FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Thursday, August 14, 2014 — 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/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 ..... **4**	9 ..... **4**	17 ..... **2**	25 ..... **3** .....
2 ..... **1**	10 ..... **4**	18 ..... **3**	26 ..... **4** .....
3 ..... **3**	11 ..... **3**	19 ..... **2**	27 ..... **2** .....
4 ..... **2**	12 ..... **2**	20 ..... **4**	28 ..... **1** .....
5 ..... **3**	13 ..... **3**	21 ..... **4**	29 ..... **1** .....
6 ..... **4**	14 ..... **3**	22 ..... **3**	30 ..... **1** .....
7 ..... **1**	15 ..... **4**	23 ..... **1**	
8 ..... **4**	16 ..... **2**	24 ..... **4**	

Part B–1

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

Part B–2

47 ..... **4**	49 ..... **2**	50 ..... **4** .....

Part D

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

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 students' 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 Thursday, August 14, 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.

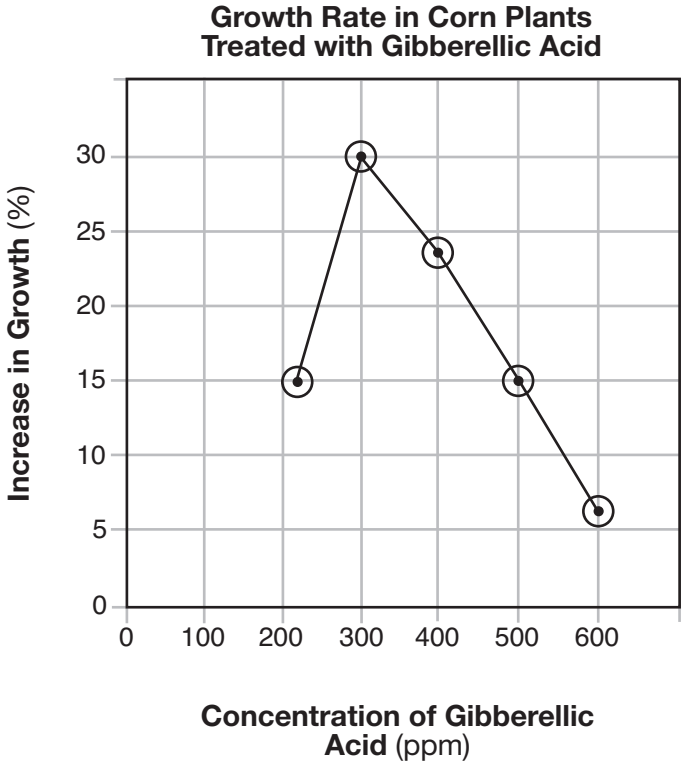
Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that for each administration, the conversion chart provided for that administration be used to determine the student's final score.

Part B–2

44 [1] Allow 1 credit for marking an appropriate scale, without any breaks in the data range, on each labeled axis.

45 [1] Allow 1 credit for correctly plotting the data from the data table and surrounding each point with a small circle and connecting the points.

Example of a 2-credit graph for questions 44 and 45:



Note: Allow credit if the points are plotted correctly, 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.

46 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— the group of untreated seeds

— the group of seeds not soaked in the gibberellic acid

47 MC on scoring key

48 [1] Allow 1 credit for stating how farmers should use gibberellic acid to grow the largest plants and supporting the answer with data from this experiment. Acceptable responses include, but are not limited to:

— Use 300 ppm of gibberellic acid on the seeds, as that concentration produced the greatest amount of growth.

— Use somewhere between 275 and 350 ppm of gibberellic acid because it results in faster growth.

— Soak corn seeds in 300 ppm gibberellic acid for 1 hour before planting for a faster growth rate.

49 MC on scoring key

50 MC on scoring key

Note: The student's response to the bulleted items in question 51–52 need *not* appear in the following order.

51 [1] Allow 1 credit for identifying where in the cell the information necessary to construct a particular protein is located and the specific molecule that contains this information. Acceptable responses include, but are not limited to:

— The information is in DNA molecules in the nucleus of the cell.

— The nucleus contains the DNA molecules where the information is found.

— The information is located on a chromosome, which contains DNA.

52 [1] Allow 1 credit for identifying *both* the cellular structure that assembles these proteins and the kinds of molecules that are used as the building blocks of the proteins. Acceptable responses include, but are not limited to:

— Ribosomes construct proteins out of amino acids.

— Ribosomes use amino acids to assemble proteins.

— Ribosomes use amino acids.

53 [1] Allow 1 credit for mice *and* crickets.

54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The hawks eat mice and snakes, which also eat mice; while the owls eat mice and frogs, which eat crickets not mice.

— The hawk's second food source also feeds on mice.

— The owl's second food source is not dependent on mice.

— Snakes also eat mice, but frogs do not.

55 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— break down organic compounds and return nutrients to the environment

— break down dead plants and animals and release nutrients to the environment

— prevent the build-up of dead organisms

— recycle nutrients

Part C

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

— They outcompete native species.

— They harm/negatively affect native species.

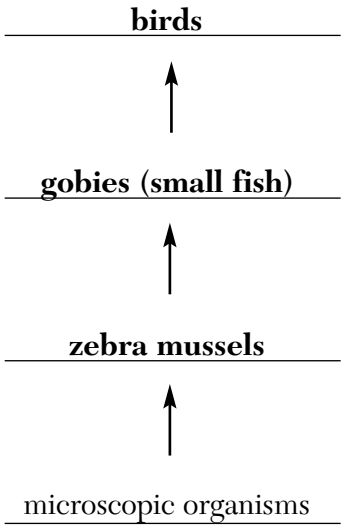
— They were introduced to the Great Lakes by humans.

— They interfere with the ability of other organisms to function in the environment.

— They are not native to the Great Lakes.

57 [1] Allow 1 credit.

Example of a 1-credit response:



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

— The concentration of the toxin increases in each level of the food chain until it is high enough to kill top-level predators.

— The birds eat gobies that have accumulated toxins.

— The food chain increases the concentration of naturally occurring toxins by passing dangerous levels on to top-level predators.

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

— Animals that eat the birds would not have enough food.

— The decomposing birds could spread disease.

— The gobie population would increase.

— decreases biodiversity

— disrupts food webs

Note: The student's response to the bulleted items in question 60–63 need *not* appear in the following order.

60 [1] Allow 1 credit for identifying *one* way the immune system fights pathogens. Acceptable responses include, but are not limited to:

— White blood cells engulf pathogens.

— Antibodies fight invaders.

— produces antibodies

61 [1] Allow 1 credit for identifying the substance in a vaccine that stimulates the immune system. Acceptable responses include, but are not limited to:

— dead/weakened pathogen

— antigens

— a small piece of the virus/viral coat

Note: Do *not* accept "a little bit of the disease" or "a small amount of the virus."

62 [1] Allow 1 credit for describing the response of the immune system to the vaccine. Acceptable responses include, but are not limited to:

— The vaccine stimulates the immune system to produce antibodies.

— It causes the body to make antibodies.

63 [1] Allow 1 credit for identifying *one* disease that damages the immune system and for stating how it affects this system. Acceptable responses include, but are not limited to:

AIDS/HIV
— attacks the immune system so it cannot fight off diseases

cancer/leukemia
— destroys immune system cells, which weakens immune responses

Note: The student's response to the bulleted items in question 64–68 need *not* appear in the following order.

64 [1] Allow 1 credit for stating *one* hypothesis the experiment would test. Acceptable responses include, but are not limited to:

— If plants are exposed to fewer than 11 hours of daylight, then they will change color.

— The number of hours of daylight will have no effect on color change.

Note: Do *not* allow credit for a hypothesis written in the form of a question.

65 [1] Allow 1 credit for stating *one* way the three experimental groups would differ. Acceptable responses include, but are not limited to:

— One group gets less than 10 hours of daylight, one more than 12 hours of daylight, and one 11 hours of daylight.

— exposure to different lengths of daylight

66 [1] Allow 1 credit for identifying *two* factors that must be kept the same in all the three groups. Acceptable responses include, but are not limited to:

— temperature

— amount of water/fertilizer

— soil conditions

— age/size of plants

67 [1] Allow 1 credit for identifying the dependent variable in the experiment. Acceptable responses include, but are not limited to:

— leaf color

— whether or not color changes

68 [1] Allow 1 credit for describing experimental results that would support the hypothesis. Acceptable responses include, but are not limited to:

— The hypothesis would be supported if only the plants exposed to less than 10 hours of daylight change color and those exposed to more hours of daylight do not change color.

— All of the plants changed color/none of the plants changed color.

Note: Allow credit for an answer that is consistent with the student's response to question 64.

69 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Cooling would slow down any tissue decomposition/breakdown that may otherwise occur.

— Cooling the enzymes in the cells of the hand causes the metabolic rate to decrease. This extends cell lifetime without additional blood and oxygen supply.

— The cooling would slow the action of enzymes that could cause tissue damage.

— to slow down growth of bacteria on the tissue

— to preserve it, so it does not rot

Note: Do *not* accept just "to preserve it" without a biological reason.

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

— It shields living things from harmful radiation from the Sun.

— protects us from UV radiation

— protects us from DNA damage/mutation/skin cancer

71 [1] Allow 1 credit for genetic testing and supporting the answer. Acceptable responses include, but are not limited to:

— More people agreed the technology should be used.

— People felt it was not risky.

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

— more organs available for individuals that need them

— may be less chance of rejection

— Organs are readily available.

— Pig hearts with human genes can be used for transplants.

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 for yes or no and supporting the answer. Acceptable responses include, but are not limited to:

— No, they eat different foods.

— No, the other finches eat insects and the vegetarian finch eats seeds.

— Yes, they might compete for space/nesting sites.

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

— It can add a liquid to the slide without removing the coverslip.

— This procedure is used to add stain to a specimen on a slide.

— It is used to add salt water to cells on the slide.

— It is for adding distilled water to red onion cells.

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

— a salt solution

— a stain/iodine

— salt water that is to be added to the specimen

— water/distilled water

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

— The paper towel will soak up liquid from under the coverslip and draw the stain under the other side of the coverslip.

— The paper towel will make the salt water flow over the cells.

— It is to draw the distilled water under the coverslip.

81 MC on scoring key

82 MC on scoring key

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

— The student did not divide the total by 8 (number of students).

— This is the total, not the average.

84 [1] Allow 1 credit for stating that this is not a valid conclusion and supporting the answer. Acceptable responses include, but are not limited to:

— The conclusion is not supported because one of the males has a smaller average than one of the females.

— because it is a very small sample

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

— The person might have been ill.

— The person might have asthma.

— The person was injured.

— smoking

— working in a coal mine

— watching TV instead of exercising

The *Chart for Determining the Final Examination Score for the August 2014 Regents Examination in Living Environment* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Thursday, August 14, 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

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

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