FOR TEACHERS ONLY

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

PS–ES PHYSICAL SETTING/EARTH SCIENCE

Thursday, January 24, 2002 — 1:15 to 4:15 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 and Part B–1
Allow 1 credit for each correct response.

Part A

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

Part B–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 Administering and Scoring Regents Examinations in Living Environment and Physical Setting/Earth Science*.

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

Contour lines bend upstream where they cross a stream. They bend east along Jones Creek.

Water flows from higher to lower elevations, and Jones Creek is higher in elevation on the east side of the map.

52 [3] ***a*** Allow no credit for writing the equation.

b Allow 1 credit for correctly substituting both acceptable measurements into the equation given in part *a*. The student need *not* record the units. Acceptable responses include, but are not limited to, these examples:

$$\text{gradient} = \frac{310 \text{ ft} - 260 \text{ ft}}{0.5 \text{ mi}}$$

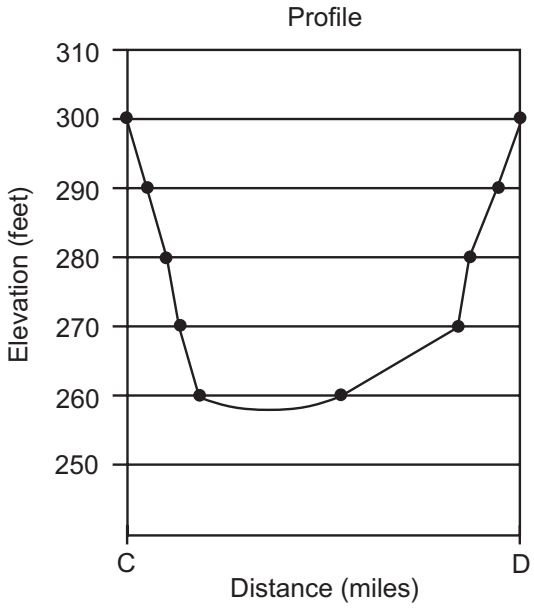
$$g = \frac{50 \text{ ft}}{0.5 \text{ mi}}$$

c Allow 1 credit for correctly calculating the gradient value of **100** [±5].

and

Allow 1 credit for recording the proper units of **ft/mi.**

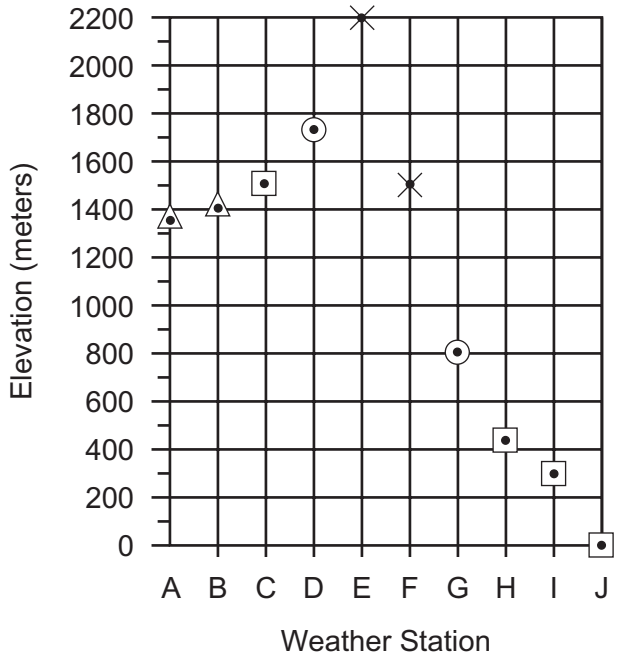
53 [2]



a Allow 1 credit if seven to ten points are correctly plotted.

b Allow 1 credit for correctly connecting all the plotted points. The bottom of the valley must extend below 260 feet.

54 [2]



a Allow 1 credit if seven to ten elevations are correctly plotted (±50 m).

b Allow 1 credit for surrounding each point with the correct symbol.

55 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

As elevation increases from *A* to *E*, precipitation increases.

direct relationship

56 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

C is on the leeward side.

Prevailing winds cause air to rise at location *F*, creating more clouds and causing heavier rainfall.

57 [2]

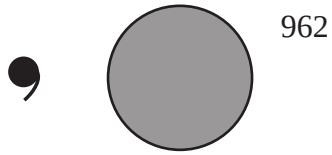
Plate Boundaries Data Table

Location	Type of Plate Boundary		
	Divergent	Convergent	Transform
East Pacific Ridge	X		
Aleutian Trench		X	
West side of the South American Plate		X	
San Andreas Fault			X

Allow 2 credits if three or four boundaries are identified correctly.

Allow only 1 credit if only one or two boundaries are identified correctly.

58 [3]



Allow 1 credit for full shading of the circle.

and

Allow 1 credit for **962** written in the proper location. Allow no credit if a decimal point or mb label is used.

and

Allow 1 credit for the drizzle symbol ( ) drawn in the proper location.

Part C

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

59 [1] Allow 1 credit for **Triassic** Period.

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

They have only been found in a narrow geographic range.

61 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Use the law of superposition to compare the age with the age of other nearby fossils and/or rock layers.

radioactive age dating (not C-14)

62 [3] Allow 3 credits, 1 credit for each correct response. Acceptable responses include, but are not limited to, these examples:

Inference 1: An igneous intrusion is younger than the bedrock it intrudes.

The basalt metamorphosed the shale.

Inference 2: The shale layer is below the sandstone layer.

Younger sedimentary bedrock is normally found on top of older sedimentary bedrock.

Inference 3: The limestone layers are folded and tilted but the shale layer is not folded and is horizontal.

The shale layer is not metamorphosed by the granite.

There is an irregular (erosional) surface between the shale and the limestone.

63 [1] Allow 1 credit for **differences in mineral composition, density,** or **color.**

64 [2] ***a*** Allow 1 credit for **3,000** km (±200 km).

b Allow 1 credit for **data from two additional seismic stations.**

65 [1] Allow 1 credit for **69**%.

66 [1] Allow 1 credit for **dewpoint.**

67 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Evaporation is a cooling process.

Water evaporating from a wet wick takes energy from the wet-bulb thermometer.

68 [3] Allow 3 credits, 1 credit for each correct response. Acceptable responses include, but are not limited to, these examples:

a Seek indoor shelter.

Avoid high ground.

Stay in your car.

b Go to the cellar or the safest interior room.

Stay away from windows.

Open house windows.

c Evacuate the area.

Move away from sites directly downhill from the volcano.

69 [1] Allow 1 credit for a response that describes a westward movement. Acceptable responses include, but are not limited to, these examples:

toward Asia (Africa)

westward across the Pacific Ocean

70 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

prevailing or planetary winds

the spin of Earth and the Coriolis effect on wind direction

71 [1] Allow 1 credit for **temperatures decreased**.

72 [2] ***a*** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:

Larger particles fell closer to the volcano.

b Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:

More dense particles fell closer to the volcano.

Regents Examination in Physical Setting/Earth Science —January 2002
Chart for Determining the Final Examination Score
(Use for January 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 82.

Total Performance Test Score

Total Written Test Score

	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	90	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	98	97	96	96	96	95	95	95	94	94	93	93	92	92	91	90	89	89	88	87	86	85	84	83
82	98	97	95	95	95	95	94	94	93	93	92	92	91	91	90	89	89	88	87	86	86	85	84	83
81	97	96	95	94	94	94	93	93	93	92	92	91	91	90	89	89	88	87	86	86	85	84	83	82
80	96	95	94	94	93	93	93	92	92	91	91	90	90	89	89	88	87	86	86	85	84	83	82	81
79	95	94	93	93	93	92	92	91	91	91	90	90	89	88	88	87	86	86	85	84	83	82	81	80
78	95	94	92	92	92	91	91	91	90	90	89	89	88	88	87	86	86	85	84	83	82	82	80	80
77	94	93	92	91	91	91	90	90	89	89	89	88	87	87	86	86	85	84	83	82	82	81	80	79
76	93	92	91	90	90	90	90	89	89	88	88	87	87	86	85	85	84	83	82	82	81	80	79	78
75	92	91	90	90	89	89	89	88	88	87	87	86	86	85	85	84	83	82	82	81	80	79	78	77
74	91	90	89	89	89	88	88	87	87	87	86	86	85	84	84	83	82	82	81	80	79	78	77	76
73	91	90	88	88	88	87	87	87	86	86	85	85	84	84	83	82	82	81	80	79	78	78	76	76
72	90	89	87	87	87	87	86	86	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75
71	89	88	87	86	86	86	85	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75	74
70	88	87	86	86	85	85	85	84	84	83	83	82	82	81	80	80	79	78	78	77	76	75	74	73
69	87	86	85	85	84	84	84	83	83	82	82	81	81	80	80	79	78	78	77	76	75	74	73	72
68	86	85	84	84	84	83	83	83	82	82	81	81	80	80	79	78	77	77	76	75	74	73	72	71
67	86	85	83	83	83	82	82	82	81	81	80	80	79	79	78	77	77	76	75	74	73	73	71	71
66	85	84	82	82	82	82	81	81	80	80	79	79	78	78	77	76	76	75	74	73	73	72	71	70
65	84	83	82	81	81	81	80	80	79	79	79	78	78	77	76	76	75	74	73	72	72	71	70	69
64	83	82	81	80	80	80	80	79	79	78	78	77	77	76	75	75	74	73	72	72	71	70	69	68
63	82	81	80	80	79	79	79	78	78	77	77	76	76	75	74	74	73	72	72	71	70	69	68	67
62	81	80	79	79	78	78	78	77	77	76	76	75	75	74	74	73	72	71	71	70	69	68	67	66
61	80	79	78	78	77	77	77	76	76	76	75	74	74	73	73	72	71	71	70	69	68	67	66	65
60	79	78	77	77	77	76	76	76	75	75	74	74	73	73	72	71	70	70	69	68	67	66	65	64
59	79	78	76	76	76	75	75	75	74	74	73	73	72	72	71	70	70	69	68	67	66	66	64	64
58	78	77	75	75	75	75	74	74	73	73	72	72	71	71	70	69	69	68	67	66	66	65	64	63
57	77	76	75	74	74	74	73	73	72	72	72	71	70	70	69	69	68	67	66	65	65	64	63	62
56	76	75	74	73	73	73	72	72	71	71	71	70	70	69	68	68	67	66	65	64	64	63	62	61
55	75	74	73	72	72	72	71	71	71	70	70	69	69	68	67	67	66	65	64	64	63	62	61	60
54	74	73	72	71	71	71	71	70	70	69	69	68	68	67	66	66	65	64	63	63	62	61	60	59
53	73	72	71	71	70	70	70	69	69	68	68	67	67	66	65	65	64	63	63	62	61	60	59	58
52	72	71	70	70	69	69	69	68	68	67	67	66	66	65	64	64	63	62	62	61	60	59	58	57
51	71	70	69	69	68	68	68	67	67	66	66	65	65	64	64	63	62	61	61	60	59	58	57	56
50	70	69	68	68	67	67	67	66	66	65	65	64	64	63	63	62	61	61	60	59	58	57	56	55
49	69	68	67	67	66	66	66	65	65	64	64	63	63	62	62	61	60	60	59	58	57	56	55	54
48	68	67	66	66	65	65	65	64	64	64	63	62	62	61	61	60	59	59	58	57	56	55	54	53
47	67	66	65	65	65	64	64	63	63	63	62	62	61	60	60	59	58	58	57	56	55	54	53	52
46	66	65	64	64	64	63	63	62	62	62	61	61	60	59	59	58	57	57	56	55	54	53	52	51
45	65	64	63	63	63	62	62	62	61	61	60	60	59	59	58	57	56	56	55	54	53	52	51	50
44	64	63	62	62	62	61	61	61	60	60	59	59	58	58	57	56	55	55	54	53	52	51	50	49
43	63	62	61	61	61	60	60	60	59	59	58	58	57	57	56	55	54	54	53	52	51	50	49	48
42	62	61	60	60	60	59	59	59	58	58	57	57	56	56	55	54	53	53	52	51	50	49	48	47

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

Total Performance Test Score

Total Written Test Score

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
41	61	60	59	59	59	58	58	58	57	57	56	56	55	55	54	53	52	52	51	50	49	48	47	46
40	60	59	58	58	58	57	57	57	56	56	55	55	54	54	53	52	51	51	50	49	48	47	46	45
39	59	58	57	57	57	56	56	56	55	55	54	54	53	53	52	51	50	50	49	48	47	46	45	44
38	58	57	56	56	56	55	55	55	54	54	53	53	52	52	51	50	49	49	48	47	46	45	44	43
37	57	56	55	55	55	54	54	53	53	53	52	52	51	50	50	49	48	48	47	46	45	44	43	42
36	56	55	54	54	54	53	53	52	52	52	51	51	50	49	49	48	47	47	46	45	44	43	42	41
35	55	54	53	53	52	52	52	51	51	51	50	49	49	48	48	47	46	46	45	44	43	42	41	40
34	54	53	52	52	51	51	51	50	50	49	49	48	48	47	47	46	45	45	44	43	42	41	40	39
33	53	52	51	51	50	50	50	49	49	48	48	47	47	46	46	45	44	43	43	42	41	40	39	38
32	52	51	50	50	49	49	49	48	48	47	47	46	46	45	45	44	43	42	42	41	40	39	38	37
31	51	50	49	49	48	48	48	47	47	46	46	45	45	44	43	43	42	41	41	40	39	38	37	36
30	50	49	48	47	47	47	47	46	46	45	45	44	44	43	42	42	41	40	40	39	38	37	36	35
29	49	48	47	46	46	46	46	45	45	44	44	43	43	42	41	41	40	39	38	38	37	36	35	34
28	48	47	46	45	45	45	44	44	44	43	43	42	42	41	40	40	39	38	37	36	36	35	34	33
27	47	46	45	44	44	44	43	43	42	42	42	41	41	40	39	39	38	37	36	35	35	34	33	32
26	46	45	43	43	43	43	42	42	41	41	40	40	39	39	38	37	37	36	35	34	34	33	32	31
25	45	44	42	42	42	41	41	41	40	40	39	39	38	38	37	36	36	35	34	33	32	32	31	30
24	44	42	41	41	41	40	40	40	39	39	38	38	37	37	36	35	35	34	33	32	31	30	29	29
23	42	41	40	40	40	39	39	38	38	38	37	37	36	35	35	34	33	33	32	31	30	29	28	27
22	41	40	39	39	38	38	38	37	37	36	36	35	35	34	34	33	32	32	31	30	29	28	27	26
21	40	39	38	38	37	37	37	36	36	35	35	34	34	33	32	32	31	30	30	29	28	27	26	25
20	39	38	37	36	36	36	36	35	35	34	34	33	33	32	31	31	30	29	29	28	27	26	25	24
19	38	37	36	35	35	35	34	34	34	33	33	32	32	31	30	30	29	28	27	26	26	25	24	23
18	37	36	34	34	34	34	33	33	32	32	31	31	30	30	29	28	28	27	26	25	25	24	23	22
17	36	35	33	33	33	32	32	32	31	31	30	30	29	29	28	27	27	26	25	24	23	23	21	21
16	34	33	32	32	32	31	31	31	30	30	29	29	28	28	27	26	25	25	24	23	22	21	20	19
15	33	32	31	31	30	30	30	29	29	28	28	27	27	26	26	25	24	24	23	22	21	20	19	18
14	32	31	30	30	29	29	29	28	28	27	27	26	26	25	24	24	23	22	22	21	20	19	18	17
13	31	30	29	28	28	28	27	27	27	26	26	25	25	24	23	23	22	21	20	20	19	18	17	16
12	30	29	27	27	27	27	26	26	25	25	24	24	23	23	22	21	21	20	19	18	18	17	16	15
11	29	27	26	26	26	25	25	25	24	24	23	23	22	22	21	20	20	19	18	17	16	15	14	14
10	27	26	25	25	24	24	24	23	23	23	22	21	21	20	20	19	18	18	17	16	15	14	13	12
9	26	25	24	24	23	23	23	22	22	21	21	20	20	19	18	18	17	16	16	15	14	13	12	11
8	25	24	23	22	22	22	21	21	21	20	20	19	19	18	17	17	16	15	14	14	13	12	11	10
7	24	23	21	21	21	21	20	20	19	19	18	18	17	17	16	15	15	14	13	12	12	11	10	9
6	22	21	20	20	20	19	19	19	18	18	17	17	16	16	15	14	13	13	12	11	10	9	8	7
5	21	20	19	19	18	18	18	17	17	16	16	15	15	14	14	13	12	12	11	10	9	8	7	6
4	20	19	18	17	17	17	17	16	16	15	15	14	14	13	12	12	11	10	10	9	8	7	6	5
3	19	18	17	16	16	16	15	15	14	14	14	13	12	12	11	11	10	9	8	7	7	6	5	4
2	18	16	15	15	15	14	14	14	13	13	12	12	11	11	10	9	9	8	7	6	5	4	3	3
1	16	15	14	14	13	13	13	12	12	11	11	10	10	9	9	8	7	7	6	5	4	3	2	1
0	15	14	13	12	12	12	12	11	11	10	10	9	9	8	7	7	6	5	5	4	3	2	1	0

Map to Core Curriculum

Map to Core Curriculum

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