

THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

Office of State Assessment Tel. (518) 474-5099 Fax (518) 474-1989

## **IMPORTANT NOTICE TO TEACHERS**

## **Physical Setting/Earth Science Regents Examination**

## Tuesday, June 18, 2002

The following information concerns the rating of question 67 of the June 2002 Physical Setting/Earth Science Regents Examination.

There is an error in the last line of the scoring key. The scoring key should read as follows:

Allow 1 credit for any front symbols (correct or incorrect) drawn on the proper side of the *three* frontal boundaries.

Please communicate this information to all persons responsible for scoring the Physical Setting/Earth Science Regents Examination.

# FOR TEACHERS ONLY

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

# **PS-ES** PHYSICAL SETTING/EARTH SCIENCE

Tuesday, June 18, 2002 — 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 3 before rating student papers.

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

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

#### **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 Administering and 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 checkmark 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 printed at the end of this Scoring Key and Rating Guide. The student's 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 in the scoring key for that administration be used to determine the student's final score. The chart in this scoring key is usable only for this administration of the examination.

#### Part B-2

Allow a total of 15 credits for this part. The student must answer all questions in this part.

**51** [2]



Allow 1 credit for placing 74 in the proper location. Do not allow credit for 74° or 74°F.

and

Allow 1 credit for shading in the station circle completely.

- **52** [1] Allow 1 credit for **20** or **21** or **22** years.
- **53** [1] Allow 1 credit for a response that indicates that the length of a planet's season increases with increasing distance from the Sun.
- 54 [2] Allow 2 credits, 1 credit for *each* of two correct responses. Acceptable responses include, but are not limited to, these examples:

tilt of Earth's axis parallelism of Earth's axis Earth's revolution around the Sun





Allow 1 credit if all three points are plotted correctly for the pyrite samples ( $\pm 2$  units).

and

Allow 1 credit for correctly connecting with a line all three points plotted by the student.

**56** [1] Allow 1 credit for **50.0** grams or **50** g.

or

Allow 1 credit for a response that is consistent with the student's graph in question 55.

- **57** [3] *a* Allow no credit for writing the equation.
  - **b** Allow 1 credit for substituting the value of both acceptable measurements into the equation given in part *a*. Allow  $\pm 0.7$  km. Allow credit even if the units are not given. Acceptable responses include, but are not limited to, these examples:

$$g = \frac{600 \text{ m} - 500 \text{ m}}{5 \text{ km}}$$
$$g = \frac{100 \text{ m}}{5 \text{ km}}$$

c Allow 1 credit for a response that correctly solves the equation with the numerical substitutions that are consistent with the student's answer to part b.

and

Allow 1 credit for the correct units (m/km) that are consistent with the student's answer to part b. Acceptable responses include, but are not limited to, these examples:

gradient = 20 m/km g = 20 m/km

**58** [1] Allow 1 credit for a correct response. Acceptable responses should indicate an understanding of map reading. Acceptable responses include, but are not limited to, these examples:

Contour lines bend upstream when crossing the creek.

The stream flows from higher elevations toward lower elevations.

Note: Do not allow credit for water flows downhill from the source toward the mouth.

#### 59 [1] Allow 1 credit for Allegheny Plateau or Appalachian Plateau.

**60** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Graptolites floated freely in the ocean and could distribute themselves easily over a wide geographic area.

Certain species of graptolite existed for a limited geologic time.

Certain species of graptolite are unique and easily identified.

#### Part C

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

**61** [1] Allow 1 credit for a response that states that **luminosity increases, then decreases.** 

- 62 [1] Allow 1 credit for *Procyon B*.
- **63** [4]



- *a* Allow 1 credit for correctly drawing an arrow in the direction of the relative movement in the Juan de Fuca Plate. Student answers should appear generally like the diagram.
- **b** Allow 1 credit for **divergent** or **mid-ocean ridge** plate boundary.
- c Allow 1 credit for the **Pacific** Plate.
- $\boldsymbol{d}$  Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:

Earthquakes along the Oregon coastline are not as deep as earthquakes that occur beneath Mt. Hood.

64 [2] Allow 2 credits, 1 credit for *each* of two correct responses. Acceptable responses include, but are not limited to, these examples:

plan evacuation routes

- identifying relative earthquake hazard zones or areas that are subject to damage during an earthquake
- plan emergency communication procedures (radio broadcast)
- developing emergency information brochures
- store food, supplies, and fresh water
- build earthquake-proof structures
- practice emergency rescue drills
- identify shelter locations

**65** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

The area of hurricane formation increases from May to September.

The area spreads eastward.

[3]

67

**66** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Hurricanes turn northeast due to the planetary wind belt they move into.

The jet stream causes the path of most hurricanes to curve toward the northeast.



Line AB is an occluded front. Line BC is a cold front. Line BD is a warm front.

Allow 2 credits for the placement of the correct symbol on all three fronts, regardless of which side of the line the symbols are on.

Allow only 1 credit for the placement of the correct symbol on only one or two of the three fronts, regardless of which side of the line the symbols are on.

and

Allow 1 credit for placing all three correct front symbols on the correct side of the line.

#### PHYSICAL SETTING/EARTH SCIENCE – continued

- 68 [1] Allow 1 credit for **Gulf of Mexico** or **Atlantic Ocean**.
- **69** [2] Allow 2 credits, 1 credit for *each* of two correct responses. Acceptable responses include, but are not limited to, these examples:

high relative humidity greater cloud cover increased precipitation

- **70** [1] Allow 1 credit for **Jurassic** Period.
- **71** [2] Allow 2 credits, 1 credit for *each* of two correct responses. Acceptable responses include, but are not limited to, these examples:
  - fine grained (crystals less than 1 mm)
  - glassy texture
  - vesicular texture
  - dark colored
  - mafic (high Fe and Mg content)
  - high density  $(3.0 \text{ g/cm}^3)$

mineral composition: plagioclase feldspar pyroxene olivine amphibole

**72** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Continents fit together like puzzle pieces.

Continents have matching bedrock types along coastlines.

Continents have correlating fossils.

strips of magnetic reversals found in ocean bedrock

### Regents Examination in Physical Setting/Earth Science —June 2002 Chart for Determining the Final Examination Score (Use for June 2002 examination only.)

To determine the student's final examination score, locate the student's total performance test score across the top of the chart and the student's total written test score down the side of the chart. The point where those two scores intersect is the student's final examination score. For example, a student receiving a total performance test score of 14 and a total written test score of 68 would receive a final examination score of 85.

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
85	100	99	98	97	97	97	97	96	96	95	95	94	94	93	92	92	91	90	89	89	88	87	86	85
84	99	98	97	97	96	96	96	95	95	94	94	93	93	92	92	91	90	- 89	89	88	87	86	85	84
83	99	98	97	97	96	96	96	.95	95	94	94	93	93	92	92	91	90	89	89	88	87	86	85	84
82	98	97	96	96	96	95	95	94	94	94	93	93	92	91	91	90	89	89	88	-87	86	85	84	83
81	97	96	95	95	95	94	94	94	93	93	92	92	91	90	90	89	88	88	87	86	85	84	83	82
80	97	96	95	95	95	94	94	94	93	93	92	92	91	90	90	89	88	88	87	86	85	84	83	82
79	97	. 96	94	94	-94	93	93	93	92	92	91	91	90	90	89	88	88	87	86	85	84	83	83	82
78	96	95	.94	93	93	93	92	92	91	91	91	90	89	89	88	87	87	86	85	84	84	83	82	81
77	- 96	95	94	93	93	93	92	92	91	91	91	90	89	88	88	87	87	86	85	84	84	83	82	81
76	95	94	93	92	92	92	91	91	91	.90	90	89	89	88	87	87	86	85	84	84	83	82	81	-80
75	94	93	92	92	91	91	91	90	90	問	89	88	88	87	86	86	85	84	84	83	82	81	80	79
74	94	93	92	92	91	91	91	90	90	89	89	88	88	87	86	86	85	84	84	83	82	81	80	79
73	93	92	91	91	90	90	90	89	89	88	88	87	87	86	86	85	84	83	83	82	81	80	79	78
72	92	91	90	90	90	89	89	88	88	88	87	87	86	85	dB	84	83	83	82	81	80	79	78	11
71	92	90	89	89	89	88	88	88	87	67	86	80	85	85	84	83	83	82	81	80	79	76	11	-11
70	92	90	89	98	89	88	88	88	87	87	86	86	85	85	84	83	83	82	81	80	79	78	77	11
69	91	90	88	88	88	88	87	87	86	86	85	85	84	84	83	82	82	81	80	79	78	78	11	76
68	90	89	88	91	8/	8/	80	-86	80	68	80	04	83	00	82	BZ	81	80	79	(8)	18	11	70	10
67	89	88	87	06	80	80	85	68	85	04	84	83	83	82	81	01	00	19	78	78	11	70	70	74
00	89	88	18	86	00	00	85	00	65	09	09	03	03	02	80	01	20	79	78	78	70	70	74	79
00	00	0/	00	00	00	00	60	04	0.9	00	0.3	04	02	01	80	20	78	70	/0	11	70	13	74	70
69	87	00	00	00	04	04	04	60	83	02	91	91	80	70	70	79	77	77	70	70	7.0	29	70	741
62	88	00	04	04	89	82	82	82	81	81	8/1	80	70	70	78	17	77	76	75	70	73	72	72	74
81	86	95	83	89	83	87	82	82	81	81	80	80	70	70	78	77	77	76	75	74	73	72	72	71
60	85	84	82	82	82	82	81	81	80	80	79	79	78	78	77	76	76	75	74	73	72	72	71	70
59	84	.83	82	81	81	81	80	80	80	79	79	78	77	77	76	76	75	74	73	72	72	71	70	69
58	83	82	81	80	80	80	80	79	79	78	78	77	77	76	75	75	74	73	72	72	71	70	69	68
57	82	81	80	80	79	79	79	78	78	77	77	76	76	75	75	74	73	72	72	71	70	69	68	67
56	81	80	79	79	79	78	78	77	77	77	76	76	75	74	74	73	72	72	71	70	69	68	67	66
55	80	79	78	78	78	77	77	77	76	76	75	75	74	73	73	72	71	71	70	69	68	67	66	65
54	80	79	77	77	77	76	76	76	75	75	74	74	73	73	72	71	71	70	69	68	67	66	66	65
53	79	78	77	76	76	76	75	75	74	74	74	73	72	72	71	70	70	69	68	67	67	66	65	64
52	79	78	77	76	76	76	75	75	74	74	74	73	72	72	71	70	70	69	68	87	67	66	65	64
51	78	77	76	75	75	75	74	74	74	73	73	72	72	71	70	70	69	68	67	67	66	65	64	63
50	77	76	75	75	74	74	74	73	73	72	72	71	71	70	69	69	68	67	67	66	65	64	63	62
49	76	75	74	74	73	73	73	72	72	71	71	70	70	69	69	68	67	66	66	65	64	63	62	61
48	75	74	73	73	73	72	72	71	71	71	70	70	69	68	68	67	66	66	65	64	63	.62	61	60
47	75	73	72	72	72	71	71	71	70	70	69	69	68	68	67	66	66	65	64	63	62	61	60	60
46	74	73	71	71	71	71	70	70	69	69	68	68	67	67	66	65	65	64	63	62	61	61	60	59
45	73	72	71	70	70	70	69	69	69	68	68	67	66	66	65	65	64	63	62	61	61	60	59	58
44	71	70	69	69	68	68	68	67	67	.68	66	65	65	64	63	63	62	61	61	60.	59	58	57	56

#### **Total Performance Test Score**

**Total Written Test Score** 

## Regents Examination in Physical Setting/Earth Science —June 2002 Chart for Determining the Final Examination Score (Use for June 2002 examination only.)

	23	22	21	20	19	18	17	16	15	((14))	13	12	11	10	9	C'Bri	7	1.63	5	6545	З	2	1	0
43	70	69	68	68	67	67	67	66	66	65	65	64	64	63	63	62	61	61	60	59	58	67	56	55
42	69	68	67	67	67	66	66	66	65	.65	64	64	63	62	62	61	60	60	59	58	57	58	55	54
41	69	68	66	66	66	65	65	65	64	64	63	63	62	62	61	60	60	59	58	57	56	55	55	54
40	68	67	65	65	65	65	64	64	63	63	62	62	61	61	60	59	59	68	57	58	55	65	54	53
39	67	68	65	64	64	64	63	63	63	62	62	61	60	60	-59	59	58	57	56	55	55	54	53	52
38	66	65	64	63	63	63	63	62	-62	61	61	60	60	59	58	58	57	56	55	55	54	53	52	51
37	65	64	63	63	62	62	62	61	61	60	60	59	59	58	58	57	56	55	55	-54	53	52	51	50
36	63	62	61	61	61	60	60	60	59	59	58	58	57	56	56	55	54	54	53	52	51	50	49	48
35	63	62	60	60	60	59	59	59	58	58	57	57	56	56	55	54	54	53	52	51	50	49	49	48
34	62	.61	60	59	59	59	58	58	57	57	57	56	55	65	54	53	53	52	- 51	50	50	-49	48	47
33	61	60	59	58	58	58	57	57	57	56	56	55	55	54	53	63	52	51	50	50	49	48	47	46
32	59	58	57	57	56	56	56	55	55	54	54	53	53	52	52	51	50	49	49	48	47	-46	45	44
31	58	57	56	56	56	55	55	-54	54	54	53	53	52	51	51	50	49	49	48	47	46	-45	44	43
30	58	56	55	55	55	54	54	54	53	53	52	52	51	51.	50	49	49	48	47	-46	45	44	43	43
29	57	56	54	54	54	- 54	53	53	52	52	51	51	50	-50	49	48	48	.47	46	45	44	44	43	42
28	55	.64	53	52	52	52	51	51	51	50	50	49	49	48	47	47	46	45	44	-44	43	42	41	40
27	54	-53	52	52	51	51	51	50	50	49	49	48	48	47	46	46	45	44	44	43	42	-41	40	39
26	52	51	50	50	50	49	49	49	48	48	47	47	46	45	45	44	43	43	42	41	40	39	38	37
25	52	61	49	49	49	48	48	48	47	47	46	. 46	45	45	- 44	43	43	42	41	. 40	39	38	38	37
24	51	50	48	48	48	48	47	47	46	46	45	45	44	44	43	42	42	41	40	39	38	38	37	36
23	49	48	47	46	46	46	46	45	45	-44	44	43	43	42	41	41	40	30	38	38	37	36	35	34
22	48	47	46	46	45	45	. 45	-44	44	43	43	42	42	41	41	40	39	38	38	37	36	35	34	33
21	46	45	44	44	44	43	43	43	42	42	41	41	40	39	39	38	37	37	36	35	34	33	32	31
20	46	45	43	43	43	42	42	42	41	41	40	40	39	39	38	37	37	36	35	34	33	32	32	31
19	44	43	42	41	41	41	40	40	40	39	39	38	38	37	36	36	35	34	33	33	32	31	30	29
18	42	41	40	40	39	39	39	38	38	37	37	36	36	35	35	34	33	32	32	31	30	29	28	27
17	41	40	39	39	39	38	38	37	37	37	36	36	35	34	34	33	32	32	31	30	29	28	27	26
16	40	39	37	37	37	37	36	36	35	35	34	34	33	33	32	31	31	30	29	-28	27	-27	26	25
15	39	38	37	36	36	36	35	35	35	34	34	33	32	32	31	31	30	29	28	27	27	26	25	24
14	37	36	35	35	34	34	34	33	33	32	32	31	31	30	29	29	28	27	27	26	25	24	23	22
13	35	34	33	33	33	32	32	32	31	31	30	30	29	28	28	27	26	26	25	24	23	22	21	20
12	35	34	32	32	32	3.1	31	31	30	30	29	29	28	28	27	26	26	25	24	23	22	21	21	20
11	33	32	31	30	30	- 30	29	-29	29	28	28	27	26	26	25	25	24	23	22	21	21	20	19	18
10	31	30	29	29	28	28	28	27	27	26	26	25	25	24	24	23	22	21	21	20	19	18	17	16
9	29	28	27	27	27	26	26	26	25	25	24	24	23	22	22	21	20	20	19	18	17	16	15	14
8	28	27	26	25	25	25	24	24	23	23	23	22	21	21	20	19	19	18	17	16	16	15	14	13
7	27	26	25	24	24	24	23	23	23	22	22	21	21	20	19	19	18	17	16	16	15	14	13	12
6	25	24	23	23	22	22	22	21	21	20	20	19	19	18	18	17	16	15	15	14	13	12	11	10
5	24	22	21	21	21	20	20	20	19	19	18	18	17	17	16	15	15	14	13	12	11	10	9	9
4	22	21	20	19	19	19	18	18	18	17	17	16	15	15	14	14	13	12	11	10	10	9	8	7
3	20	19	18	18	17	17	17	16	16	15	15	14	14	13	12	12	11	10	10	9	8	7	6	5
2	18	17	16	10	16	15	15	15	14	14	13	13	12	11	11	10	9	8	8	7	6	5	4	3
1	17	16	14	14	14	14	13	13	12	12	11	11	10	10	9	8	8	7	-6	5	4	4	3	2
0	15	- 14	13	12	12	12	12	. 11	11	10	10	9	9	8	1	1	6	5	- 4	-4	3	2	1	0

### **Total Performance Test Score**

**Total Written Test Score** 

## Map to Core Curriculum

June 2002 Physical Setting/ Earth Science											
Question Numbers											
Key Ideas/Performance Indicators	Part A	Part B	Part C								
	Standard 1	•••									
Math Key Idea 1		36,55,57									
Math Key Idea 2	14,17,27,32	37,38,40,49,50,53, 56,58	61,62								
Math Key Idea 3											
Sci. Inq Key Idea 1	5,8	54,60	63,65,70,71,72								
Sci. Inq Key Idea 2											
Sci. Inq Key Idea 3		41,42,43,44,45,46, 47,48,53	63								
Eng. Des. Key Idea 1											
Standard 2											
Key Idea 1		50	66,68								
Key Idea 2											
Key Idea 3			64								
Standard 6											
Key Idea 1	7	44,55,60	71,72								
Key Idea 2	20,29,33	39,41,42,43,44,45, 46,47,48,51	63,67								
Key Idea 3		47,57,59	70								
Key Idea 4	21										
Key Idea 5	7,16,30	39,52	67,69								
Key Idea 6											
	Standard 7										
Key Idea 1											
Key Idea 2			64								
	Standard 4	•									
Performance Indicator 1	1,5,6,7,9,11,14,19, 23,25	36,37,38,45,46,47, 48,52,53,54,59,60	61,62								
Performance Indicator 2	2,3,5,10,12,13,15, 16,17,18,20,21,22, 24,25,26,27,28,29, 30,31,32,33,34	39,40,49,50, 51,57,58	63,64,65,66,67,68,70 <b>,</b> 72								
Performance Indicator 3	4	41,42,43,44,55,56	71								
Reference Tables											
ESRT 2001 edition	2,3,4,11,14,16,17, 18,20,25,31,32,35	36,40,41,42,43,44, 46,47,48,49,50,51, 53,56,57,59	61,62,63,66, 67,68,70,71								



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## **IMPORTANT NOTICE TO TEACHERS**

## **Physical Setting/Earth Science Regents Examination**

## Tuesday, June 18, 2002

The following information concerns the rating of question 67 of the June 2002 Physical Setting/Earth Science Regents Examination.

There is an error in the last line of the scoring key. The scoring key should read as follows:

Allow 1 credit for any front symbols (correct or incorrect) drawn on the proper side of the *three* frontal boundaries.

Please communicate this information to all persons responsible for scoring the Physical Setting/Earth Science Regents Examination.