

FOR TEACHERS ONLY

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

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Thursday, August 13, 2009 — 12:30 to 3:30 p.m., only

SCORING KEY AND RATING GUIDE

Directions to the Teacher:

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

On the detachable answer sheet 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 scaled score by using the conversion chart that will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Thursday, August 13, 2009. 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.

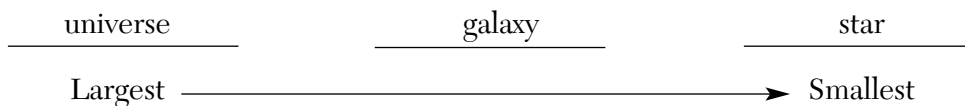
Because scaled scores corresponding to raw scores in the conversion chart may change from one examination to another, it is crucial that for each administration, the conversion chart provided for that administration be used to determine the student's final score.

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. Acceptable responses include, but are not limited to:
- The distance from the Sun varies.
 - There are two foci instead of one center.
 - The orbit is an oval shape.
 - Earth’s eccentricity of orbit is 0.017.
- 52** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The force of gravity decreases, then increases.
 - Gravity becomes less, then becomes greater.
- 53** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The orbit would become more eccentric.
 - The eccentricity would increase.
 - The eccentricity value would be closer to 1.0.
 - The path would be more elliptical.
- 54** [1] Allow 1 credit for either 30° N *or* 30° S.
- 55** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Location *B* is located high in the mountains.
 - Location *A* is located at a lower elevation.
- 56** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Location *C* is located in air that is sinking, compressing, and warming.
 - Location *C* is on the leeward side of a mountain.
 - Location *D* is near a large body of water.
 - Air traveling over the mountains loses its moisture at *D*.

57 [1] Allow 1 credit for:



58 [1] Allow 1 credit if all *six* boxes are correctly marked as shown.

Stars	Temperature		Luminosity	
	Hotter	Cooler	Brighter	Dimmer
<i>Procyon B</i>	X			X
<i>Barnard's Star</i>		X		X
<i>Rigel</i>	X		X	

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

- *Betelgeuse* is larger.
- *Betelgeuse* is more massive than *Aldebaran*.
- *Aldebaran* has less volume.

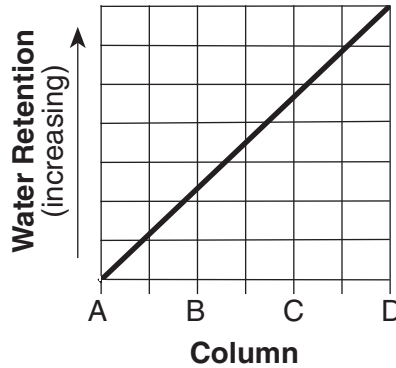
60 [1] Allow 1 credit for A.

61 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- the larger the sediment size, the greater the permeability
- the smaller the particles, the slower the water flows through
- There is a direct relationship.

- 62 [1] Allow 1 credit for a line that shows water retention increasing from column A to column D.

Example of a 1-credit response:



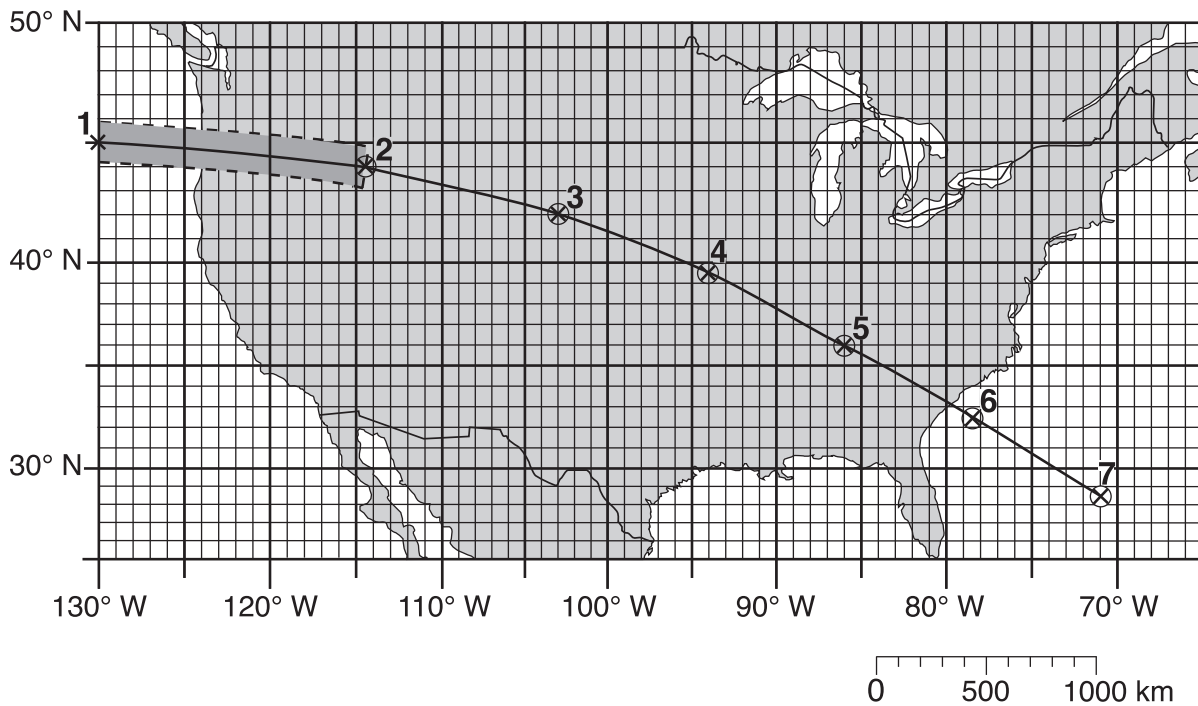
- 63 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- tectonic plate movement
 - movement along a fault
 - volcanic eruption
- 64 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- *P*-wave
 - primary wave
 - compressional wave
- 65 [1] Allow 1 credit for any response from 12 min 30 sec to 12 min 50 sec.

Part C

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

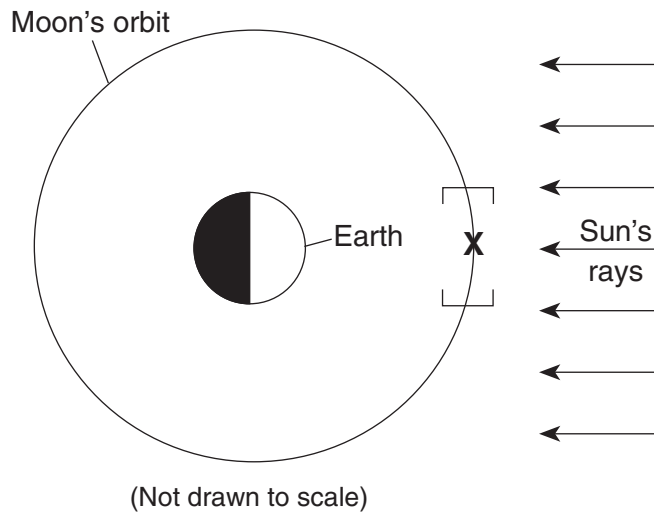
- 66** [1] Allow 1 credit if the centers of five or six student-plotted **Xs** are correctly plotted within the circles shown and connected with a line that passes through the circles.
- 67** [1] Allow 1 credit for a shadow band between position 1 and the student-located position 2 that falls within the designated shaded width shown below.

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



68 [1] Allow 1 credit if the center of the student's **X** is within the bracketed area shown on the Moon's orbit.

Example of a 1-credit response:

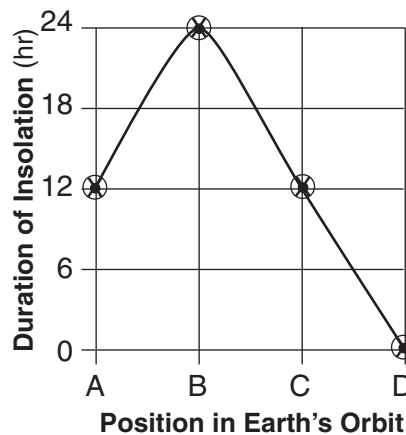


69 [1] Allow 1 credit for any value from 182 to 187 days.

70 [1] Allow 1 credit for winter.

71 [1] Allow 1 credit if all four **Xs** are plotted within the circles shown and are connected with a line that passes through the circles.

Example of a 1-credit response:



- 72** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- sedimentary
 - any clastic sedimentary rock *or* specific clastic sedimentary rock name

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

Form of coal:

- anthracite
- hard coal
- metamorphic coal

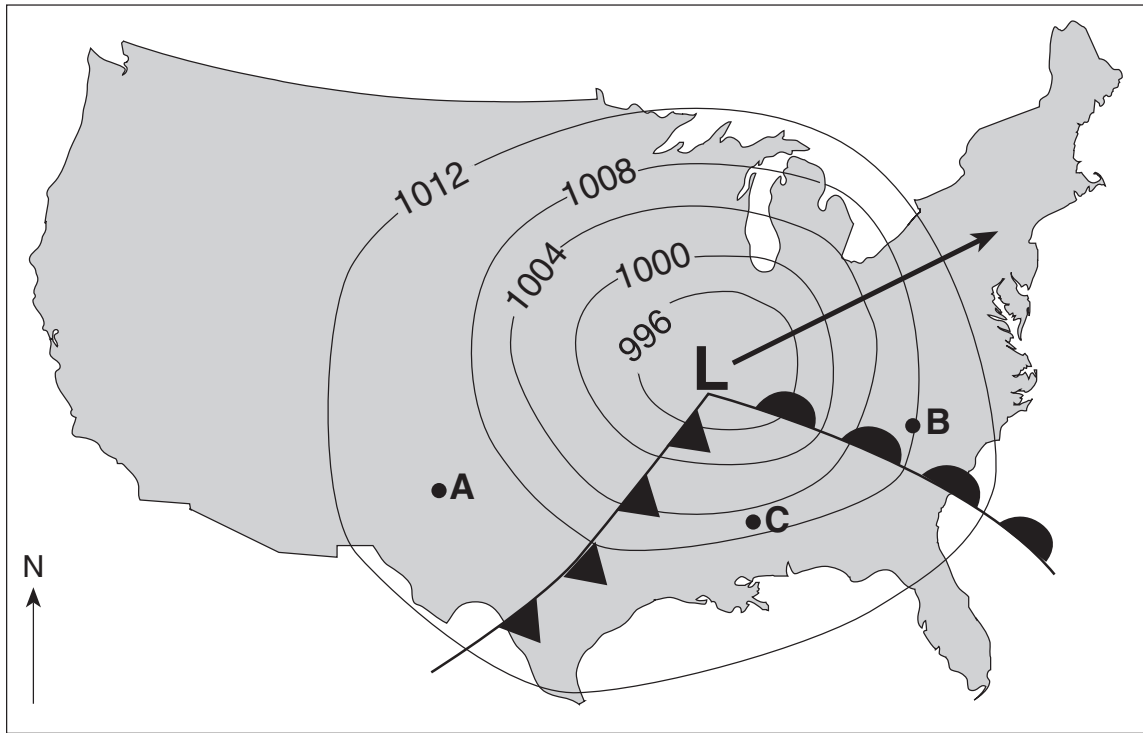
Explanation:

- It forms under greater pressures, which increases density.
- Anthracite is the metamorphic form of coal.

- 74** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Earliest land plants did not occur until the Silurian.
 - Extensive coal-forming forests didn't exist until the Carboniferous Period.

- 75 [1] Allow 1 credit for an arrow beginning at the **L** and pointing in any direction from due east to north northeast.

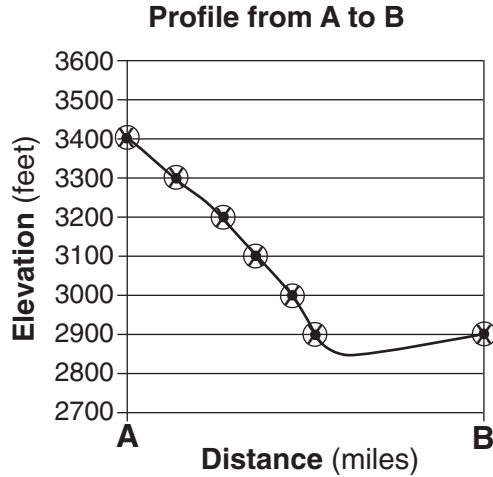
Example of a 1-credit response:



- 76 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- *B* is being affected by a warm front.
 - Precipitation often occurs ahead of a warm front.
 - *B* is located close to a frontal boundary.
- 77 [1] Allow 1 credit for mT. Allow credit for either uppercase or lowercase letters. Do *not* allow credit if the letters are reversed, such as Tm.
- 78 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- *C* is between isobars that are closely spaced.
 - *A* is located in an area with a small pressure gradient.
 - The isobars are closer together at *C*.

- 79 [1] Allow 1 credit if the centers of all seven **Xs** are plotted within the circles shown below and are connected with a line that passes through the circles. The line must extend below the 2900-foot line, and above the 2800-foot line.

Example of a 1-credit response:



- 80 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

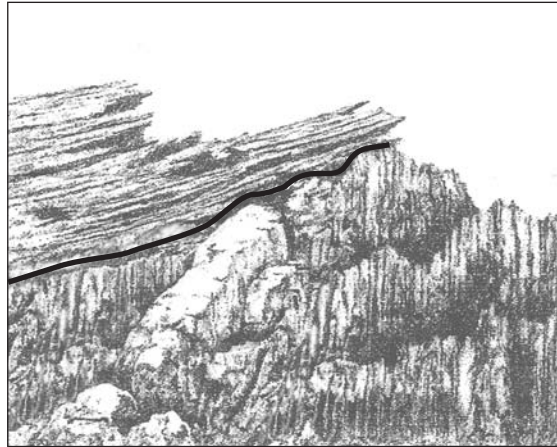
- SE
- south southeast
- south

- 81 [1] Allow 1 credit for any value from 277 to 313 with correct units. Acceptable units include, but are not limited to:

- ft/mi
- feet per mile

82 [1] Allow 1 credit for correctly drawing the line of unconformity as shown below.

Example of a 1-credit response:



83 [1] Allow 1 credit for Silurian Period.

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

- The graywacke layers are tilted.
- The layers are now vertical.
- The unconformity indicates that the graywacke layers were uplifted and eroded.

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

- uplift
- weathering
- erosion
- tilting
- submergence
- burial
- deposition

Regents Examination in Physical Setting/Earth Science

August 2009

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

The *Chart for Determining the Final Examination Score for the August 2009 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Thursday, August 13, 2009. 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

August 2009 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1		42, 43, 46, 51, 62	66, 71, 81
Math Key Idea 2	25	51, 52, 53, 58, 65	
Math Key Idea 3	2	40, 45	
Science Inquiry Key Idea 1		39, 55, 56	74
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3	3, 11, 12, 27	37, 38, 41, 44, 46, 47, 59	83
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1			75
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1		47	85
Key Idea 2	2, 6, 20, 21, 22, 24, 26, 29, 30, 31, 32, 33, 34, 35	36, 42, 45, 48, 49, 50, 51, 52, 53, 54, 55, 56, 60, 61, 63, 64	68, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 84
Key Idea 3	25	57	67, 79
Key Idea 4			
Key Idea 5	1, 5, 14, 33	40, 52, 53	66, 72
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, 21, 23, 25, 29, 33, 34	40, 41, 44, 45, 46, 51, 52, 53, 57, 58, 59, 61, 62	66, 67, 68, 69, 70, 74, 82, 83, 84, 85
Key Idea 2	10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 26, 28, 30, 31, 32, 35	36, 39, 42, 43, 48, 49, 50, 54, 55, 56, 60, 63, 64, 65	71, 75, 76, 77, 78, 79, 80, 81, 84
Key Idea 3	18, 27	37, 38, 47	72, 73
Reference Tables			
ESRT 2001 Edition (Revised)	3, 11, 12, 13, 18, 19, 25, 27, 30, 31	37, 38, 41, 44, 45, 46, 47, 48, 49, 50, 51, 54, 58, 59, 60, 65	72, 74, 76, 77, 78, 81, 83

