FOR TEACHERS ONLY

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

PHYSICAL SETTING/EARTH SCIENCE

Wednesday, August 14, 2019 — 8:30 to 11:30 a.m., only

RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 2 before rating student papers.

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: http://www.p12.nysed.gov/assessment/ and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Directions to the Teacher

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

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the Part B–2 and Part C open-ended questions on a student's paper. 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 more than approximately one-half of the open-ended questions on a student's answer paper. Teachers may not score their own students' answer papers.

Students' responses must be scored strictly according to the 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. Do not attempt to correct the student's work by making insertions or changes of any kind. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Fractional credit is *not* allowed. Only whole-number credit may be given for a response. If the student gives more than one answer to a question, only the first answer should be rated. Units need not be given when the wording of the questions allows such omissions.

For hand scoring, raters should enter the scores earned in the appropriate boxes printed on the separate answer sheet. Next, the rater should add these scores and enter the total in the space provided. The student's score for the Earth Science Performance Test should be recorded in the space provided. Then the student's raw scores on the written test and the performance test should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Wednesday, August 14, 2019. The student's scale score should be entered in the box labeled "Scale Score" on the student's answer sheet. The scale score is the student's final examination score.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

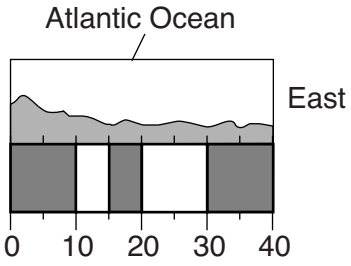
Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

Part B–2

Allow a maximum of 15 credits for this part.

To ensure the accuracy of overlays, select a printer setting such as *full*, *actual size*, or *100%* when printing this document. Do ***not*** select the *fit to page* setting.

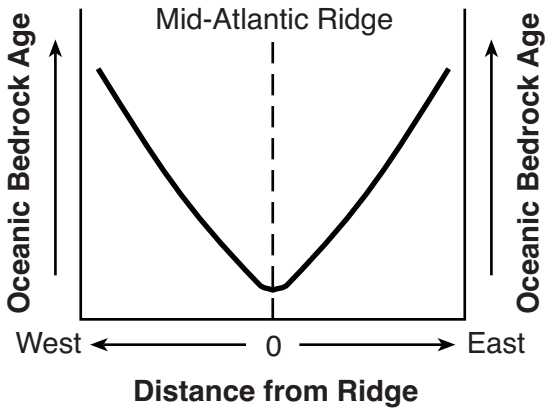
51 [1] Allow 1 credit if the width and placement of the shaded areas are correctly indicated, as shown below.

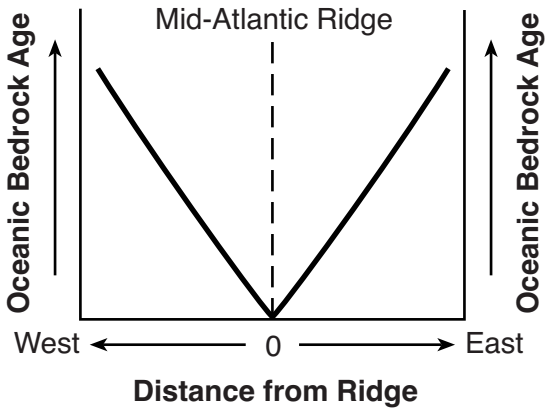


52 [1] Allow 1 credit for divergent/diverging.

53 [1] Allow 1 credit for a U-shape or V-shape with the youngest age at the Mid-Atlantic Ridge and the oldest ages farthest from the ridge.

Examples of 1-credit responses:





Note: Allow credit even if the oldest ages are *not* exactly at the same "oceanic bedrock age" level.

54 [1] Allow 1 credit for conglomerate.

55 [1] Allow 1 credit for 0.2 cm to 6.4 cm.

56 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Rounded pebbles usually indicate transportation by running water.

— Sediments tumbling or bouncing in a stream produce the round shapes.

— The particles are smooth and have round shapes.

57 [1] Allow 1 credit for 4 *or* four.

58 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— nitrogen-14

— ^{14}N

— $^{14}C \rightarrow {}^{14}N$

59 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— uranium-238

— ^{238}U

Note: Do *not* accept "uranium" alone because there are different isotopes of uranium.

60 [1] Allow 1 credit for Ordovician Period.

Note: Do *not* accept "Middle Ordovician" because that is an epoch.

61 [1] Allow 1 credit for the correct order shown below.

E → D → G → F

Oldest → Youngest

62 [1] Allow 1 credit for *two* acceptable processes. Acceptable responses include, but are not limited to:

— uplift/emergence

— weathering

— erosion

— submergence/subsidence/sinking

— deposition/sedimentation/precipitation

— burial

63 [1] Allow 1 credit for March 11.

64 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— precipitation

— rain shower

— snowmelt

— increased runoff

— flooding

— increase in the volume of water in the stream

Note: Do *not* allow credit for "velocity of water" or "increase in water velocity" because water velocity is a result of an increase in water volume or discharge.

65 [1] Allow 1 credit for southeast/SE *or* south/S *or* south southeast/SSE.

Part C

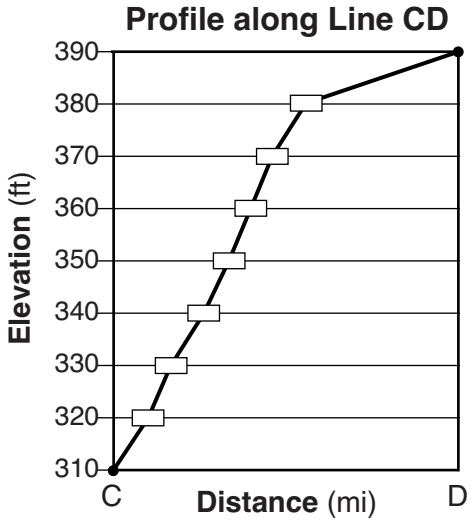
Allow a maximum of 20 credits for this part.

66 [1] Allow 1 credit for any value from 636 to 778 ft/mile.

67 [1] Allow 1 credit if the centers of *all seven* plots are within or touch the rectangles shown below and *all nine* plots are correctly connected with a line, from *C* to *D*, that passes within or touches each rectangle.

Note: It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.

Allow credit if the line misses a plot, but is still within or touches the rectangle.



68 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The contour lines are close together on the north side of Chimney Bluffs.

— The spacing between the contour lines is small.

— There is a great change in elevation in a short distance on the north side.

69 [1] Allow 1 credit if *all four* weather conditions are correctly recorded as shown below.

Weather in Albany, New York	
Dewpoint	64°F
Amount of cloud cover	100%
Barometric pressure	1000.9 mb
Present weather	Haze

70 [1] Allow 1 credit for mT. Allow credit for either uppercase or lowercase letters.

Note: Do *not* allow credit if air-mass letters are reversed, such as Tm. For students who used the Spanish edition, either exclusively or in conjunction with the English edition of the exam, allow credit for the correct two-letter air-mass symbol as it appears in either the English or Spanish *2011 Edition Reference Tables for Physical Setting/Earth Science*.

71 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— condensation

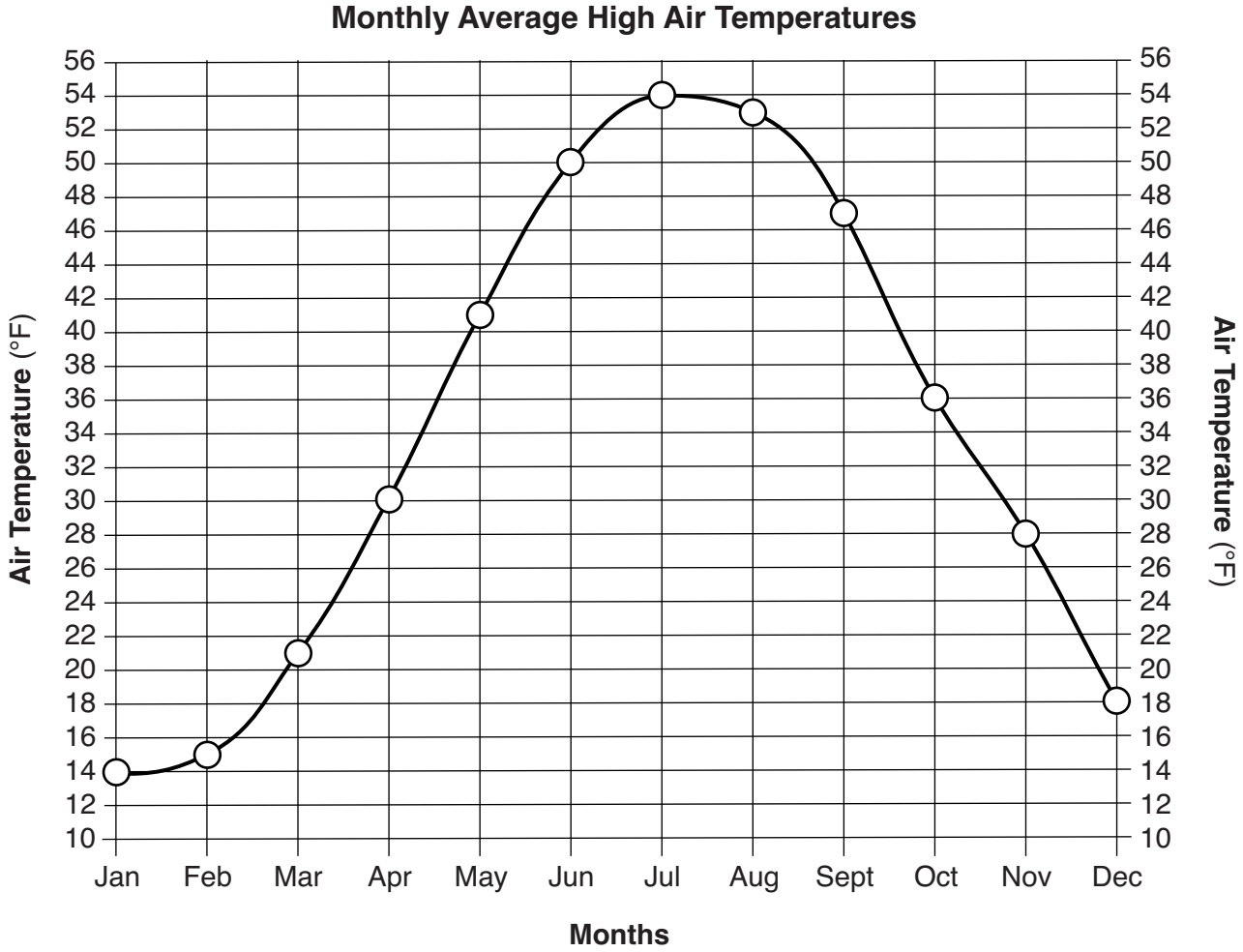
— cooling

— expansion

— deposition/phase change directly from water vapor to ice

72 [1] Allow 1 credit if the centers of *all twelve* plots are within or touch the circles shown below and are correctly connected with a line that passes within or touches each circle.

Note: It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.
Allow credit if the student-drawn line does not pass through the student plot points but is still within or touches the circles.
Do *not* allow credit if the student makes any attempt to graph average snowfall on the Monthly Average High Temperatures graph because the vertical axis is in degrees Fahrenheit, not inches.



73 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— elevation

— height above sea level

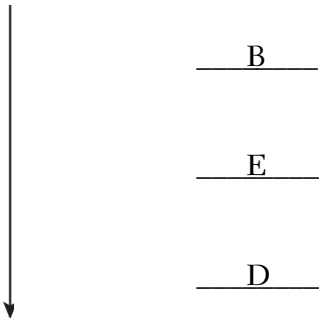
— high altitude

Note: Do *not* allow credit for "mountain" or "top of a mountain" because this identifies the location from which the data were taken but does not identify the climate factor affecting this mountain that causes low air temperatures.

74 [1] Allow 1 credit for Pleistocene Epoch.

75 [1] Allow 1 credit for a correct list as shown below.

Closest to Earth: C



B

E

D

Farthest from Earth: A

Note: Allow credit if the correct velocities are substituted for the letters.

76 [1] Allow 1 credit for the Big Bang theory *or* the Big Bang.

77 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The Doppler effect shows a red shift in light.

— Spectral lines are shifted toward the red end of the spectrum.

— Wavelengths of the light from the galaxies appear to be longer.

— Doppler effect

— red shift

Note: Do *not* allow credit for "cosmic background radiation" because, even though this is evidence for the Big Bang event, it is not used to determine that a galaxy is moving away from Earth.

78 [1] Allow 1 credit if *both* responses are acceptable.

Stage: main sequence *or* early stage

Color: white

79 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— June 20

— June 21

— June 22

— summer solstice

80 [1] Allow 1 credit for 23.5° N *or* Tropic of Cancer and acceptable evidence. Acceptable evidence includes, but is not limited to:

— The graph shows the altitude of the Sun is greatest at 23.5° N.

— Sun is highest in the sky.

— The Sun's altitude is 90°.

— The Sun is directly overhead.

81 [1] Allow 1 credit for south.

82 [1] Allow 1 credit for lettered position *D* and lunar eclipse.

83 [1] Allow 1 credit for spring.

84 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Earth is getting closer to the Sun.

— The distance between Earth and the Sun is decreasing.

— Earth's orbit is elliptical, and position *D* is closer to the Sun.

85 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The Sun is near the center of the diagram.

— Earth orbits the Sun.

— The small arrows by Earth indicate that Earth rotates.

Regents Examination in Physical Setting/Earth Science

August 2019

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the August 2019 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Wednesday, August 14, 2019. Conversion charts provided for previous administrations of the Regents Examination in Physical Setting/Earth Science must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm.
2. Select the test title.
3. Complete the required demographic fields.
4. Complete each evaluation question and provide comments in the space provided.
5. Click the **SUBMIT** button at the bottom of the page to submit the completed form.

Map to Core Curriculum

August 2019 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1		46, 53, 57	66, 67, 72, 84
Math Key Idea 2	14	42, 43	66, 68, 79, 80
Math Key Idea 3			
Science Inquiry Key Idea 1	8, 10, 12, 21	39, 61, 62	71, 72, 73, 76, 77, 81
Science Inquiry Key Idea 2	2		
Science Inquiry Key Idea 3	1, 3, 4, 5, 14, 18, 20, 21, 22, 23, 24, 25, 28, 33, 34, 35	36, 40, 41, 42, 43, 44, 47, 48, 49, 50, 52, 54, 55, 58, 59, 60, 64, 65	66, 69, 70, 71, 74, 78
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1			
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1	10, 30	38	
Key Idea 2	7, 9, 15, 17, 20, 25, 26, 27, 28, 29, 30	36, 37, 39, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 55, 56, 60, 61, 62, 63, 64	67, 69, 70, 75, 80, 82, 83, 84, 85
Key Idea 3			
Key Idea 4			
Key Idea 5	2, 5, 23	36, 51, 61	71, 83
Key Idea 6			
Standard 7			
Key Idea 1			
Key Idea 2			
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 21, 22, 23, 26, 27	36, 37, 38, 39, 45, 46, 57, 58, 59, 60, 61, 62	74, 75, 76, 77, 78, 79, 81, 82, 83, 84, 85
Key Idea 2	13, 14, 16, 17, 18, 19, 20, 24, 25, 28, 29, 30, 31, 32	42, 43, 44, 47, 48, 49, 50, 51, 52, 53, 55, 56, 63, 64, 65	66, 67, 68, 69, 70, 71, 72, 73, 80
Key Idea 3	15, 33, 34, 35	40, 41, 54	
Reference Tables			
ESRT 2011 Edition (Revised)	1, 3, 4, 14, 18, 20, 21, 22, 23, 24, 25, 28, 33, 34, 35	36, 40, 41, 42, 43, 44, 47, 48, 49, 50, 52, 54, 55, 58, 59, 60, 64, 65	66, 69, 70, 71, 74, 78