 On the weather map *in your answer booklet*, draw the 1012 millibar and the 1008 millibar isobars. Extend the isobars to the east coast of the United States. [1]

59 Identify the weather instrument that was used to measure the air pressures recorded on the map. [1]

60 Identify the compass direction toward which the center of the low-pressure system will move if it follows a typical storm track. [1]

61 Convert the air pressure at location *A* from millibars to inches of mercury. [1]

Base your answers to questions 62 through 65 on the graph below and on your knowledge of Earth science. The graph shows the rate of decay of the radioactive isotope carbon-14 (^{14}C).



62 Complete the flow chart *in your answer booklet* by filling in the boxes to indicate the percentage of carbon-14 remaining and the time that has passed at the end of each half-life. [1]

63 Identify the decay product formed by the disintegration of carbon-14. [1]

64 Explain why carbon-14 *cannot* be used to accurately determine the age of organic remains that are 1,000,000 years old. [1]

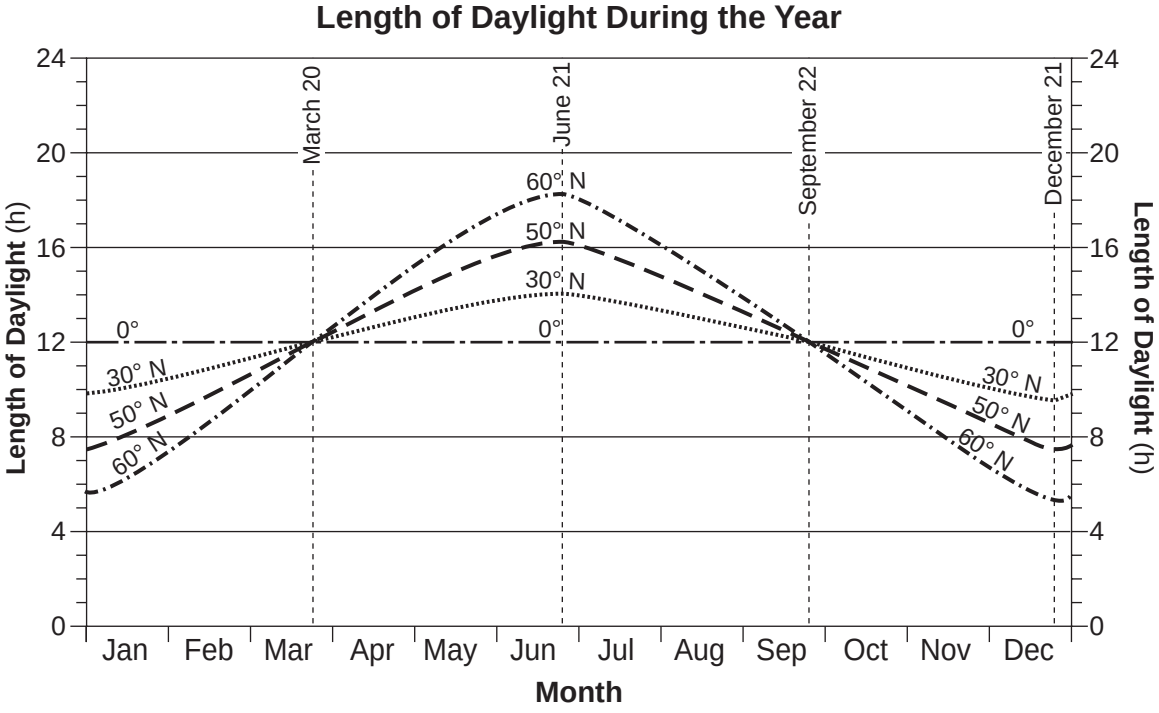
65 State the name of the radioactive isotope that has a half-life that is approximately the same as the estimated time of the origin of Earth. [1]

Part C

Answer all questions in this part.

Directions (66–85): Record your answers in the spaces provided in your answer booklet. Some questions may require the use of the *2011 Edition Reference Tables for Physical Setting/Earth Science.*

Base your answers to questions 66 through 69 on the graph below and on your knowledge of Earth science. The graph shows changes in hours of daylight during the year at the latitudes of 0°, 30° N, 50° N and 60° N.



66 Estimate the number of daylight hours that occur on January 1 at 40° N latitude. [1]

67 Identify the latitude shown on the graph that has the earliest sunrise on June 21. Include the units and compass direction in your answer. [1]

68 Explain why all four latitudes have the same number of hours of daylight on March 20 and September 22. [1]

69 The graph *in your answer booklet* shows a curve for the changing length of daylight over the course of one year that occurs for an observer at 50° N latitude. On this same graph in your answer booklet, draw a line to show the changing length of daylight over the course of one year that occurs for an observer at 50° S latitude. [1]

Base your answers to questions 70 through 74 on the passage and data tables below, on the map in your answer booklet, and on your knowledge of Earth science. The data tables show trends (patterns) of two lines of Hawaiian island volcanoes, the Loa trend and the Kea trend. For these trends, ages and distances of the Hawaiian island volcanoes are shown. The map shows the locations of volcanoes, labeled with *X*s, that make up each trend line.

Hawaiian Volcano Trends

The Hawaiian volcanic island chain, located on the Pacific Plate, stretches over 600 kilometers. This chain of large volcanoes has grown from the seafloor to heights of over 4000 meters. Geologists have noted that there appear to be two lines, or "trends," of volcanoes—one that includes Mauna Loa and one that includes Mauna Kea. Loihi and Kilauea are the most recent active volcanoes on the two trends shown on the map.

Loa Trend

Loa Trend Volcanoes	**Volcano Age** (million years)	**Distance from Loihi** (km)
Kauai	4.6	575
Waianae	3.7	465
Koolau	2.2	375
West Molokai	1.7	350
Lanai	1.2	300
Kahoolawe	1.1	250
Hualalai	0.3	130
Mauna Loa	0.2	70
Loihi	0	0

Kea Trend

Kea Trend Volcanoes	**Volcano Age** (million years)	**Distance from Kilauea** (km)
East Molokai	1.7	256
West Maui	1.5	221
Haleakala	0.9	182
Kohala	0.5	100
Mauna Kea	0.4	54
Kilauea	0.1	0

70 The average distance between the volcanoes along the Kea trend is 51.2 kilometers. Place an **X** on the map *in your answer booklet* to identify the location on the seafloor where the next volcano will most likely form as a part of the Kea trend. [1]

71 Identify the *two* volcanoes, one from each trend, that have the same age. [1]

72 State the general relationship between the age of the volcanoes and the distance from Loihi. [1]

73 Identify the tectonic feature beneath the moving Pacific Plate that caused volcanoes to form in *both* the Loa and Kea trends. [1]

74 Identify the compass direction in which the Pacific Plate has moved during the last 4.6 million years. [1]

Base your answers to questions 75 through 79 on the topographic map in your answer booklet and on your knowledge of Earth science. Lines *AB* and *CD* are reference lines on the map. Letter *E* indicates a location in a stream.

75 On the map *in your answer booklet*, draw an **X** on the location with the highest elevation. [1]

76 Using the grid *in your answer booklet*, construct a topographic profile along line *AB* by plotting the elevation of each contour line that crosses line *AB*. Points *A* and *B* have already been plotted on the grid. Connect all plots with a line from *A* to *B* to complete the profile. [1]

77 Calculate the gradient along line *CD*. [1]

78 Describe how the contour lines indicate the direction in which Buck River flows. [1]

79 Determine the velocity of the stream at location *E* where the largest particle being carried at location *E* has a diameter of 10.0 centimeters. [1]

Base your answers to questions 80 through 83 on the passage below and on your knowledge of Earth science.

Dimension Stone: Granite

Dimension stone is any rock mined and cut for specific purposes, such as kitchen countertops, monuments, and the curbing along city streets. Examples of rock mined for use as dimension stone include limestone, marble, sandstone, and slate. The most important dimension stone is granite; however, not all dimension stone sold as granite is actually granite. Two examples of such rock sold as "granite" are syenite and anorthosite. Syenite is a crystalline, light-colored rock composed primarily of potassium feldspar, plagioclase feldspar, biotite, and amphibole, while anorthosite is composed almost entirely of plagioclase feldspar. Like actual granite, both syenite and anorthosite have large, interlocking crystals.

80 Explain why syenite is classified as a plutonic igneous rock. [1]

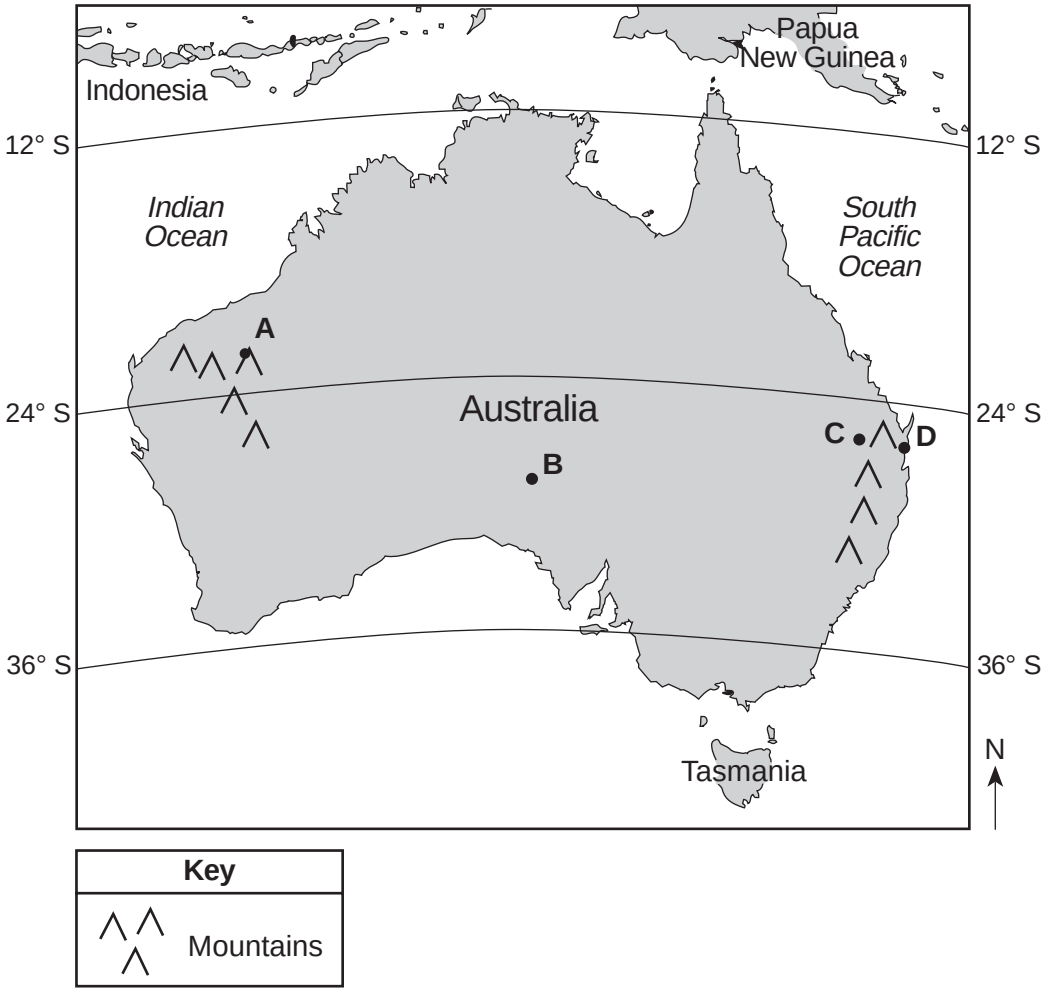
81 State *one* reason why anorthosite is likely to be white to gray in color. [1]

82 The igneous rock gabbro is sometimes sold as "black granite." Compared to the density and composition of granite, describe how the density and composition of gabbro are different. [1]

83 Identify *one* dimension stone mentioned in the passage that is composed primarily of calcite. [1]

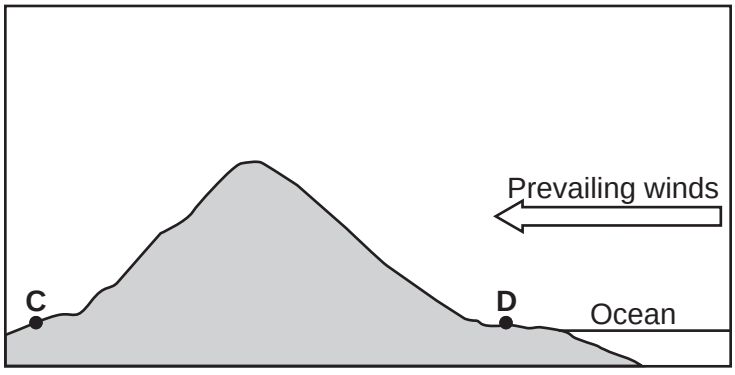
Base your answers to questions 84 and 85 on the map of Australia below and on your knowledge of Earth science. Points *A* through *D* on the map represent locations on the continent.

Map of Australia



84 Explain why location *A* has a cooler average yearly air temperature than location *B*. [1]

85 The cross section below represents a mountain between locations *C* and *D* and the direction of prevailing winds.



Explain why location *D* has a wetter climate than location *C*. [1]

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