# FOR TEACHERS ONLY

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

# LE

## LIVING ENVIRONMENT

**Wednesday,** June 20, 2007 — 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.

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**

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

**Part B–1**

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

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 checkmark 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 5 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 Wednesday, June 20, 2007. 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**

**43** [1] Allow 1 credit for chloroplast.

**44** [1] Allow 1 credit for ribosome.

**45** 3

**46** 1

**47** 3

**48** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

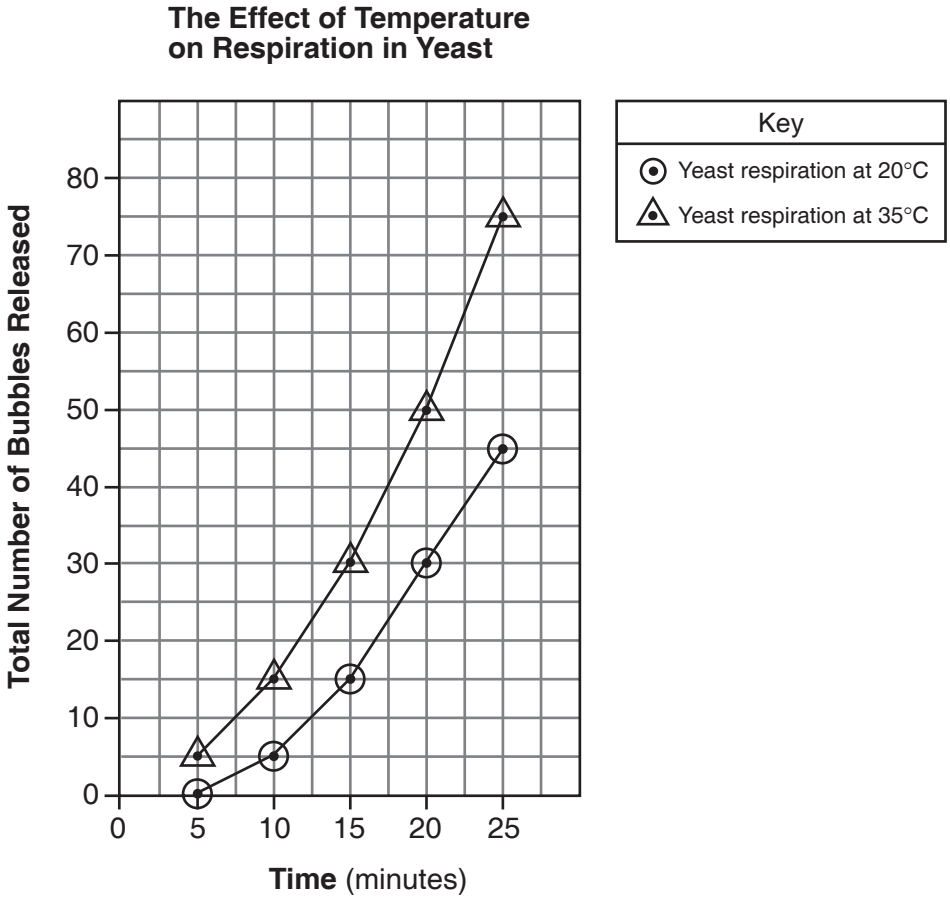
— The cricket population would decrease.

**49** [1] Allow 1 credit for marking an appropriate scale on both axes.

**50** [1] Allow 1 credit for plotting the data correctly for the total number of bubbles released at 20°C, surrounding each point with a small circle, and connecting the points.

**51** [1] Allow 1 credit for plotting the data correctly for the total number of bubbles released at 35°C, surrounding each point with a small triangle, and connecting the points.

**Example of a 3-credit response for questions 49–51:**




**Note:** Allow credit only if circles and triangles are used.
Make no assumptions 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).

**52** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— As the temperature increases, the gas production increases.
— As temperature changes from 35°C to 20°C, the gas production decreases.
— There is a direct relationship.

**53** [1] Allow 1 credit for $CO_2$ *or* carbon dioxide.

**54** [1] Allow 1 credit for pancreas.

**55** 2

**Part C**

**56** [4] Allow a maximum of 4 credits, allocated as follows:

- Allow 1 credit for stating a hypothesis. Acceptable responses include, but are not limited to:

  — Competition decreases plant height.
  — Competition increases plant height.
  — Competition has no effect on plant height.

  **Note:** Do *not* accept a hypothesis written in the form of a question.

- Allow 1 credit for identifying *one* factor, other than pot size, that should have been kept the same in each experimental group. Acceptable responses include, but are not limited to:

  — same potting soil (type or amount)
  — environmental conditions (sunlight, $H_2O$)
  — type of plant

- Allow 1 credit for identifying the dependent variable. Acceptable responses include, but are not limited to:

  — height
  — size

- Allow 1 credit for stating whether the information in the data table supports or fails to support the student's hypothesis with appropriate justification. Acceptable responses include, but are not limited to:

  — The data supports my hypothesis because the plants in the pot with the greatest number of plants were the shortest.
  — The data does not support my hypothesis because the plants in pot *C* (20 plants) were shorter than the plants in pot *A* (5 plants).
  — The data did not support my hypothesis because the number of plants in the pot did affect the heights of the plants.

**57** [3] Allow a maximum of 3 credits, allocated as follows:

- Allow 1 credit for identifying *one* example of a life process of an organism that could be affected by a pH change. Acceptable responses include, but are not limited to:

  — growth
  — digestion
  — reproduction

- Allow 1 credit for stating *one environmental* problem that is directly related to pH. Acceptable responses include, but are not limited to:

  — acid rain
  — loss of biodiversity

- Allow 1 credit for identifying *one* possible cause of this environmental problem. Acceptable responses include, but are not limited to:

  — It is caused by air pollution/burning fossil fuels.
  — deforestation

  **Note:** Allow credit for an answer that is consistent with the student's response to the second bullet.

**58** [4] Allow a maximum of 4 credits, allocated as follows:

- Allow 1 credit for stating how the zebra mussels and gobies were introduced into the United States. Acceptable responses include, but are not limited to:

  — Zebra mussels and gobies were introduced into the Great Lakes from the ballast tanks of cargo ships.

- Allow 1 credit for stating *one* way *either* the zebra mussels *or* gobies have become a problem in their new environment. Acceptable responses include, but are not limited to:

  — Zebra mussels clog water intake pipes.
  — Zebra mussels disrupt existing food chains.
  — Gobies eat the eggs and young of other fish.

- Allow a maximum of 2 credits, 1 credit each for the roles of zebra mussels and gobies in PCB contamination of sport fish. Acceptable responses include, but are not limited to:

  — Zebra mussels filter PCB's from lake water. Gobies eat small zebra mussels, then the gobies are eaten by sport fish.

**59** [3] Allow a maximum of 3 credits, allocated as follows:

- Allow a maximum of 2 credits, 1 credit for each of *two* ways this knowledge has improved medicine and health care for humans. Acceptable responses include, but are not limited to:

  — gene tests to diagnose disease
  — gene therapy
  — genetic engineering to produce hormones
  — understand causes of inherited disease
  — prevent disease

- Allow 1 credit for identifying *one* specific concern that could result from the application of this knowledge. Acceptable responses include, but are not limited to:

  — Screening for genetic diseases may limit insurance coverage.
  — Gene therapy could result in overpopulation.
  — may lead to discrimination

**60** [2] Allow a maximum of 2 credits, 1 credit for each of *two* environmental concerns. Acceptable responses include, but are not limited to:

— The chemical may not be biodegradable.
— The chemical may interfere with food webs.
— The chemical may pollute the environment.
— The product may be toxic to humans and wildlife.

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

— wear goggles
— wear shoes
— wear gloves
— wear mask
— follow directions on package

**Part D**

**62** 3

**63** 4

**64** 1

**65** 2

**66** 1

**67** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— determining evolutionary relationships
— gene testing for diagnosis
— paternity testing
— determining identity
— solving crimes

**68** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The cactus finch is least likely to compete with the other two for food because it eats mainly plant food, while the other two eat mainly or all animal food.

**69** 1

**70** 4

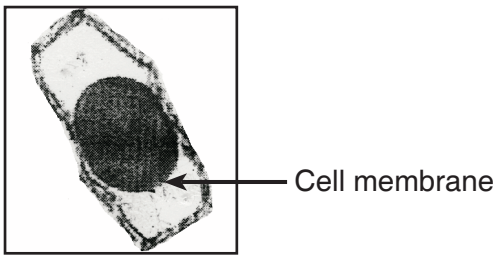
**71** 4

**72** 3

**73** [2] Allow a maximum of 2 credits, allocated as follows:

- Allow 1 credit for a diagram showing a plasmolyzed onion cell.
- Allow 1 credit for correctly labeling the cell membrane in the diagram.

**Example of a 2-credit response:**




**Note:** Shading is *not* necessary.

**The *Chart for Determining the Final Examination Score for the June 2007 Regents Examination in Living Environment* will be posted on the Department's web site http://www.emsc.nysed.gov/osa/ on Wednesday, June 20, 2007. 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.**

## On-line 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 on-line 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

# June 2007 Living Environment

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

| Part D 62–73 | |
|---|---|
| Lab 1 | 65,66,67 |
| Lab 2 | 62,63,64 |
| Lab 3 | 68,69,70 |
| Lab 5 | 71,72,73 |