FOR TEACHERS ONLY

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

LIVING ENVIRONMENT

Tuesday, June 17, 2014 — 1:15 to 4:15 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 at: http://www.p12.nysed.gov/assessment/ 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.

Multiple Choice for Parts A, B–1, B–2, and D
Allow 1 credit for each correct response.

Part A

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

Part B–1

31 ..... **3**	35 ..... **1**	39 ..... **3**	43 ..... **1** .....
32 ..... **4**	36 ..... **1**	40 ..... **2**	
33 ..... **2**	37 ..... **1**	41 ..... **3**	
34 ..... **2**	38 ..... **2**	42 ..... **2**	

Part B–2

47 ..... **3**	49 ..... **4**	50 ..... **3** .....

Part D

73 ..... **1**	75 ..... **3**	81 ..... **3** .....
74 ..... **2**	76 ..... **4**	82 ..... **2** .....

Directions to the Teacher

Follow the procedures below for scoring student answer papers for the Regents Examination in Living Environment. 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. If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the Part B–2, Part C, and Part D 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. Teachers may not score their own student's answer papers.

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. If the student gives more than one answer to a question, only the first answer should be rated. Units need not be given when the wording of the questions allows such omissions.

For hand scoring, 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 box labeled "Total Raw Score." Then the student's raw score 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/assessment/ on Tuesday, June 17, 2014. 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.

Schools are not 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

44 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— adjusting the diaphragm

— staining

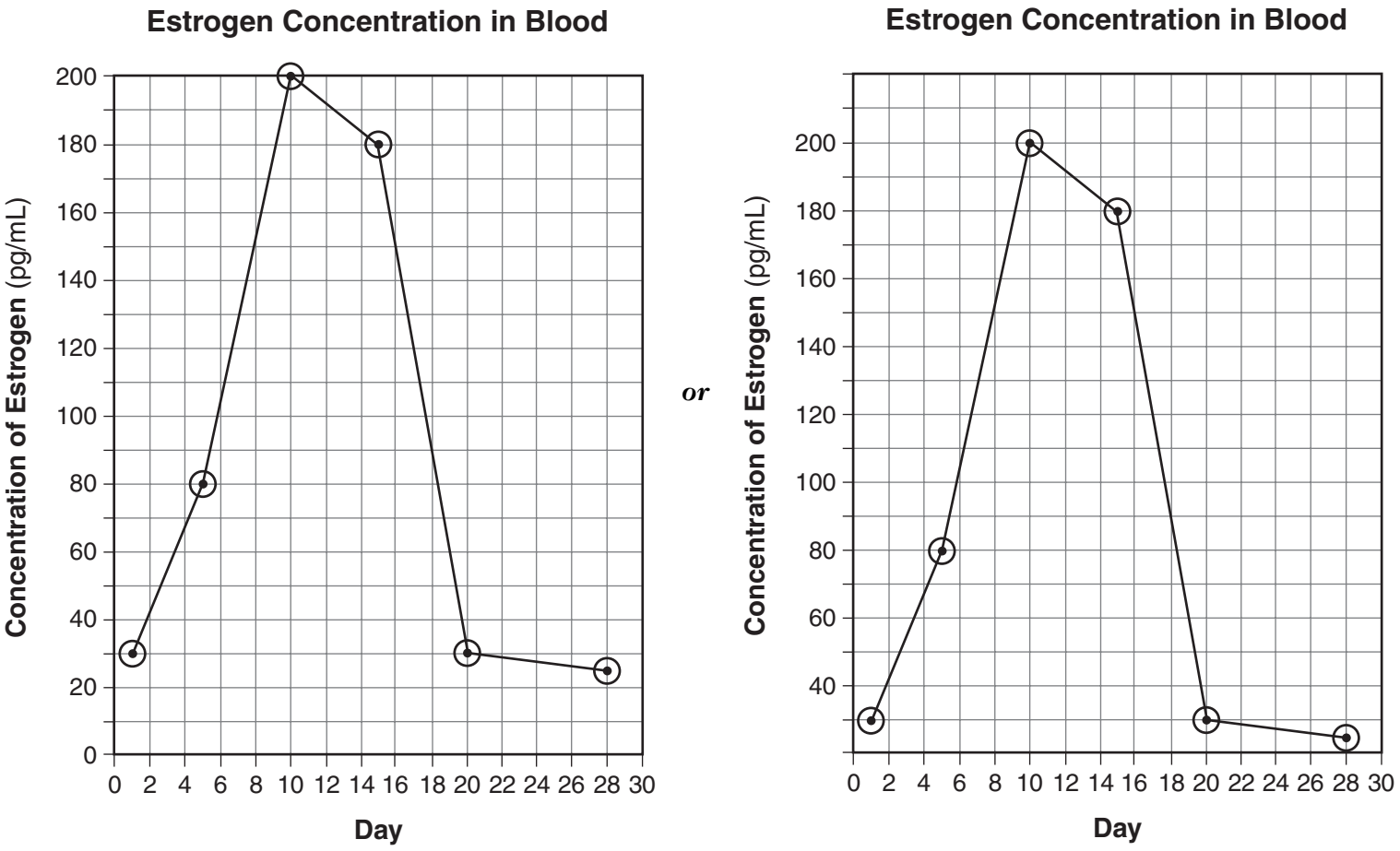
— adding iodine

— adjusting the light

45 [1] Allow 1 credit for marking an appropriate scale, without any breaks, on the axis labeled "Concentration of Estrogen."

46 [1] Allow 1 credit for correctly plotting the data, surrounding each point with a small circle, and connecting the points.

Examples of 2-credit graphs for questions 45 and 46:



Note: Allow credit if points are correctly plotted, but not circled.

Do *not* assume that the intersection of the x- and y-axes is the origin (0,0), unless it is labeled. An appropriate scale only needs to include the data range in the data table.

Do *not* allow credit if points are plotted that are not in the data table, e.g., (0,0), or for extending lines beyond the data points.

47 MC on scoring key

48 [1] Allow 1 credit for ATP *or* adenosine triphosphate.

49 MC on scoring key

50 MC on scoring key

51 [1] Allow 1 credit for 14.

52 [1] Allow 1 credit for *C or* the section showing the lining of the uterus *or* the uterus.

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

— testosterone

— follicle stimulating hormone

— FSH

— LH

54 [1] Allow 1 credit for correctly organizing the data collected, from shortest to longest length of exposure.

Example of a 1-credit response:

Relationship of Sunlight Exposure to Flower Production

Hours of Exposure to Direct Sunlight	Percent of Plants with Flowers
0	0
1	0
3	80
5	90
7	10
9	0

55 [1] Allow 1 credit for no and supporting the answer. Acceptable responses include, but are not limited to:

— No, this is not a valid conclusion because only one species of plant was tested.

— No, more flowers were present at 5 hours than 7 or 9 hours.

— No, there were no flowers at 9 hours.

Part C

56 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Building in the area destroys the habitat.

— Deforestation reduces the area where animals can find food and shelter.

— Burning fossil fuels leads to acid rain, resulting in the death of organisms.

— Introducing nonnative species increases competition for resources and could cause the loss of an organism to an area.

Note: Allow credit for a human activity, not the product of activities, not just "pollution" without an explanation.

57 [1] Allow 1 credit for stating *one* possible effect an increase in the amount of leaf litter on the forest floor would have on the amphibian population and supporting the answer. Acceptable responses include, but are not limited to:

— The amphibian population might increase because more food would be available to support a larger population of animals that the amphibians eat.

— There would be more food available for the amphibian population.

58 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Parthenogenesis involves one parent, only.

— The genetic material of the offspring comes from only one parent.

— Mating does not occur.

— No sperm is involved.

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

— Offspring would be less able to adapt to environmental changes, so the possibility of survival is decreased.

— There will be less variation, limiting the species' ability to adapt.

— The offspring would be all the same sex.

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

— It is written in the form of a question.

— It is not a prediction.

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

— The students wanted to see if the ticks would survive a hot-water wash. The students are collecting data only for cold water.

— There is no hot water data being collected, so the students could not support their hypothesis.

— The data on only cold water could never support their hypothesis.

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

Error: two different kinds of ticks
Correction: Use the same species for each group.

Error: number of subjects used
Correction: The student used 10 in one group and 100 in the other. Use 100 in both groups.

Error: number used
Correction: Use the same amount in both groups.

Note: Do *not* accept errors referring to the unshaded portion of the table.

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

— Humans stopped cattle from feeding on the grass and the grass grew longer.

— Farmers allowed pastures to get overgrown by grasses.

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

— The caterpillars smell and wiggle like red ants.

— The honey gland at the posterior end of the caterpillar causes them to smell like red ants.

— The caterpillars mimic the behavior of the red ants.

65 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— plants → ants (grubs) → caterpillars

— plants → insects → red ants

— grasses → insects → birds

— grasses → cattle → humans

66 [1] Allow 1 credit for selecting an organism and stating *one* way the removal of the organism selected would affect another organism in the food chain and supporting the answer. Acceptable responses include, but are not limited to:

Organism: grass *or* plant

— All other organisms decrease because there is less food.

Organism: rabbit *or* cow

— Grass overpopulates because it is not being eaten.

Organism: red ant

— Butterflies die out because they are not fed and protected by the ants.

— no ant grubs for the caterpillars to eat

Organism: butterfly

— Red ants increase because they are not being eaten by butterfly caterpillars.

Note: Allow credit for an answer consistent with the student's food chain for question 65.

Note: The student's response to the bulleted items in question 67–69 need *not* appear in the following order.

67 [1] Allow 1 credit for explaining how the size of these animals' ears can help the animals survive in their environment. Acceptable responses include, but are not limited to:

— Large ears can help an animal remove excess heat in a warm environment, which helps the animal maintain a stable internal temperature.

— The small ears in the arctic fox help minimize heat loss in its cold environment.

— The large ears in the jackrabbit let excess heat escape, helping it stay cool.

— Large ears would allow animals to hear predators.

68 [1] Allow 1 credit for identifying *one* process that most likely resulted in the animals in warm climates having large ears, while animals in cold climates have small ears. Acceptable responses include, but are not limited to:

— natural selection

— evolution

— mutation

— recombination

69 [1] Allow 1 credit for stating how the overproduction of offspring in each species for many generations contributed to the presence of different ear sizes. Acceptable responses include, but are not limited to:

— When there is overproduction, not all can live, so natural selection results in the survival of the fittest in each generation.

— With more offspring, only some survive and pass on their traits, resulting in changes in the species over time.

— Overpopulation leads to an increase in the number of variations in a population.

— With more individuals, more variations might occur.

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

— They live in and harm the host.

— They cause red blood cells to explode, which causes harm to the host.

— They interfere with normal life functions.

71 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— An increased mosquito population could lead to more malaria.

— An increased mosquito population could lead to disease.

— There would be more deaths from malaria.

— more mosquito bites

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

— Fish and other animal populations in the lake would be harmed because they depend on the plants directly or indirectly for food.

— Fish and other animal populations would be harmed because they depend on the plants for oxygen.

— There would be fewer hiding/breeding sites.

Part D

73 MC on scoring key

74 MC on scoring key

75 MC on scoring key

76 MC on scoring key

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

— The rates were different because not everyone has exactly the same pulse rate under the same conditions.

— Individual pulse rates vary.

— They may not have measured their pulse rates accurately.

— The students may have been doing different activities prior to resting.

— Some students have different levels of fitness.

78 [1] Allow 1 credit for 75.

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

— When more salt was used, the plants did not grow as tall.

— Increasing the salt made the plants grow less.

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

— When more salt was used, more water diffused out of the plant cells. The plants in *E* and *F* dried out and died.

— The cells lost too much water.

— It caused the plants to dehydrate and die.

81 MC on scoring key

82 MC on scoring key

83 [1] Allow 1 credit for species 3 and supporting the answer. Acceptable responses include, but are not limited to:

— because the seeds are most similar in structure to carrot seeds

— because they look most alike

84 [1] Allow 1 credit for describing another variation in a finch species that could promote survival of an individual bird and supporting the answer. Acceptable responses include, but are not limited to:

— Some birds may fly better, helping them escape predators better.

— Some finches might have colors that help them hide from predators.

— Some of them might be smaller and need less food for survival.

— Some birds are more aggressive, so they get more food.

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

Tool: Forceps
Advantage or disadvantage: Advantage
Explanation: picked up enough small seeds so a finch on an island with lots of small seeds could survive

Tool: Forceps/Tweezers
Advantage or disadvantage: Disadvantage
Explanation: didn't pick up enough seeds to survive

Tool: Large hair clip
Advantage or disadvantage: Disadvantage
Explanation: didn't pick up any seeds

Tool: Tool for holding test tubes
Advantage or disadvantage: Advantage
Explanation: picked up really big seeds so it got enough food to survive

The *Chart for Determining the Final Examination Score for the June 2014 Regents Examination in Living Environment* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Tuesday, June 17, 2014. Conversion charts provided for previous administrations of the Regents Examination in Living Environment 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

June 2014 Living Environment

Standards	Question Numbers			
	Part A 1–30	Part B–1 31–43	Part B–2 44–55	Part C 56–72
Standard 1 — Analysis, Inquiry and Design				
Key Idea 1				
Key Idea 2			54	
Key Idea 3		38, 39	45, 46, 47, 55	
Appendix A (Laboratory Checklist)			44	60, 61, 62
Standard 4				
Key Idea 1	1, 2, 3, 4, 7	31, 32, 34, 37, 40		72
Key Idea 2	6, 10, 11, 12, 18, 29, 30	35		
Key Idea 3	13, 14, 15			59, 67, 68, 69
Key Idea 4	8		50, 51, 52, 53	58
Key Idea 5	9, 16, 17, 19, 21, 22	36, 42, 43	48, 49	
Key Idea 6	5, 26	41		56, 57, 64, 65, 66, 70
Key Idea 7	20, 23, 24, 25, 27, 28	33		63, 71

Part D 73–85	
Lab 1	73, 74, 75, 83
Lab 2	77, 78, 81, 82
Lab 3	76, 84, 85
Lab 5	79, 80