FOR TEACHERS ONLY

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

PS–ES PHYSICAL SETTING/EARTH SCIENCE

Thursday, August 18, 2011 — 12:30 to 3:30 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 at: http://www.p12.nysed.gov/apda/ 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.

Part A and Part B–1
Allow 1 credit for each correct response.

Part A

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

Part B–1

36 . . . . . **1**	40 . . . . . **3**	44 . . . . . **3**	48 . . . . . **1** . . . . .
37 . . . . . **4**	41 . . . . . **2**	45 . . . . . **3**	49 . . . . . **2** . . . . .
38 . . . . . **3**	42 . . . . . **3**	46 . . . . . **1**	50 . . . . . **4** . . . . .
39 . . . . . **1**	43 . . . . . **1**	47 . . . . . **2**	

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*.

Do *not* attempt to correct the student's work by making insertions or changes of any kind.

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.

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. 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. Units need not be given when the wording of the questions allows such omissions.

For handscoring, 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/apda/ on Thursday, August 18, 2011. 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.

As of June 2011, schools are no longer 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.

51 [1] Allow 1 credit for any value greater than 160 ft and less than 180 ft.

52 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— north side

— north northeast

— NE side

53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Contour lines that cross the stream bend in the opposite direction of stream flow.

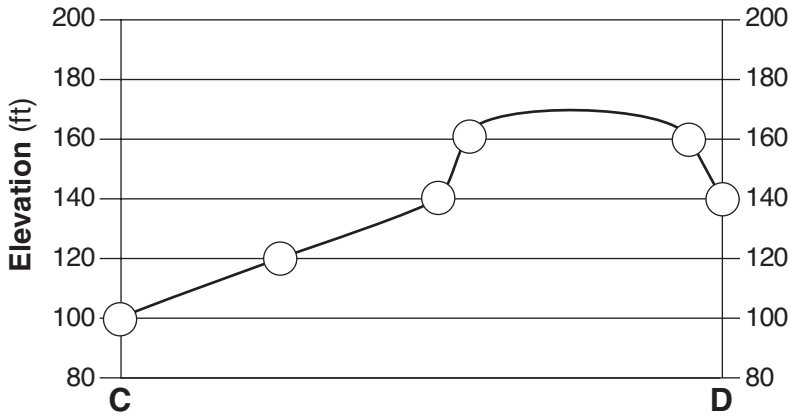
— Contour lines form V-shapes that indicate the uphill or upstream direction.

— Contour lines bend upstream.

54 [1] Allow 1 credit for 0.1 mi/min.

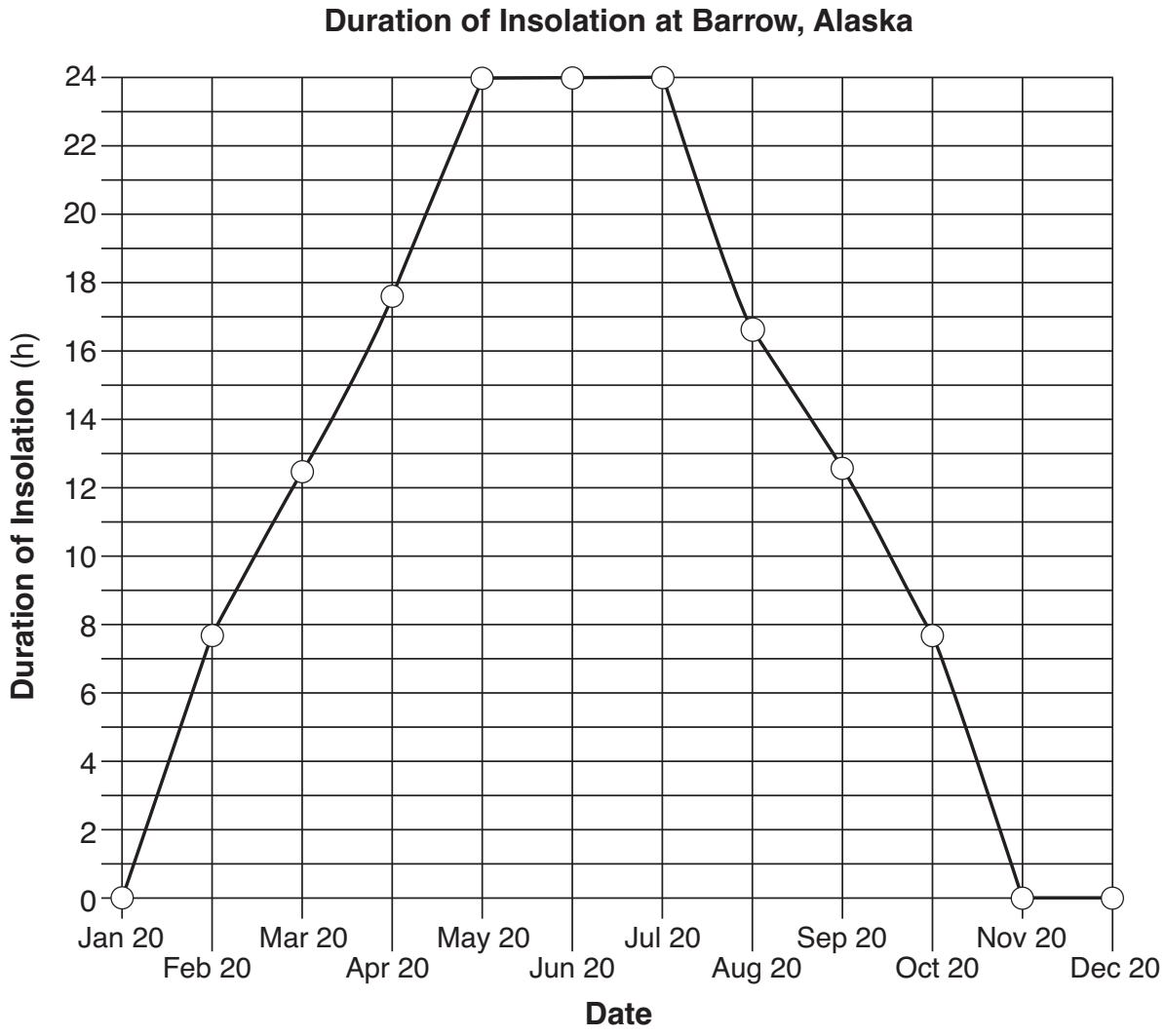
55 [1] Allow 1 credit if *all six* plots are within the circles shown below and are correctly connected with a line that passes within the circles. The top of the hill must be shown above 160 ft and below 180 ft.

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



56 [1] Allow 1 credit if the centers of all 12 plots fall within the circles shown below and are correctly connected with a line that passes within 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.



57 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— During one Earth rotation on December 20, Barrow remains on the nighttime side of Earth.

— The Northern Hemisphere is tilted away from the Sun.

— Barrow is north of the Arctic Circle.

58 [1] Allow 1 credit for 71°.

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

— Barrow is approximately 80° west of New York City.

— Barrow's longitude is different from New York City.

— Earth rotates from west to east, so the Sun rises later in Barrow.

60 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— June 20

— June 21

— June 22

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

— The sandstone is permeable.

— porous

— allows water to pass through

— The sandstone layer is exposed at the surface.

62 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— condensation

— expansion

— cooling

63 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Polluted water will seep into the ground at location *A*.

— The water well can become polluted.

— Pollution will infiltrate rocks at location *A*, contaminating groundwater.

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

— gravitational attraction

— gravity

— pull of the Moon/Sun

65 [1] Allow 1 credit for any value from 6 h to 6.25 h.

Part C

Allow a maximum of 20 credits for this part.

66 [1] Allow 1 credit for *two* acceptable responses. Acceptable responses include, but are not limited to:

— pencil lead

— lubricants

— Graphite is a component in composite materials in cars, aircraft, and sports equipment.

67 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— They have different internal arrangements of atoms.

— Diamonds form at greater depths than graphite.

— They formed under different conditions.

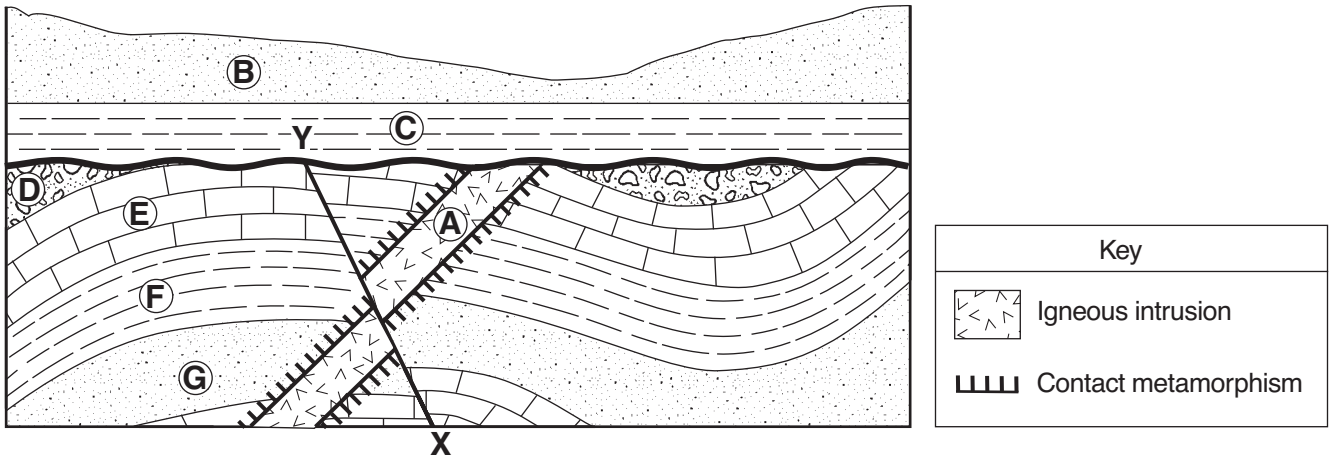
68 [1] Allow 1 credit if the table has been correctly completed with one acceptable response in each unshaded box.

Examples of 1 credit responses:

Property	Diamond	Graphite
		— silver — gray — black
		— metallic
	— hard — 10	— soft — 1 — 2 — 1–2

69 [1] Allow 1 credit for a line drawn at the base of layer *C*.

Example of a 1-credit response:



70 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The layers of folded rocks show displacement on both sides of the fault line.

— The fault cuts across the folded rocks.

— *XY* cuts across the igneous intrusion which crosscuts the folded rocks.

71 [1] Allow 1 credit for quartzite *or* hornfels.

72 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Ordovician Period

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

— *Barnard's Star* is moving toward Earth.

— Earth and *Barnard's Star* are moving closer together.

— *Barnard's Star* is moving closer to the Sun.

74 [1] Allow 1 credit if point *B* is located within the brackets shown below.

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 another symbol is used to represent point *B*.

1 centimeter = 100,000 kilometers

75 [1] Allow 1 credit if *both* responses are correct. Acceptable responses include, but are not limited to:

Relative surface temperature:

— cooler

— *Barnard's Star* has a lower surface temperature.

Relative luminosity:

— is less luminous

— *Barnard's Star* is less luminous than the Sun.

— emits energy at a lower rate

76 [1] Allow 1 credit if *all three* objects are listed in the correct order.

Oldest	(1)	universe
↓	(2)	*Barnard's Star*
Youngest	(3)	Sun

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

— *Barnard's Star* is a smaller star than the Sun.

— The Sun has more mass.

78 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— As air temperature increased, barometric pressure decreased.

— inverse relationship

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

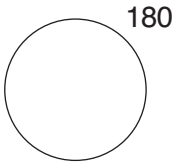
Date: — December 3

— 12/3/07

Time: — 4 p.m.

— 4:00 p.m.

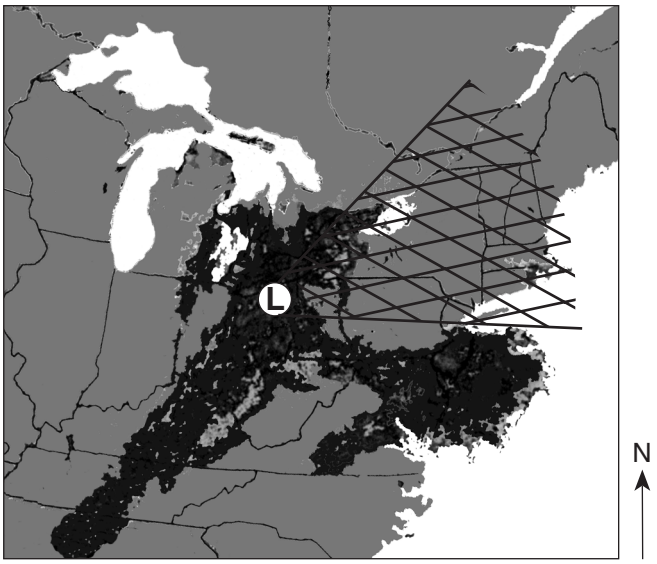
80 [1] Allow 1 credit for 180 in the position shown.



Note: Do *not* allow credit if units are included in the student's answer. If other information is put on the model, allow credit only if all information is correct.

81 [1] Allow 1 credit for an arrow extending within the crosshatched area shown below.

Radar Image



82 [1] Allow 1 credit if *both* the weather instrument and weather variable are correct. Acceptable responses include, but are not limited to:

Examples of 1-credit responses:

Weather Variable	Instrument Used
	— barometer — barograph
— dewpoint — relative humidity — dry-bulb (air) temperature — wet-bulb temperature — air temperature	

83 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— U-shaped valley

— The valley would have a rounded or flat bottom.

— steep sides and wide valley

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

— parallel scratches/grooves/striations

— Surface bedrock is polished.

— moraine deposits

85 [1] Allow 1 credit for silt.

Regents Examination in Physical Setting/Earth Science

August 2011

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

The *Chart for Determining the Final Examination Score for the August 2011 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site at: http://www.p12.nysed.gov/apda/ on Thursday, August 18, 2011. 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 2011 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1		54	
Math Key Idea 2	18		77, 78, 79
Math Key Idea 3	5	42, 52, 58	
Science Inquiry Key Idea 1	3, 6, 7, 8, 14, 16, 21, 22, 23, 27	37, 39, 50, 60	67, 71, 73
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3	4		
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1	12		66, 82
Key Idea 2			68
Key Idea 3			
Standard 6			
Key Idea 1	2, 30, 31, 34, 35	44, 57, 62	83, 84
Key Idea 2	1, 9, 10, 11, 13, 15, 17, 19, 20, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35	36, 38, 40, 41, 42, 45, 47, 49, 51, 52, 53, 55, 56, 59, 61	69, 70, 71, 72, 75, 79, 80, 85
Key Idea 3		43	74, 75, 76
Key Idea 4			77
Key Idea 5	1, 7, 23, 31	36, 40, 41, 45, 46, 48, 52, 53, 56, 58, 59, 60, 62, 64, 65	69, 70, 73, 81
Key Idea 6			
Standard 7			
Key Idea 1		63	
Key Idea 2			
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 6, 7, 9, 18, 22, 23, 26, 31, 32	38, 40, 42, 47, 48, 49, 50, 58, 59, 60, 61, 63, 64, 65	69, 70, 72, 73, 74, 75, 76, 77
Key Idea 2	8, 10, 11, 12, 13, 14, 15, 16, 20, 21, 24, 27, 28, 30, 33, 34, 35	36, 37, 39, 41, 43, 44, 45, 46, 51, 52, 53, 54, 55, 56, 57, 62	78, 79, 80, 81, 82, 83, 84, 85
Key Idea 3	17, 19, 25, 29		66, 67, 68, 71
Reference Tables			
ESRT 2010 Edition (Revised)	1, 4, 5, 7, 8, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 25, 26, 27, 28, 29, 31, 33, 35	40, 41, 45, 49, 51, 54, 59	66, 67, 68, 71, 72, 74, 75, 76, 79, 80, 82, 85