

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Friday, January 25, 2008 — 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			Part B-1	
1 2	11 3	21 3	31 4	37 2
2 2	12 2	22 4	32 3	38 4
3 4	13 1	23 1	33 1	39 4
4 1	14 1	24 3	34 1	40 2
5 4	15 4	25 2	35 4	41 3
6 3	16 3	26 2	36 4	42 2
7 4	17 2	27 1		
8 4	18 1	28 4		
9 1	19 4	29 3		
10 1	20 2	30 3		

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 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 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 Friday, January 25, 2008. 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. Acceptable responses include, but are not limited to:

- Increased insulin results in a decrease in blood sugar levels.
- As the CO₂ level in the blood increases, the breathing rate increases.
- When the guard cells close openings in leaves, rate of water loss decreases.

44 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Materials can diffuse out of the mother’s capillaries into the baby’s capillaries.
- Harmful substances can diffuse/pass through the walls of capillaries.
- Molecules pass through the placenta.

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

- Pesticide use may pollute.
- Fertilizer use may pollute.
- Animal wastes used as fertilizer may end up in water supplies.

46 3

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

- reduces loss of sodium
- cools the body
- decreases amount of perspiration
- slows down water loss
- reduces the chances of hyponatremia

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

- Less urine would be produced because a large amount of water is being lost as sweat.
- Less urine will be produced because the feedback mechanisms in the kidneys regulate water levels in the blood.
- The runner would sweat more, decreasing H₂O levels in the blood. This decrease would slow urine production because there is less water in the blood to be filtered.
- Urine would be more concentrated because it would contain less water.

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

- It could raise their blood pressure.
- It could cause them to retain water.
- It could decrease urine production.

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

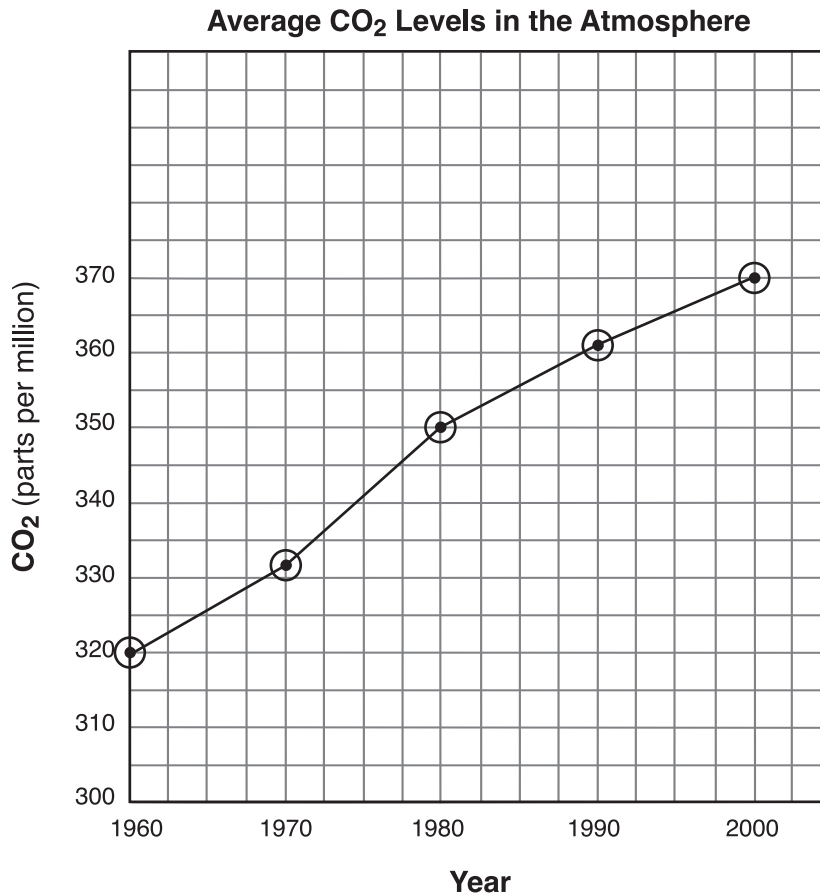
- Cell 1, because it contains chloroplasts.
- Cell 1, because it has a cell wall.

51 [1] Allow 1 credit for marking an appropriate scale on each axis.

52 [1] Allow 1 credit for plotting the data correctly (based on the student's scaled axes), surrounding each point with a small circle, and connecting the points.

Note: Allow credit even if the points are not circled.

Example of a 2-credit graph for questions 51 and 52:



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

- increased burning of fossil fuels
- more motor vehicle use
- increased levels of deforestation
- increase in human population

LIVING ENVIRONMENT – *continued*

54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- an increase in the number of severe storms
- an increase in sea levels
- flooding of coastal areas
- changes in precipitation patterns
- global warming
- temperature increases

55 [1] Allow 1 credit for 50.

Part C

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

- Allow 1 credit for identifying the substance in a vaccine that makes the vaccine effective. Acceptable responses include, but are not limited to:
 - a dead virus
 - a weakened virus
 - weakened pathogen
- Allow 1 credit for explaining the relationship between a vaccine and white blood cell activity. Acceptable responses include, but are not limited to:
 - Antibodies are produced by a certain type of white blood cell in response to the vaccine.
- Allow 1 credit for explaining why the response of the immune system to a vaccine is specific. Acceptable responses include, but are not limited to:
 - Antibodies have specific shapes and each antibody shape is complementary to only one shape of virus or antigen.
- Allow 1 credit for stating *one* reason why it would be difficult to develop a vaccine to be used against the common cold. Acceptable responses include, but are not limited to:
 - Since the common cold is caused by many different viruses, a vaccine would have to contain all the different types of cold viruses.

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

- large increase in their food supply

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

- As the number of decomposers increases, they use more oxygen for respiration.

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

- Once the discharge is stopped and the sewage in the river is broken down by decomposers, the oxygen levels should return to normal.
- The sewage will be diluted and pushed along by the flowing water.

60 [4] Allow a maximum of 4 credits, allocated as follows:

- Allow 1 credit for stating a valid hypothesis. Acceptable responses include, but are not limited to:
 - Pill bugs prefer the dark.
 - If pill bugs are given a choice of light or darkness, they will prefer the light area.
 - If a light and a dark area are provided in a closed container, the pill bugs will not exhibit a preference for either the light or dark area.
- Allow 1 credit for identifying the independent variable. Acceptable responses include, but are not limited to:
 - presence *or* absence of light
 - amount of light
- Allow 1 credit for identifying *two* conditions that should be kept the same in all experimental setups. Acceptable responses include, but are not limited to:
 - temperature
 - humidity
 - species of pill bug
 - type of container
 - number of pill bugs in each group
- Allow 1 credit for stating *one* example of experimental data that would support the student's hypothesis (from the first bullet). Acceptable responses include, but are not limited to:
 - More pill bugs are found in the dark area after five minutes than in the light area.
 - More pill bugs are found in the light area at the completion of the experiment.
 - The same number of pill bugs are found in both the light and dark areas.

LIVING ENVIRONMENT – *continued*

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

- oxygen
- light
- temperature
- sediment
- carbon dioxide

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

- respiration
- decomposition

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

- increased sediments
- pollution
- overfishing
- cutting down trees

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

- A decrease in the amount of light will affect photosynthesis and will reduce the amount of oxygen.
- Less light means less photosynthesis and less oxygen for fish respiration.

LIVING ENVIRONMENT – *continued*

65 [2] Allow a maximum of 2 credits, allocated as follows:

- Allow 1 credit for stating *one* way in which offshore oil drilling might have a long-term *negative* effect on the environment. Acceptable responses include, but are not limited to:
 - damage habitats of ocean organisms
 - cause water pollution from spills

- Allow 1 credit for stating *one* way in which offshore oil drilling could benefit society. Acceptable responses include, but are not limited to:
 - use domestic rather than foreign source of oil
 - create jobs
 - keep prices low
 - increase the oil supply

Part D

66 3

67 3

68 4

69 2

70 1

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

- heart: increased blood flow supplies more oxygen and/or nutrients
- skeletal muscle: greatly increased supply of blood, providing additional oxygen and/or nutrients
- skeletal muscle: removes more waste during exercise
- digestive organs: a reduction in blood flow, diverting blood to other parts of the body where use of oxygen has increased

72 [3] Allow a maximum of 3 credits, 1 credit for each acceptable response. Acceptable responses include, but are not limited to:

Name of Substance C	Direction of Movement of Substance C	Reason for the Movement of Substance C
<ul style="list-style-type: none"> — starch indicator — iodine 	<ul style="list-style-type: none"> — into model cell — from high to low concentration 	<ul style="list-style-type: none"> — small size of molecules — differences in concentration — diffusion

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

- Allow 1 credit for identifying substance *B*. Acceptable responses include, but are not limited to:
 - starch
 - polysaccharide
 - complex carbohydrate
- Allow 1 credit for explaining why substance *B* did *not* move out of the model cell. Acceptable responses include, but are not limited to:
 - It is a large molecule.
 - too big

74 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The large tree finch is most likely to compete with the small tree finch because they both eat mainly animal food.

75 1

The *Chart for Determining the Final Examination Score for the January 2008 Regents Examination in Living Environment* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Friday, January 25, 2008. 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.

Submitting 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

January 2008 Living Environment

Standards	Question Numbers			
	Part A 1–30	Part B–1 31–42	Part B–2 43–55	Part C 56–65
Standard 1 — Analysis, Inquiry and Design				
Key Idea 1		31		
Key Idea 2	5	32		60
Key Idea 3		33	55	
Appendix A (Laboratory Checklist)			51,52	
Standard 4				
Key Idea 1	2,3,6,9	38	43,48,50	58,62,63
Key Idea 2	1,4,7,8,11,12,13	41		
Key Idea 3	10,15,17	34,37,39,40		
Key Idea 4	14,16,18,19,20	42	44	
Key Idea 5	21,22,28,30		46,47,49	56
Key Idea 6	23,24,25,26	35,36		57,61
Key Idea 7	27,29		45,53,54	59,64,65

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