

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Thursday, August 18, 2011 — 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/apda/> 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 2	17 3	25 2
2 2	10 1	18 3	26 4
3 1	11 4	19 1	27 1
4 3	12 2	20 1	28 1
5 3	13 3	21 1	29 2
6 2	14 1	22 4	30 1
7 2	15 2	23 3	
8 4	16 4	24 4	
Part B-1			
31 4	35 2	39 2	43 4
32 3	36 4	40 4	
33 1	37 1	41 4	
34 2	38 4	42 3	
Part B-2			
47 3	49 3	50 1	
Part D			
73 2	75 4	81 2	
74 3	76 3	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.

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.

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/apda/> on Thursday, August 18, 2011. 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 no longer 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 scores have been added correctly and that the resulting scale score has been determined accurately.

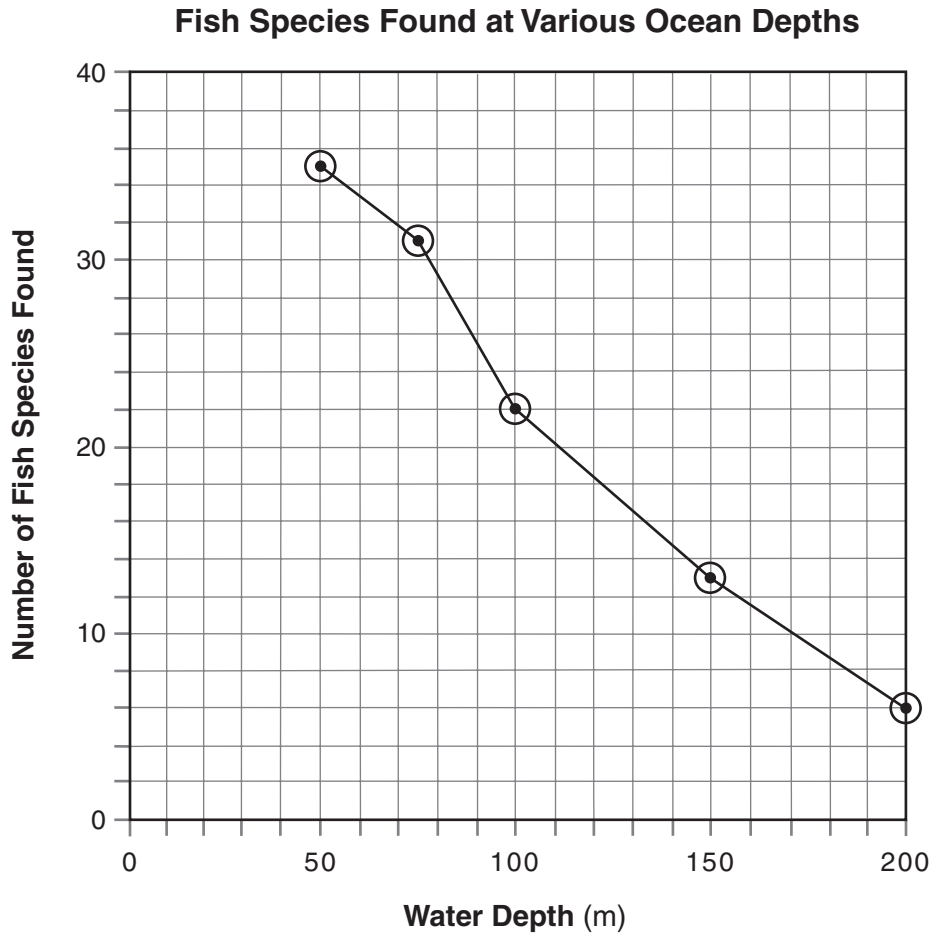
Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that for each administration, the conversion chart provided for that administration be used to determine the student's final score.

Part B–2

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

45 [1] Allow 1 credit for correctly plotting the data and connecting the points.

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



Note: Allow credit if the points are correctly plotted, 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 for plotting points 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 deeper the water, the fewer fish species are found.
- Fewer fish species are found as the water gets deeper.
- More fish species live near the surface than in deeper water.

47 **MC on scoring key**

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

- The species could not adapt to rapid changes in the environment.
- Habitats were destroyed at a rapid rate.
- new pollutants added to the environment by humans
- rapid human population growth
- climate change

49 **MC on scoring key**

50 **MC on scoring key**

51 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- consumer
- They eat microscopic autotrophs.
- prey for fish
- food for trout
- herbivores

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

- Both arrows don't go in the same direction.
- Mayfly eggs do not eat bats.
- Mayfly eggs do not feed on microscopic plants.
- According to the passage, mayfly eggs and bats are not in the same food chain.

- 53** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- They engulf pathogens.
 - They produce antibodies.
 - They mark invaders for destruction.
 - They remember antigens from past exposure, which speeds up antibody production with a second exposure.
- 54** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- legs – adapted to wade through shallow water
 - heavy bones – to counteract buoyancy
 - teeth – adapted to eating freshwater plants
- 55** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- It has skeletal similarities to whales.
 - The structures/shapes of the bones are similar.

Part C

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

- His entire louse collection perished in the dry, desert air.

Note: The student's response to the bulleted items in question 57–59 need *not* appear in the following order.

57 [1] Allow 1 credit for stating the hypothesis to be tested. Acceptable responses include, but are not limited to:

- Lice exposed to high temperatures will have a lower survival rate than those exposed to 98.6°F (body temperature).
- Lice not blasted with high temperatures will have a higher survival rate.

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

58 [1] Allow 1 credit for stating *one* way the control group will be treated differently from the experimental group. Acceptable responses include, but are not limited to:

- The control group will not be exposed to heat and the experimental group will be exposed to 140-degree air.

Note: Allow credit for an answer that is consistent with the student's hypothesis for question 57.

59 [1] Allow 1 credit for stating *one* result of the experiment that would support the hypothesis.

- The lice blasted with the 140-degree air had a lower survival rate than the lice not blasted with hot air.
- The lice not blasted with high-temperature air lived longer.

Note: Allow credit for a response that is consistent with the student's hypothesis.

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

- Genetically engineered insulin is actually human insulin and is less likely to be rejected by the person.
- Insulin from a horse or cow may cause an allergic reaction in a human.
- Genetically engineered insulin costs less.
- Human insulin may have fewer side effects.

Note: The student's response to the bulleted items in question 61–63 need *not* appear in the following order.

61 [1] Allow 1 credit for identifying the term used to describe a change in DNA as mutation.

62 [1] Allow 1 credit for stating why these changes that take place in a sperm cell can affect an embryo. Acceptable responses include, but are not limited to:

- Reproductive cells can pass on traits.
- Mutations that occur in sex cells can be passed on to offspring.
- The sperm cell contributes half of the genetic information for the embryo.
- The sperm and egg combine to form an embryo.

63 [1] Allow 1 credit for identifying *one* factor, other than smoking and drinking alcohol, that may *negatively* affect a developing embryo. Acceptable responses include, but are not limited to:

- mother's poor diet
- toxic chemicals in air, food, and water
- drugs
- radiation
- other genetic disorders

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

- Building homes might destroy their habitat.
- Hunting the condor reduces its numbers.
- Hunting other animals might reduce their food source.
- Removing dead animals (roadkill) would reduce available food for the condors.

Note: Allow 1 credit only if the answer is a human activity, *not* the consequence of an activity, such as pollution.

65 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- There are fewer predators than there are prey, so the wolf is the predator.
- In a food chain/food pyramid, there are more prey animals than there are predators.

- 66** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- There were more wolves, so the moose were being killed off.
 - There may have been less food available for the moose, since the moose population had been growing for 20 years.
 - Disease may have affected the moose population.
 - There may have been really bad winters.

- 67** [1] Allow 1 credit for *two* acceptable responses. Acceptable responses include, but are not limited to:
- number of moose
 - living space on the island
 - diseases
 - competition with other predators
 - weather conditions
 - hunting

Note: The student's response to the bulleted items in question 68–70 need *not* appear in the following order.

- 68** [1] Allow 1 credit for identifying what substance is in a flu vaccine that stimulates immunity. 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.”

- 69** [1] Allow 1 credit for stating how the human immune system reacts to the vaccine. Acceptable responses include, but are not limited to:
- Antibodies are produced against the virus.
 - increase in number of white blood cells
 - produces a primary immune response
 - It builds up immunity.

- 70** [1] Allow 1 credit for identifying *one* reason the flu vaccine does *not* protect a person from other viral diseases, such as measles. Acceptable responses include, but are not limited to:
- The antibodies are specific for the flu virus.
 - The white blood cells that remain in the body are specific for the flu virus.
 - The white blood cells are specialized to attack only the flu virus.
 - The two viruses have different characteristics.
 - Each vaccine results in immunity to only one disease.

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

- *B* would have the least damaging effect on the ecosystem because if native predators are used, they are already part of the food web.
- *B* is best because method *A* destroys the entire ecosystem.

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

- Toxic chemicals may kill organisms that are beneficial.
- Toxins may accumulate in organisms at higher levels in food chains and cause serious problems.
- Toxins may end up in plants used for food.

Note: Do *not* accept just pollution without an explanation.

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. Acceptable responses include, but are not limited to:

- Molecule *A* is smaller than molecule *B*.
- Molecule *B* is too big.
- The membrane is selectively permeable to *A*.

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

- The salt solution causes water to move out of the swollen cells (tissue), reducing the swelling and relieving the pain.
- The loss of water by the cells decreases the swelling and relieves some of the pain.
- Gargling with salt water will reduce swelling.
- When a person gargles with salt water, water moves by diffusion from the throat tissues into the salt water, reducing swelling.

79 [1] Allow 1 credit for stating the correct number of cuts for both plant species *A* and plant species *B*.

Plant species *A* cuts: 1

Plant species *B* cuts: 0

80 [1] Allow 1 credit for cell membrane.

81 MC on scoring key

82 MC on scoring key

- 83** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- They have a close evolutionary relationship.
 - They have a common ancestor.
 - These two organisms are more closely related to each other than to the other two.
- 84** [1] Allow 1 credit for electrophoresis *or* gel electrophoresis.
- 85** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- DNA
 - another protein

The *Chart for Determining the Final Examination Score for the August 2011 Regents Examination in Living Environment* will be posted on the Department's web site at: <http://www.p12.nysed.gov/apda/> on Thursday, August 18, 2011. 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 2011 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		31	44, 45, 46	
Key Idea 2				57, 58
Key Idea 3		32, 41	47	59
Appendix A (Laboratory Checklist)				
Standard 4				
Key Idea 1	1, 2, 3, 4, 5, 8	33, 42, 43	51	56
Key Idea 2	6, 7, 10, 14	34, 35		60, 61
Key Idea 3	11, 13, 23	39, 40	54, 55	
Key Idea 4	15, 16, 17	37		62, 63
Key Idea 5	9, 18, 19, 20, 21, 22	38	50, 53	68, 69, 70
Key Idea 6	12, 24, 26, 27		52	64, 65, 66, 67
Key Idea 7	25, 28, 29, 30	36	48, 49	71, 72

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