

FOR TEACHERS ONLY

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

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Tuesday, June 22, 2010 — 9:15 a.m. to 12:15 p.m., only

SCORING KEY AND 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 <http://www.emsc.nysed.gov/osa/> and select the link "Examination 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.

Part A and Part B-1

Allow 1 credit for each correct response.

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

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 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.

For Part A and Part B–1, indicate by means of a check mark 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 scale score by using the conversion chart that will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Tuesday, June 22, 2010. The student's scale score should be entered in the labeled box on the student's answer booklet. The scale score is the student's final examination score. On the front of the student's answer booklet, raters must enter their initials on the lines next to "Rater 1" or "Rater 2."

All student answer papers that receive a scale 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.

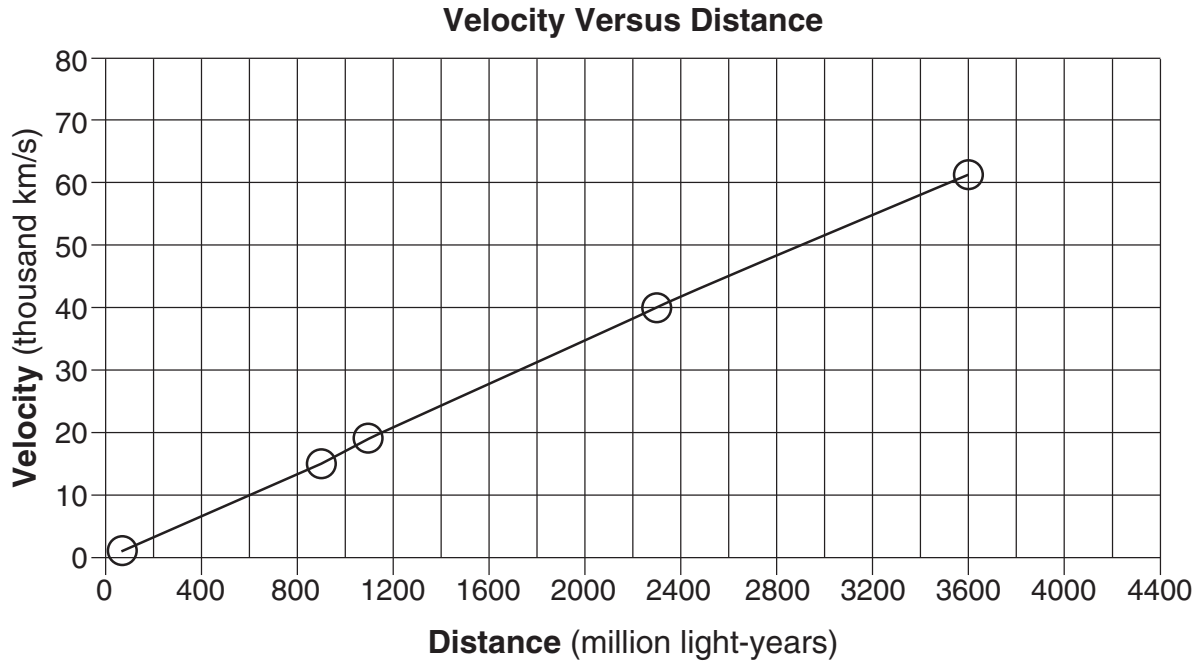
Because scale scores corresponding to raw scores in the conversion chart may change from one examination to another, it is crucial that for each administration, the conversion chart provided for that administration be used to determine the student's final score.

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 if the centers of all five **Xs** are plotted within the circles shown on the grid below and are correctly connected with a line that passes within the circles.

Note: It is recommended that an overlay be used to ensure reliability in rating.
Allow credit if a symbol other than an **X** is used.



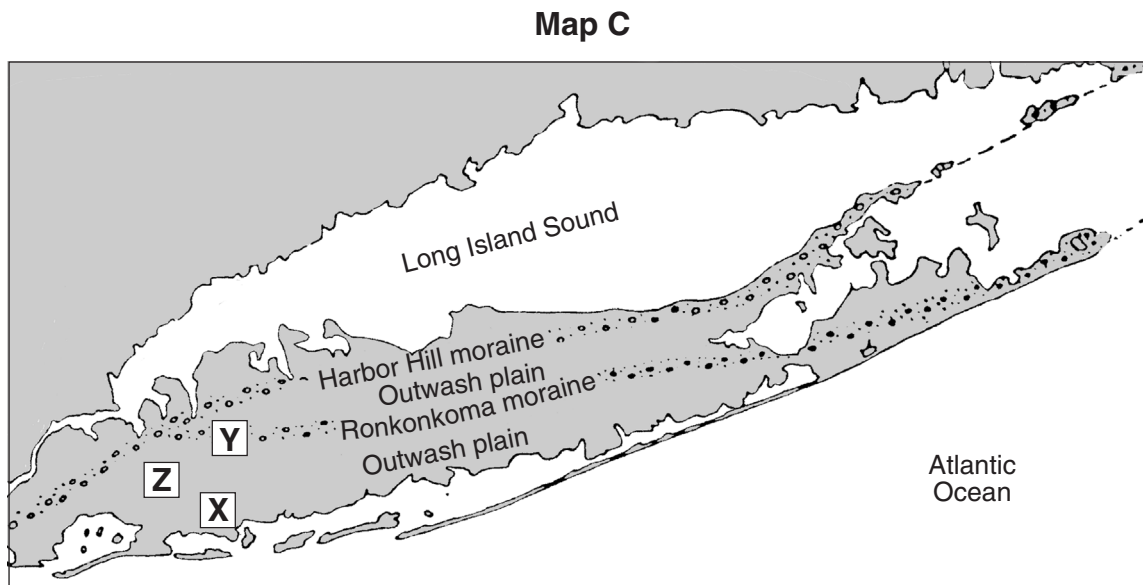
- 52 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- As the distance increases, the velocity increases.
 - The farther from Earth, the faster it moves.
 - The farther a galaxy is from Earth, the greater the velocity.
 - direct relationship

- 53 [1] Allow 1 credit for any value from 3900 to 4300 million light-years.

- 54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- southeastward
 - from NW to SE
 - south–southeastward
 - from N to S

- 55 [1] Allow 1 credit if all three letters are placed in the correct boxes.

Example of a 1-credit response:



- 56 [1] Allow 1 credit for Hudson Highlands *or* Adirondack Mountains.

- 57 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Global warming will cause glaciers to melt, which will raise the sea level.
 - New York City and Long Island could be flooded when the sea level rises.

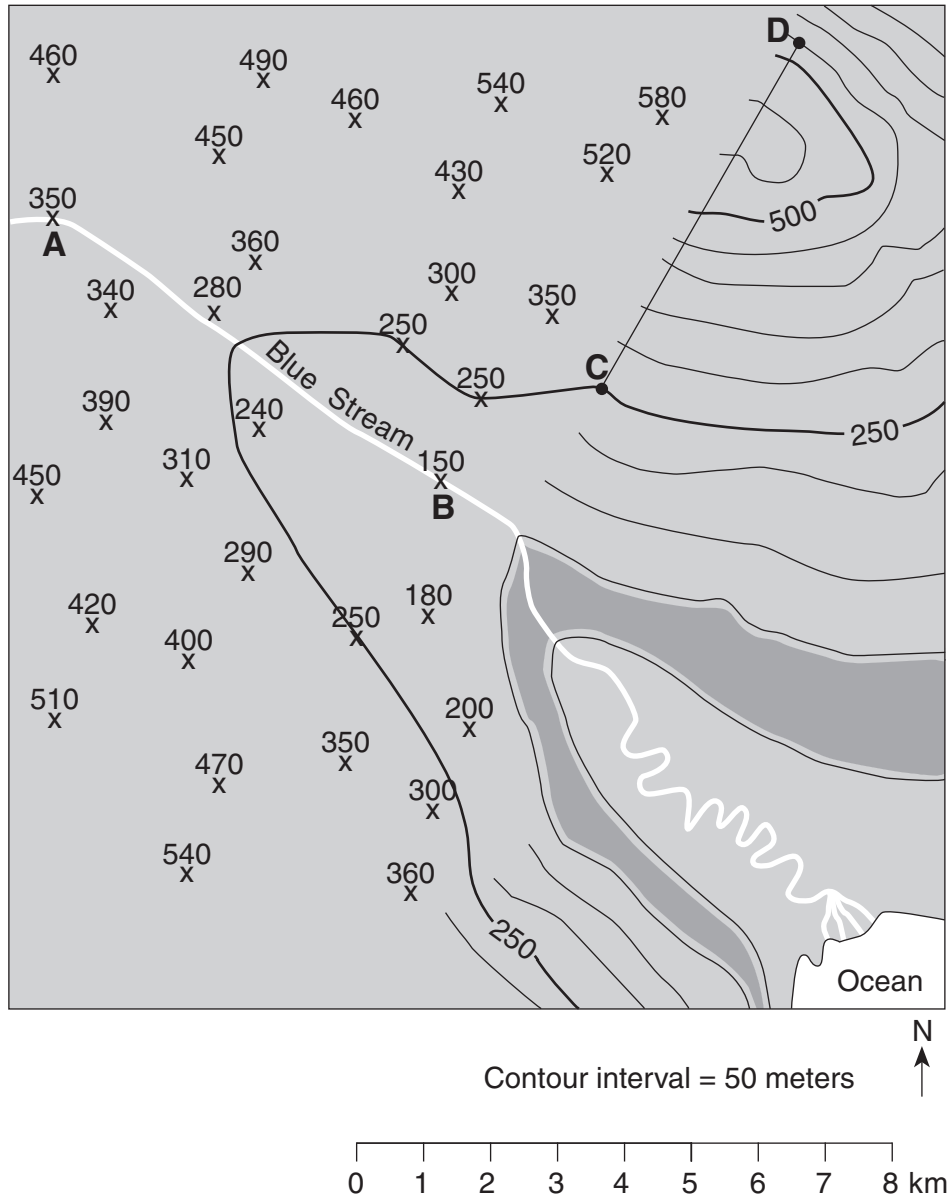
- 58** [1] Allow 1 credit for Ordovician Period.
- 59** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The basalt intrusion cuts across the fault.
 - The intrusion is not displaced by the fault.
 - The fault does not cut across the basalt intrusion.
- 60** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The fossil is too old.
 - ^{14}C dating is inaccurate because very little ^{14}C is present.
 - ^{14}C has a short half-life.
- 61** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Chimneys fell.
 - Heavy furniture overturned.
 - Anchorage suffered much damage to substantial structures.
- 62** [1] Allow 1 credit for *both* North American Plate and Pacific Plate.
- 63** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- S-waves were absorbed through the liquid outer core.
 - S-waves cannot travel through the liquid outer core.
- 64** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- tsunami
 - coastal flooding
- 65** [1] Allow 1 credit if *both* responses are correct.
- Latitude: any value from 61° N to 62° N
- Longitude: any value from 147° W to 148° W

Part C

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

- 66** [1] Allow 1 credit. An example of an acceptable response is shown below. If additional contour lines are drawn, all contour lines must be correct to receive credit.
- 67** [1] Allow 1 credit if the center of the **X** is within the shaded sections between the 50- and 100-meter contour lines.

Example of a 2-credit response for questions 66 and 67:

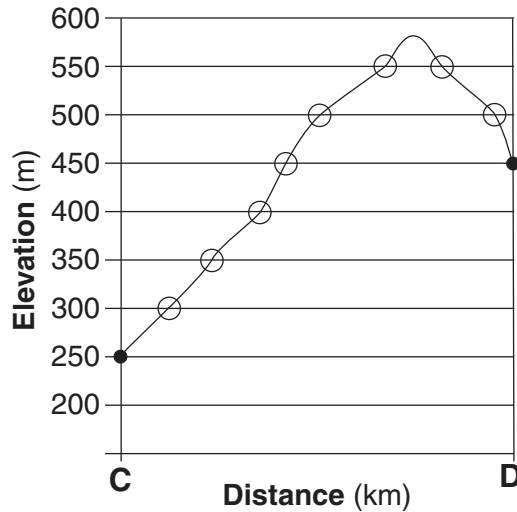


- 68 [1] Allow 1 credit for any value from 28.0 to 29.0 with the correct units. Acceptable units include, but are not limited to:
- m/km
 - meters/kilometer

- 69 [1] Allow 1 credit if the centers of all student-plotted **X**s are located within the circles shown below and are correctly connected with a line that passes within the circles. The line must have the highest elevation between 550 and 600 meters.

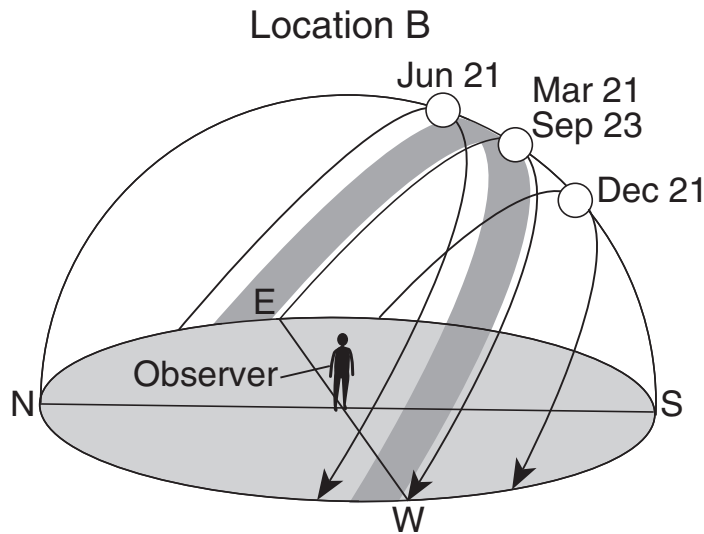
Note: It is recommended that an overlay be used to ensure reliability in rating.
Allow credit if a symbol other than an **X** is used.

Example of a 1-credit response:



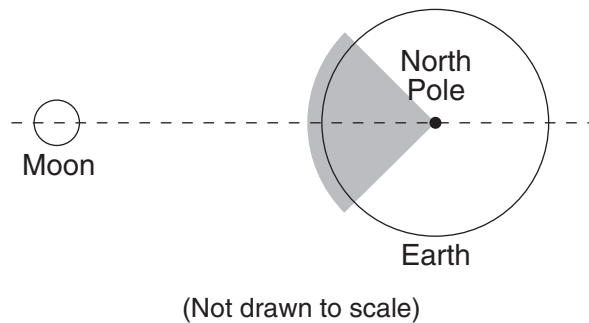
- 70 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The Sun is directly overhead at solar noon on March 21.
 - The Sun reaches an altitude of 90° on an equinox.
 - Each apparent path of the Sun has a daylight duration of 12 hours.
- 71 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Location *B* represents an area where the Sun is above the southern horizon at solar noon.
 - The Sun is in the southern portion of the sky.

- 72 [1] Allow 1 credit for a line drawn approximately parallel to the existing Sun's paths and within the shaded portion shown below.



- 73 [1] Allow 1 credit for 24 h.

- 74 [1] Allow 1 credit for the center of an **X** placed within the shaded area on Earth's surface as shown in the diagram below.



- 75 [1] Allow 1 credit. Acceptable explanations include, but are not limited to:
- The Moon gets farther away from Earth.
 - As distance between objects increases, the gravitational attraction decreases.

- 76 [1] Allow 1 credit for 2 s.

- 77 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The Moon is closer to Earth than the Sun.
 - The Moon's gravitational attraction to Earth is greater than the Sun's.

78 [1] Allow 1 credit for calcite *or* dolomite.

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

- Heat and pressure increase from *B* to *C*.
- Regional metamorphism is greatest at *C*.
- different grades of metamorphism

80 [1] Allow 1 credit for fine.

81 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The oceanic crust is more dense than the continental crust.

82 [1] Allow 1 credit if all *five* responses are correct, as shown below.

Air temperature: 50 °F

Dewpoint: 44 °F

Wind direction from: SE *or* southeast

Wind speed: 10 knots

Cloud cover: 100 %

83 [1] Allow 1 credit for a correct response for temperature *and* for humidity. Acceptable responses include, but are not limited to:

Temperature:

- The air on the west side of the dry line is cooler.
- lower

Humidity:

- lower on the west side
- drier
- less

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

- Warm air is less dense than cool air.
- Cool air is more dense than warm air.

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

- toward the northeast
- northeastward
- eastward

Regents Examination in Physical Setting/Earth Science

June 2010

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

The *Chart for Determining the Final Examination Score for the June 2010 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Tuesday, June 22, 2010. 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.

Submitting Online 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 www.emsc.nysed.gov/osa/exameval.
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

June 2010 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1		51	68, 76
Math Key Idea 2	9, 26, 31, 35	49, 50, 52, 53	
Math Key Idea 3			66, 69
Science Inquiry Key Idea 1	3, 5, 6, 12, 13, 14, 17, 22, 23, 28	39, 42, 54, 63	70, 77, 81, 84
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3	2, 4, 5, 7, 8, 20, 21, 25, 27, 29, 31	40, 41, 43, 44, 45, 56, 58, 60, 62	68, 70, 78, 79, 80, 82, 83
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1		46	
Key Idea 2			
Key Idea 3		64	67
Standard 6			
Key Idea 1	10, 19, 33	38, 39, 42, 47, 48, 59, 63	74, 77, 79, 81
Key Idea 2	1, 15, 22, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35	36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 54, 55, 59, 61, 62, 65	66, 67, 68, 69, 70, 71, 72, 73, 74, 79, 80, 82, 83, 85
Key Idea 3		41, 60	
Key Idea 4			75
Key Idea 5	3, 11, 12, 16, 19, 32, 34	55	70, 71, 75, 85
Key Idea 6	17	57	
Standard 7			
Key Idea 1			
Key Idea 2		64	
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 6, 7, 10, 15, 23, 26, 27, 34, 35	41, 48, 49, 50, 51, 52, 53, 58, 59, 60, 65	70, 71, 72, 73, 74, 75, 76, 77
Key Idea 2	8, 9, 11, 12, 13, 14, 16, 17, 18, 22, 24, 25, 28, 29, 32, 33	36, 37, 38, 39, 42, 43, 44, 45, 46, 47, 54, 55, 56, 57, 61, 62, 63, 64	66, 67, 68, 69, 73, 81, 82, 83, 84, 85
Key Idea 3	19, 20, 21, 30, 31	40	78, 79, 80
Reference Tables			
ESRT 2010 Edition (Revised)	2, 4, 5, 7, 8, 9, 18, 19, 20, 21, 25, 27, 29, 31	40, 41, 44, 45, 56, 58, 60, 62	68, 78, 80, 82, 83

