

FOR TEACHERS ONLY

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

LE

LIVING ENVIRONMENT

Tuesday, January 27, 2009 — 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.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 2	31 2	37 4
2 2	12 3	22 1	32 2	38 1
3 4	13 3	23 3	33 4	39 1
4 3	14 1	24 4	34 2	40 2
5 4	15 2	25 3	35 3	41 3
6 1	16 4	26 2	36 3	42 1
7 4	17 3	27 1		
8 4	18 3	28 2		
9 3	19 4	29 1		
10 1	20 1	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 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.emsc.nysed.gov/osa/> on Tuesday, January 27, 2009. 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 [2] Allow a maximum of 2 credits, 1 credit for identifying *one* cell structure involved in protein synthesis and stating how the structure functions in protein synthesis and 1 credit for identifying a second cell structure involved in protein synthesis and stating how the structure functions in protein synthesis. Acceptable responses include, but are not limited to:

- nucleus – contains template/blueprint/instructions for protein synthesis
- ribosome – assembles proteins; synthesizes proteins
- mitochondrion – provides energy

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

- A different organic compound would have a different shape.
- A different organic compound would not fit with substance *X*.
- The active site of *X* does not fit a different substrate.
- Substance *X* is specific to only certain materials.

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

- to destroy beetles
- to save crops

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

- poisonous to predators
- can eat a large variety of food

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

- killed off other species
- outcompeted other species
- reduced number of birds by eating eggs
- poisoned other species

48 2

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

- Predators may eat squid, making it difficult for squid to survive.
- Food organisms may be scarce in the new environment so the squid do not have enough to eat.
- Lack of vegetation (seaweed) may make hiding from predators difficult.

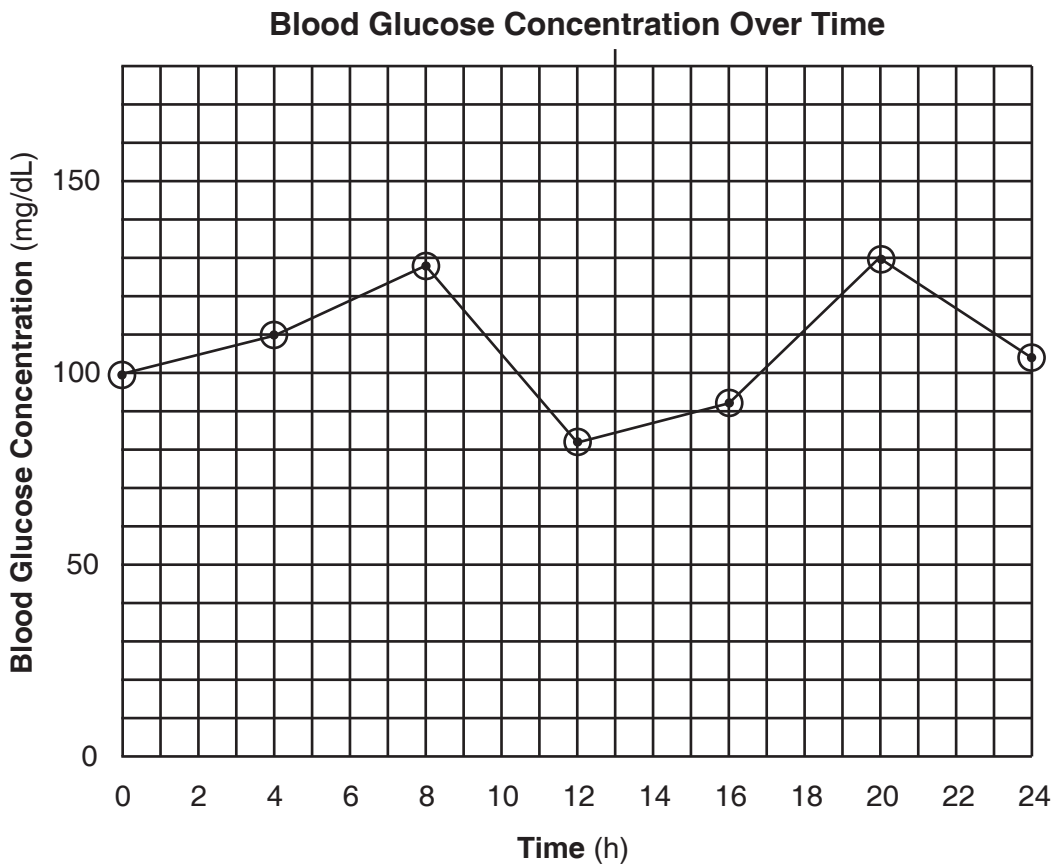
50 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The individual ate.
- insulin level dropped

51 [1] Allow 1 credit for marking an appropriate scale on the axis labeled “Blood Glucose Concentration (mg/dL).”

52 [1] Allow 1 credit for correctly plotting the data and connecting the points.

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



Note: Allow credit if the points are correctly plotted but *not* circled.
 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.

53 3

54 4

Part C

55 [5] Allow a maximum of 5 credits, allocated as follows:

- Allow 1 credit for stating a hypothesis to be tested. Acceptable responses include, but are not limited to:
 - Radish seedlings grow faster when exposed to goldenrod solution.
 - Radish seedlings treated with the solution will not grow as tall as the control group.
 - The solution will not affect the height of radish seedlings.

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

- Allow 1 credit for describing how the experimental group will be treated differently from the control group. Acceptable responses include, but are not limited to:
 - The experimental group will be given the solution while the control group is given plain water.
 - The experimental group will have ground up goldenrod in the soil.
- Allow 1 credit for explaining why the number of seedlings used for the experiment should be large. Acceptable responses include, but are not limited to:
 - A large sample will increase the validity of the results.
 - Since some may die, there will be enough left to do the experiment.
- Allow 1 credit for identifying the type of data that will be collected based on the student's hypothesis. Acceptable responses include, but are not limited to:
 - The number of seedlings that survive in each group will be counted.
 - the height of the seedlings

Note: Do *not* accept just “growth.” The type of data must be measurable.

- Allow 1 credit for describing experimental results that would support the student's hypothesis. Acceptable responses include, but are not limited to:
 - Radish seedlings exposed to goldenrod solution were twice as tall as the control group in two weeks.
 - If the radish seedlings treated with the solution do not grow as tall as those in the control group, the hypothesis is supported.
 - If there is no difference between the height of the group treated with the solution as compared to the control group, the hypothesis will be supported.

LIVING ENVIRONMENT – *continued*

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

- Use selective breeding/artificial selection.
- Cross sweet-berry blueberry plants with large-berry blueberry plants.
- Use recombinant DNA to move the sweet gene into the large-berry plants.

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

- cloning
- vegetative propagation
- cuttings
- asexual reproduction

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

- The predator gets a bad taste from the monarch butterfly and then recognizes other members of that species and does not eat them.

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

- Since the viceroy butterfly resembles the monarch, predators that have tasted a monarch butterfly do not eat viceroy butterflies.

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

- bacteria
- fungi
- pathogenic organisms

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

- High temperatures can destroy biological catalysts in organisms.
- High temperatures cause enzymes to change shape (denature).

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

- High salt concentrations can remove water from cells.
- disrupts water balance in cells
- water leaves the cells by osmosis
- causes dehydration

LIVING ENVIRONMENT – *continued*

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

- As these plants are eaten by certain fish, the chemical may be transferred to birds that eat these fish, causing the birds to die.

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

- photosynthesis
- respiration
- combustion

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

- burning fossil fuels
- human population increase
- more cars
- more industry
- deforestation

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

- global warming
- increased average daily temperatures
- climate change

67 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- use alternative fuels
- plant more trees
- reduce deforestation
- drive less

Part D

68 3

69 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- to determine evolutionary relationships
- screening for a genetic disorder
- to determine paternity
- to determine whether the hospital mixed up babies and parents
- to identify suspects in criminal investigations

70 4

71 1

72 2

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

- The students were different sizes or weights.
- The students were different sexes.
- The students had different levels of physical fitness.
- Metabolic rates vary.
- genetic variation

74 1

75 3

76 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- starch — The solution in beaker 2 changed color.

LIVING ENVIRONMENT – *concluded*

77 2

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

- osmosis
- diffusion
- passive transport

79 4

80 3

The *Chart for Determining the Final Examination Score for the January 2009 Regents Examination in Living Environment* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Tuesday, January 27, 2009. 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

January 2009 Living Environment

Standards	Question Numbers			
	Part A 1–30	Part B–1 31–42	Part B–2 43–54	Part C 55–67
Standard 1 — Analysis, Inquiry and Design				
Key Idea 1				
Key Idea 2		36,37		55
Key Idea 3		31	50,51,52	
Appendix A (Laboratory Checklist)				
Standard 4				
Key Idea 1	2,4,5,6,7,9	39	43	62,63
Key Idea 2	3,8,10,19	32,41		56,57
Key Idea 3	1,11,12,13,15			58,59
Key Idea 4	14,16,17	33,34,35		
Key Idea 5	20,21,22,23,25		44,48,53,54	60,61
Key Idea 6	18,24,26,27	38,40,42	49	64
Key Idea 7	28,29,30		45,46,47	65,66,67

Part D 68–80	
Lab 1	68,69,70
Lab 2	71,72,73
Lab 3	74,75
Lab 5	76,77,78,79,80