

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Tuesday, January 25, 2011 — 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 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.p12.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	
13	111	214	312	392
23	123	223	324	401
33	133	232	332	414
42	144	241	343	424
53	152	251	353	431
61	163	264	362	441
73	173	273	374	452
84	182	284	383	
93	191	292		
101	202	301		

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.p12.nysed.gov/osa/> on Tuesday, January 25, 2011. 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.

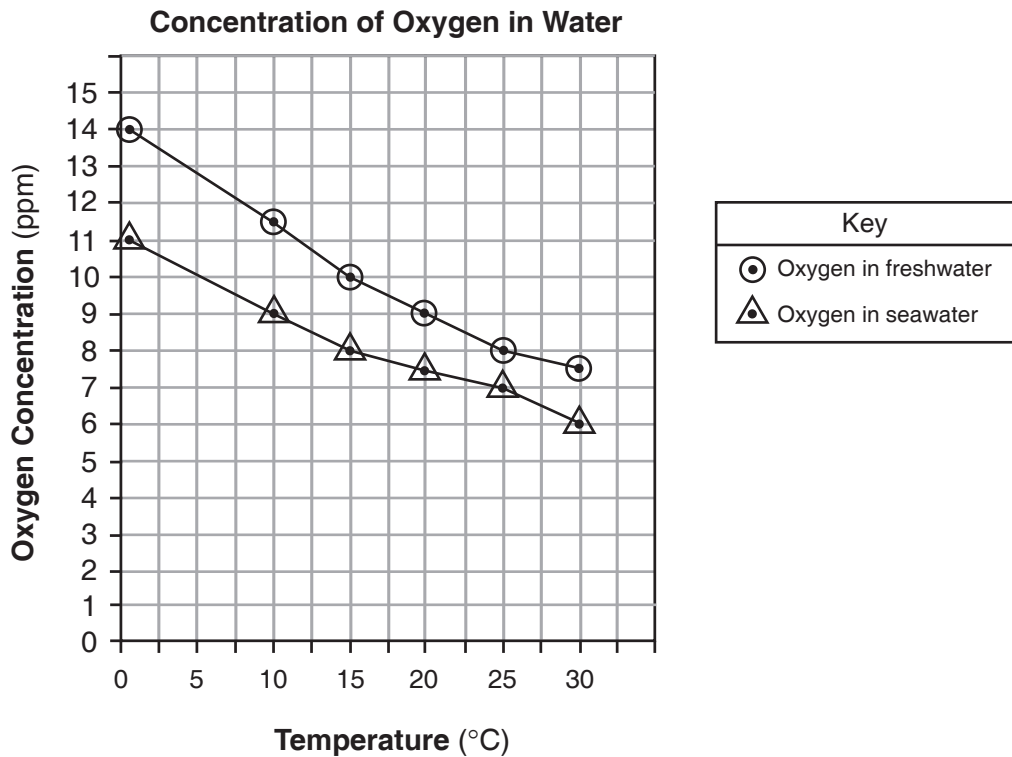
All student answer papers that receive a scaled score of 60 through 64 **must** be scored a second time. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions 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

- 46 [1] Allow 1 credit for marking an appropriate scale on each axis.
- 47 [1] Allow 1 credit for correctly plotting freshwater data, surrounding each point with a small circle, and connecting the points.
- 48 [1] Allow 1 credit for correctly plotting seawater data, surrounding each point with a small triangle, and connecting the points.

Example of a 3-credit response to questions 46–48:



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.

- 49 [1] Allow 1 credit for response between 6 ppm and 7.5 ppm.
- 50 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- As temperature increases, oxygen concentration decreases.
 - As temperature decreases, oxygen concentration increases.

51 4

52 2

53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The scents are very specific for the insect they attract.
- Pesticides disrupt food webs.
- Pesticides affect organisms other than mosquitoes.
- Over time, more insects that are resistant to the pesticide would appear in the population.

54 3

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

- The reaction will slow down because it is below the optimal temperature.

Part C

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

- Potassium helps plants grow.
- Potassium is not needed by plants for proper growth.
- Plants missing potassium will not grow tall.
- Plants lacking potassium will not be green.

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

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

- plant height
- number/size of leaves/roots
- amount/percent of leaf discoloration
- daily growth

Note: The type of data must be measurable. Allow credit for an answer consistent with the student's hypothesis.

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

- Allow 1 credit for identifying the major problem that may occur when tissues and organs donated by another individual are used. Acceptable responses include, but are not limited to:
 - rejection of tissues or organs
- Allow 1 credit for explaining why this problem may occur. Acceptable responses include, but are not limited to:
 - foreign proteins from donated/tissues/organs trigger immune response
 - immune system attacks foreign tissues/organs
- Allow 1 credit for explaining why this problem will *not* occur if tissues and organs produced by stem cells from the patient are used. Acceptable responses include, but are not limited to:
 - Proteins in tissues/organs will be the same as those of the patient, so the immune system will not attack.

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

- Allow 1 credit for explaining how the exposure to penicillin affects the survival of some bacteria in the population. Acceptable responses include, but are not limited to:
 - Bacteria may vary in their susceptibility to penicillin, and resistant ones survive.
 - In the bacteria that survive, there are naturally occurring variations that provide resistance to penicillin.
 - When exposed to penicillin, more of the resistant ones survive.
 - Nonresistant bacteria die off.
- Allow 1 credit for explaining why the frequency of penicillin-resistant bacteria can change over time within the population. Acceptable responses include, but are not limited to:
 - When exposed to penicillin, the frequency of resistant bacteria will increase as those that are resistant survive and reproduce.
 - The resistant bacteria will survive and they will produce offspring that are resistant.
- Allow 1 credit for explaining how it is still possible to cure patients who are infected with penicillin-resistant bacteria. Acceptable responses include, but are not limited to:
 - Patients can be treated with antibiotics other than penicillin.

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

- carbon dioxide (CO₂)
- methane
- nitrous oxide
- CFCs

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

Carbon dioxide:

- burning fossil fuels
- deforestation
- driving cars

Methane:

- establishing landfills
- raising cattle

Nitrous oxide:

- treating raw sewage
- producing synthetic fertilizers

CFCs:

- air conditioner leaks
- use of certain aerosols

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

- higher sea levels
- habitat loss
- climate change

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

- They would use less electricity, resulting in less fossil fuels being burned.
- Reduced energy use would decrease the amount of fossil fuels burned.

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

- Lack of water could result in dehydration, which interferes with cell functions.
- temperature, because different species are adapted to live in different climates

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

- lack of natural predators
- Food/prey may be extremely abundant in the new environment.
- breed and multiply in the new environment

- 66 [1] Allow 1 credit for identifying fish *A*, *B*, and *C* and writing the name of each fish in the column labeled “Scientific Name” in the table.

Note: Allow this credit even if the genus (*C.*) is *not* included.

- 67 [2] Allow a maximum of 2 credits, allocated as follows:

- Allow 1 credit for selecting *two* characteristics from the dichotomous key that are useful for determining the identity of fish *A*, *B*, and *C* and labeling the headings for the last two columns in the table.
- Allow 1 credit for correctly completing the last two columns in the table.

Example of a 3-credit response for questions 66 and 67:

Fish	Scientific Name	Subgroup	Pelvic Fin Color	Spot Near Dorsal Fin Filament
A	<i>C. ephippium</i>	Rabdophorus	light	large
B	<i>C. kleinii</i>	Lepidochaetodon	dark	none
C	<i>C. auriga</i>	Rabdophorus	light	small

Part D

- 68** [2] Allow a maximum of 2 credits, 1 credit for correctly filling in the missing mRNA bases and 1 credit for correctly filling in the amino acid sequence that corresponds to the DNA base sequence.

Example of a 2-credit response:

DNA	CAC	GTG	GAC	TGA
mRNA	GUG	CAC	CUG	ACU
Amino acids	VAL	HIS	LEU	THR

Note: Allow credit for an amino acid sequence that is consistent with the student's response for the mRNA sequence.

69 2

70 4

71 2

- 72** [1] Allow 1 credit for species *B* and supporting the answer. Acceptable responses include, but are not limited to:

— because it has more characteristics in common with the rare species

73 2

74 [2] Allow a maximum of 2 credits, 1 credit for completing *both* columns for each of the finches.

Example of a 2-credit response:

Competes With the Large Tree Finch	Type of Finch	State <i>one</i> reason why it competes <i>or</i> does <i>not</i> compete with the large tree finch.
no	large/small ground finch <i>or</i> warbler finch	The large tree finch eats mainly animal food, while the large/small ground finch eats mainly plant food. <i>or</i> The warbler finch may eat different animals.
yes	warbler finch	They both eat animal food.

75 3

76 2

77 3

78 4