

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

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

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, August 18, 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 2

45 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The prey must contain the receptor for that particular neurotoxin to produce its effect.
- The neurotoxin usually binds to a specific receptor.
- The neurotoxins are prey specific.

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

- The amino acid sequence can be different.
- The number of amino acids can be different.

47 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Since the snail moves very slowly, its prey does not have a chance to swim away.
- so prey don't get away

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

- DNA differences
- mutations
- gene recombination
- environmental conditions

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

- wind
- running water
- the Sun/solar energy
- geothermal

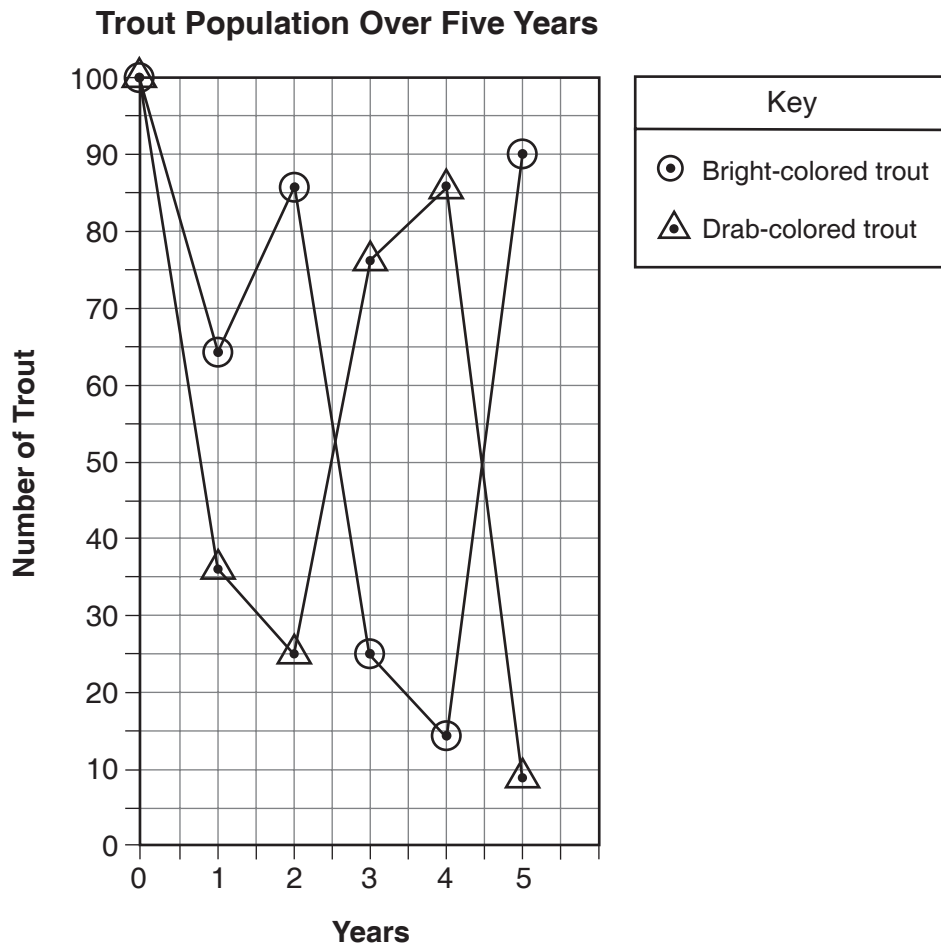
50 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- may pollute less
- no greenhouse gases

Note: Allow credit for an answer that is consistent with the student's response to question 49.

- 51 [1] Allow 1 credit for 15 mm \pm 2 mm.
- 52 [1] Allow 1 credit for marking an appropriate scale on each labeled axis.
- 53 [1] Allow 1 credit for correctly plotting the data for the bright-colored trout, surrounding each point with a small circle, and connecting the points.
- 54 [1] Allow 1 credit for correctly plotting the data for the drab-colored trout, surrounding each point with a small triangle, and connecting the points.

Example of a 3-credit graph for questions 52–54:



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), or for extending lines beyond the data points.
 Do *not* deduct more than 1 credit for plotting points that are not in the data table or for extending lines beyond the data points.

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

- Drab-colored trout survive better in cloudy water because they blend in with water.
- Brightly colored trout survive better in clear water because they blend in with the brightly colored stones.

Part C

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

- Allow 1 credit for identifying the cell structure selected.
- Allow 1 credit for stating *one* function of the cell structure.
- Allow 1 credit for identifying *one* substance that is often associated with the cell structure selected and for stating how that substance is associated with the cell structure.
- Allow 1 credit for identifying *one* other cell structure and explaining how it interacts with the cell structure selected to maintain homeostasis in the cell.

Note: Allow credit for each bulleted response that correctly describes the structure identified by the student in bullet one (i.e., allow 3 credits if the student incorrectly identifies structure 1 as a mitochondrion but correctly describes a mitochondrion in bullets 2 through 4).

Examples of 4-credit responses:

Structure 1

- ribosome
- site of protein synthesis
- amino acid — used to make proteins
- nucleus — the ribosome gets instructions from the nucleus determining which proteins are produced by the cell

Structure 2

- nucleus
- control of cell processes
- DNA — makes up the chromosomes in the nucleus
- ribosome — nucleus sends instructions to ribosomes for protein synthesis

Structure 3

- mitochondrion
- site of energy release/cell respiration
- ATP — produced in the mitochondrion
- cell membrane — allows glucose to enter cell and be used by the mitochondrion for energy release

57 [4] Allow a maximum of 4 credits, allocated as follows:

- Allow 1 credit for stating how the activity of pepsin will most likely change after it moves with the food from the stomach to the small intestine. Acceptable responses include, but are not limited to:
 - Pepsin will either stop functioning or slow down.
- Allow 1 credit for supporting the answer using data from the table. Acceptable responses include, but are not limited to:
 - This is because the pH range in the small intestine is 7.5 to 9.0 and pepsin normally functions at 1.0 to 3.0.
- Allow 1 credit for stating how a fever of 40°C would most likely affect the activity of these enzymes and for supporting the answer. Acceptable responses include, but are not limited to:
 - A fever of 40°C could slow/stop enzyme functioning, since these enzymes work best at around 37°C.
- Allow 1 credit for identifying the characteristic of enzymes that prevents ptyalin and trypsin from digesting the same type of food. Acceptable responses include, but are not limited to:
 - Ptyalin and trypsin cannot both digest the same type of food because enzymes are specific.
 - They have different shapes.

58 [3] Allow a maximum of 3 credits, allocated as follows:

- Allow 1 credit for identifying the hormone responsible for restoring homeostasis as insulin.
- Allow 1 credit for identifying the organ that releases this hormone as the pancreas.
- Allow 1 credit for stating *one* possible reason why sugar levels may remain high even though this hormone has been released. Acceptable responses include, but are not limited to:
 - Not enough insulin is released.
 - The person has diabetes.
 - There are not many insulin receptors.

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

- Allow 1 credit for identifying *one* specific cause of the environmental problem. Acceptable responses include, but are not limited to:
 - increased ultraviolet radiation: thinning of the protective ozone shield
 - global warming: deforestation *or* increase in carbon dioxide in the atmosphere

Note: Do *not* accept just pollution.

- Allow 1 credit for identifying *one* organism that has been affected by the problem and stating *one* way that organism has been affected. Acceptable responses include, but are not limited to:
 - increased ultraviolet radiation: Humans have developed skin cancers.
 - global warming: Polar bear habitat is being reduced in size.
- Allow 1 credit for stating *one* action that can be taken to lessen the impact of this problem on the environment. Acceptable responses include, but are not limited to:
 - increased ultraviolet radiation: continue to ban the use of CFCs/don't use CFCs
 - global warming: reforest/plant trees *or* use alternative energy sources

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

- They obtain energy from living or dead organisms that descend from the upper levels.
- Wastes from above drop down.
- feeding on organisms that live there

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

- attract food organisms
- attract a mate
- find food

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

- not enough pressure
- too warm
- not adapted to that environment
- no food they normally eat

Part D

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

- electrophoresis
- gel electrophoresis
- DNA fingerprinting

64 2

65 [1] Allow 1 credit for *B* and *D* and for supporting the answer. Acceptable responses include, but are not limited to:

- most similar because they have the most bands in common

66 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- to determine paternity/maternity
- to help solve a crime
- to identify an accident victim
- to diagnose disorders

67 1

68 3

69 3

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

- increase the number of students in each group
- repeat the experiment several times

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

- There would be no effect because they eat different food.
- The ground finch populations may increase if the warbler finch eats animals that consume the same plants eaten by the ground finches.
- The ground finch populations may decrease if the warbler finch competes for nesting sites.

72 2

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

- blue black

74 2

75 3

The *Chart for Determining the Final Examination Score for the August 2010 Regents Examination in Living Environment* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Wednesday, August 18, 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

August 2010 Living Environment

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

Part D 63–75	
Lab 1	63, 64, 65, 66, 67
Lab 2	68, 69, 70
Lab 3	71, 72
Lab 5	73, 74, 75