

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Thursday, August 13, 2009 — 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 <http://www.emsc.nysed.gov/osa/> and select the link "Examination 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			Part B-1	
1 4	11 4	21 3	31 2	38 2
2 1	12 1	22 2	32 3	39 1
3 3	13 1	23 3	33 1	40 2
4 2	14 2	24 4	34 3	41 4
5 3	15 3	25 1	35 4	42 1
6 3	16 3	26 4	36 1	43 3
7 2	17 4	27 3	37 3	
8 3	18 2	28 1		
9 4	19 2	29 2		
10 2	20 4	30 4		

LIVING ENVIRONMENT – *continued*

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*.

Use only *red* ink or *red* pencil in rating Regents papers. Do not attempt to *correct* the student's work by making insertions or changes of any kind.

Allow 1 credit for each correct response for multiple-choice questions.

On the detachable answer sheet for Part A and Part B–1, indicate by means of a check mark each incorrect or omitted answer to multiple-choice questions. In the box provided in the upper right corner of the answer sheet, record the number of questions the student answered correctly for each of these parts.

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 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 examination 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 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.

Raters should enter the scores earned for Part A, Part B–1, Part B–2, Part C, and Part D on the appropriate lines in the box printed on the answer sheet and should add these five scores and enter the total in the box labeled "Total Raw Score." Then the student's raw score should be converted to a scaled score by using the conversion chart that will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Thursday, August 13, 2009. The student's scaled score should be entered in the box labeled "Final Score" on the student's answer sheet. 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 for that administration be used to determine the student's final score.

Part B-2

44 3

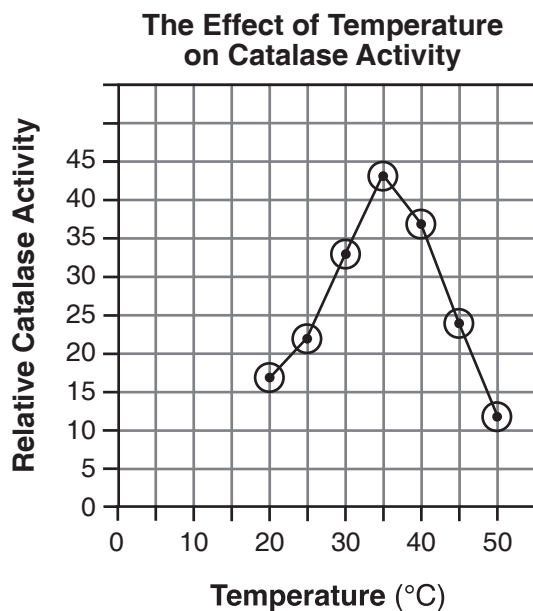
45 2

- 46 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- There would be more time for pathogens to cause infection.
 - Slow healing increases exposure time to pathogens.
 - An open wound will provide a suitable environment for pathogens.

47 [1] Allow 1 credit for marking an appropriate scale on each labeled axis.

48 [1] Allow 1 credit for correctly plotting the data and connecting the points.

Example of a 2-credit graph for questions 47 and 48:



Note: Allow credit if points are plotted correctly but *not* circled.
Make no assumption about the origin unless it is labeled.
Do *not* allow credit for plotting points that are not in the data table, e.g., (0,0).

LIVING ENVIRONMENT – *continued*

- 49 [1] Allow 1 credit for 35°C and supporting the answer. Acceptable responses include, but are not limited to:
- The greatest amount of activity occurs there.
 - It is the highest point on the graph.
 - The rate is highest at this temperature.

Note: Allow credit for an answer consistent with the student’s graph for questions 47 and 48.

- 50 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- an enzyme
 - a catalyst
 - protein

- 51 [1] Allow 1 credit.

Examples of 1-credit responses:



Note: Accept any shape with a corresponding section that will fit into the receptor on nerve cell *B*.

- 52 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Nothing; the shape would not be accepted by receptors on *B*.
 - It would not bind with the receptors in area *I*.
- 53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- hormones
 - antigens
 - receptor molecules

- 54 3

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

Part C

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

- New populations of waterbirds will compete with the original population of ducks for space/food.
- New individuals of the same species as the original duck population may compete for mates.
- may bring disease with them
- original population may decline

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

- Bird waste will pollute the water and make it cloudy.
- Additional waste might change the pH of the lake.
- New birds will decrease the amount of space available to other birds.

Note: Do *not* accept just “pollution.” The student’s answer must address a specific abiotic factor.

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

- More birds will eat the plants, so the plant populations will decrease in number.
- Some birds will eat organisms that eat plants. Since there will be fewer primary consumers, the plant populations will increase in number.
- Bird wastes will make the soil more fertile so more plants will grow.
- The population of plants will decrease.

Note: Do *not* accept extinction of the plants.

LIVING ENVIRONMENT – *continued*

59 [2] Allow a maximum of 2 credits, allocated as follows:

- Allow 2 credits if *two* life functions are identified *and* the student correctly explains how each function maintains homeostasis.
- Allow 1 credit if *one* life function is identified *and* the student correctly explains how that function maintains homeostasis.

Example of a 2-credit response:

Circulation *or* transport moves essential materials through the cell or organism.
Excretion gets rid of potentially harmful wastes.

Note: Do *not* accept digestion (part of nutrition) *or* reproduction (not necessary to maintain homeostasis).

60 [3] Allow a maximum of 3 credits, allocated as follows:

- Allow 1 credit for an explanation of competition within the bat population. Acceptable responses include, but are not limited to:
 - Bats with the variation for stronger flight muscles would most likely catch more flying insects than bats without the gene.
- Allow 1 credit for an explanation of survival of various individuals within the bat population. Acceptable responses include, but are not limited to:
 - More bats possessing the gene for stronger flight muscles would survive than those without.
- Allow 1 credit for an explanation of how the frequency of the trait for stronger flight muscles would be expected to change within the bat population over time. Acceptable responses include, but are not limited to:
 - Over time, more bats would possess the variation for stronger flight muscles.

LIVING ENVIRONMENT – *continued*

- 61** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Having x rays can result in defects in the genes of the fetus.
 - Smoking may cause low birth weight.
- 62** [2] Allow a maximum of 2 credits, allocated as follows:
- Allow 1 credit for stating the role of the student-selected process in fetal development. Acceptable responses include, but are not limited to:
 - Mitosis produces more cells, causing the fetus to grow.
 - Differentiation causes individual cells to have specialized functions, resulting in the formation of tissues and organs.
 - Allow 1 credit for identifying the organ in the mother where the student-selected process occurs. Acceptable responses include, but are not limited to:

Mitosis

 - uterus

Differentiation

 - uterus
- 63** [4] Allow a maximum of 4 credits, allocated as follows:
- Allow 1 credit for identifying the inorganic carbon compound that is obtained by plants from the environment as carbon dioxide (CO_2).
 - Allow 1 credit for identifying the process plants use to form more complex organic molecules from this carbon compound as photosynthesis.
 - Allow 1 credit for describing how herbivores use these complex organic molecules. Acceptable responses include, but are not limited to:
 - as a source of energy
 - as a source of nutrients
 - as a source of materials to synthesize other molecules
 - Allow 1 credit for identifying the process herbivores use to return carbon to the environment. Acceptable responses include, but are not limited to:
 - respiration
 - breathing
 - excretion

LIVING ENVIRONMENT – *continued*

- 64** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- It might block their scenic view.
 - interrupt bird flight paths
 - They think they will be too noisy.
 - decrease the amount of open space

- 65** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Windmill farms reduce air pollution.
 - Wind power is a renewable energy source.
 - Energy doesn't need to be imported.

Part D**66** 4**67** 2**68** 1**69** 3**70** [1] Allow 1 credit for:

Amino acid:	ASP	TRP	CYS
mRNA codon:	GAU <i>or</i> GAC	UGG	UGU <i>or</i> UGC

71 [1] Allow 1 credit for UAA *or* UAG *or* UGA.**72** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- group with normal rainwater
- group with water of pH 5.6

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

- number of seeds that germinated at different pHs
- how many seeds grew
- germination of seeds

74 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The control group had 190 seeds germinate, while the experimental group had only 150 seeds germinate.
- If fewer seeds germinate at a pH of 4.0, then this result would support the hypothesis that acid rain could be responsible for a decrease in the number of trees.

75 2**76** 4

LIVING ENVIRONMENT – *concluded*

- 77** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The finches may eat different-size seeds or plant parts.
 - They may not compete for the same food.
 - They may live on different parts of the island.
 - They may have different niches.
- 78** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Water will move out of the cell (diffuse).
 - The cell contents will shrink.

The *Chart for Determining the Final Examination Score for the August 2009 Regents Examination in Living Environment* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Thursday, August 13, 2009. 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 www.emsc.nysed.gov/osa/exameval/.
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 2009 Living Environment

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

Part D 66–78	
Lab 1	66, 69, 70, 71, 76
Lab 2	72, 73, 74, 75
Lab 3	77
Lab 5	67, 68, 78