

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Wednesday, June 16, 2010 — 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 <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 1	21 1	31 3	38 2
2 2	12 4	22 4	32 3	39 4
3 3	13 4	23 4	33 4	40 2
4 2	14 1	24 2	34 1	41 4
5 2	15 1	25 1	35 1	42 2
6 1	16 3	26 3	36 4	43 1
7 2	17 4	27 2	37 4	
8 1	18 3	28 3		
9 2	19 3	29 4		
10 2	20 1	30 1		

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. On the front of the student's detachable answer sheet, raters must enter their initials on the lines next to "Rater 1" or "Rater 2."

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 Wednesday, June 16, 2010. 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.

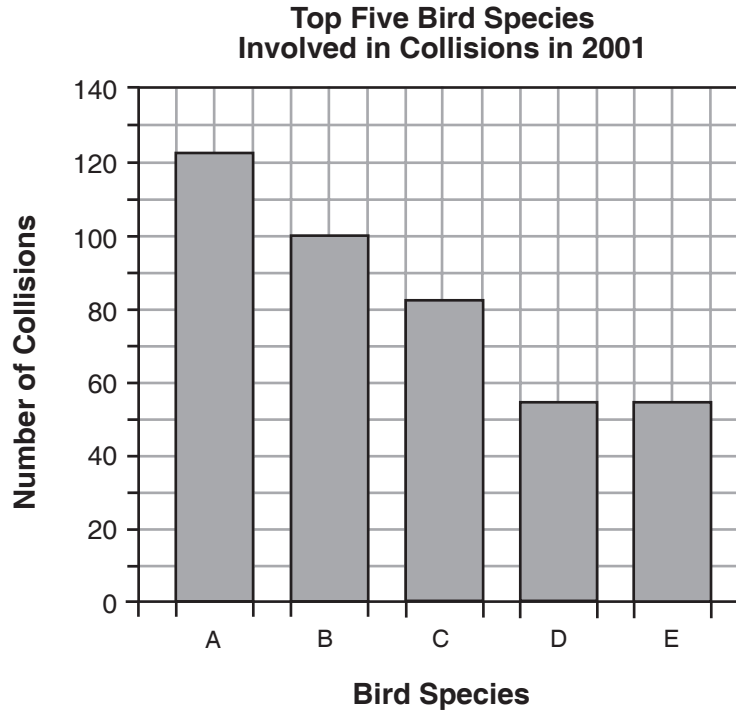
Part B-2

- 44** [1] Allow 1 credit for identifying CO₂ *or* carbon dioxide *and* stating *one* human activity that is a source of this gas. Acceptable responses include, but are not limited to:
- driving cars
 - respiration
 - burning fossil fuels
 - deforestation
- 45** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Organisms may contain parasites or diseases, which could spread to organisms in our country.
 - The imported organisms may compete better than domestic species.
 - Some introduced species may compete with native species for food and habitat.
 - no natural predators

46 [1] Allow 1 credit for marking an appropriate scale on the axis labeled “Number of Collisions.”

47 [1] Allow 1 credit for constructing vertical bars to represent the data.

Example of a 2-credit graph for questions 46 and 47:



Note: Allow credit if the correct data are clearly represented, even if the bars are *not* shaded. Make no assumptions about the origin unless it is labeled.

48 [1] Allow 1 credit for “No” and supporting the answer. Acceptable responses include, but are not limited to:

— The passage states that only about 50% occur in the airfield environment.

49 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Migration occurs during these months.

— Birds feed in this area at this time.

LIVING ENVIRONMENT – *continued*

- 50 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Transpiration helps plants cool off on hot days.
 - While transpiration is occurring, the stomates are open, allowing the exchange of important gases.
- 51 [1] Allow 1 credit for *two* acceptable responses. Acceptable responses include, but are not limited to:
- oxygen
 - water vapor
 - carbon dioxide
- 52 [1] Allow 1 credit for guard cells.
- 53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- If the shape of an enzyme changes, it may not function or it may function differently.
 - Key activities may slow down or stop.
 - The shape of an enzyme determines its function.
- 54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- disease
 - harsh winter
 - food supply decreased
 - predators
- Note:** Do *not* accept “death” or “they died” without a corresponding cause.
- 55 [1] Allow 1 credit for female *or* egg *or* zw and supporting the answer. Acceptable responses include, but are not limited to:
- Female gametes have one of two different types of sex chromosomes.
 - The egg may contain one of two different types of sex chromosomes.

Part C

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

- Allow 1 credit for stating the hypothesis the experiment will test. Acceptable responses include, but are not limited to:
 - Rats that are given the drug will show an increase in BDNF in their brains.
 - The drug affects memory formation in rats.

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

- Allow 1 credit for describing how the control group will be treated differently from the experimental group. Acceptable responses include, but are not limited to:
 - The control group will not get the drug; the experimental group will.
 - The control group will get a placebo.
- Allow 1 credit for identifying *two* factors that must be kept the same in both the experimental and control groups. Acceptable responses include, but are not limited to:
 - Both groups should have the same number of rats.
 - rats of the same age
 - kept in same conditions
 - given the same food
- Allow 1 credit for identifying the dependent variable in the experiment.
 - amount of BDNF found in their nerve tissue
 - ability to form/store memories

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

- The above average leg-strength trait would increase in frequency because the rabbits with the stronger legs would be more likely to get away from predators.

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

- The rabbits that do not have the stronger leg-strength trait will start to decrease in number.
- They might be eaten by predators.

Note: Allow credit for an answer that is consistent with the student’s response to question 57.

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

- The frequency of the trait for above average leg strength might actually decrease because the poor eyesight might be more of a disadvantage than the leg strength is an advantage.
- Now it seems that the frequency will more likely decrease because they will not see well enough to get away.
- The frequency of the trait for above average leg strength will remain the same because the advantage will be canceled out by a disadvantage.

60 [2] Allow a maximum of 2 credits, allocated as follows:

- Allow 1 credit for identifying the genetic event that resulted in the original antibiotic resistance in some strains of bacteria. Acceptable responses include, but are not limited to:
 - mutation
 - a change in the DNA code
- Allow 1 credit for explaining how the overuse of antibiotics can increase bacterial resistance. Acceptable responses include, but are not limited to:
 - Antibiotics kill only nonresistant strains. Resistant bacteria survive and reproduce.
 - Overuse of antibiotics selects for resistant strains of bacteria.

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

- better medical treatments
- better sanitation

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

- Human requirements for space, food, and resources often harm other species.
- As humans build more homes/roads/malls, animal habitats are destroyed.
- Increased population increases competition with other species for limited resources.

63 [5] Allow a maximum of 5 credits, allocated as follows:

- Allow 1 credit for identifying organelle *X* as a mitochondrion.
- Allow 1 credit for stating the process this organelle performs. Acceptable responses include, but are not limited to:
 - respiration
 - aerobic respiration
 - releases energy

Note: Allow credit for an answer that is consistent with the student’s response to the first bullet.

- Allow 1 credit for identifying the *two* raw materials needed for this process to occur. Acceptable responses include, but are not limited to:
 - sugar/glucose
 - oxygen (O₂)

Note: Allow credit for an answer that is consistent with the student’s response to the first bullet.

- Allow a maximum of 2 credits, 1 credit for identifying *one* molecule produced by this organelle and 1 credit for explaining why it is important to the organism. Acceptable responses include, but are not limited to:
 - ATP – This molecule makes energy available for life functions.
 - Water – This molecule is important for chemical reactions.
 - CO₂ – This is a waste product that needs to be removed to maintain homeostasis.

Note: Allow credit for an answer that is consistent with the student’s response to the first bullet.

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

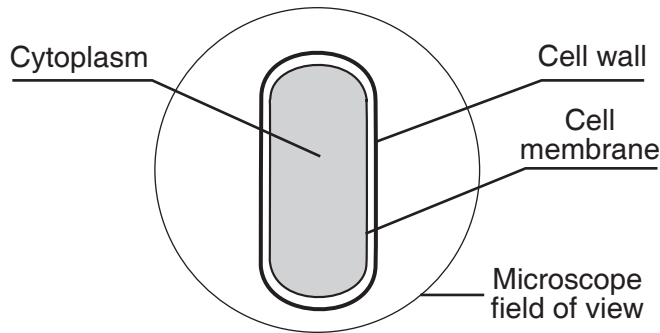
- As the amount of vegetation decreases, the number of wolves will also decrease. The wolves will eventually starve because the animals they eat (herbivores) have less food.
- The wolves will decrease because they have less food.

Part D

- 65** [1] Allow 1 credit for species *A* and *B* and for supporting the answer. Acceptable responses include, but are not limited to:
- They are most closely related because there is only one difference in the sequence.
 - They have the most in common.
- 66** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- As she continued to use her hand, her muscles became fatigued.
 - Wastes built up.
 - ATP was used up.
- 67** [1] Allow 1 credit for diffusion *or* passive transport.
- 68** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- According to diagram 3, *C* should look different from *A* and *B*.
 - The stem cross sections show that *A*, *B*, and *C* have similar stem structure, indicating that they are most likely closely related. Diagram 3 shows that only *A* and *B* are closely related.
- 69** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- *A* and *B* have the most bands in common.
- 70** 2
- 71** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- DNA analysis is more reliable since the more similar the DNA, the closer the relationship.
 - Organisms can have similar features, but the DNA coding for these features can be very different.
 - DNA analysis might reveal the actual genetic makeup.

- 72 [1] Allow 1 credit for labeling the locations of the cell wall *and* the cell membrane *and* cytoplasm on the diagram.

Example of a 1-credit response:

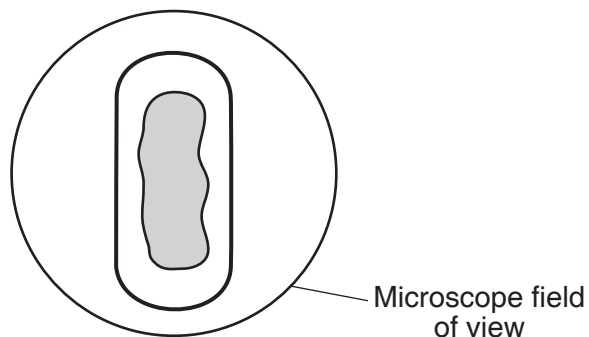


Note: All three must be correctly labeled to receive this credit.

- 73 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Place saltwater solution on one side of the coverslip. Then draw the saltwater solution under the coverslip by placing a piece of paper towel on the opposite side.
 - Place a drop of saltwater solution on one side of a coverslip and a paper towel on the other side.

- 74 [1] Allow 1 credit for showing that the membrane has pulled away from the cell wall.

Example of a 1-credit response:



Note: Allow credit if the cell is correctly drawn but *not* shaded.

75 1

76 2

77 2

The *Chart for Determining the Final Examination Score for the June 2010 Regents Examination in Living Environment* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Wednesday, June 16, 2010. 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

June 2010 Living Environment

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

Part D 65–77	
Lab 1	65,68,69,70,71,75
Lab 2	66
Lab 3	76,77
Lab 5	67,72,73,74