

# FOR TEACHERS ONLY

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

# LE

## LIVING ENVIRONMENT

Tuesday, June 21, 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 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 ..... 3 .....	9 ..... 1 .....	17 ..... 1 .....	25 ..... 3 .....
2 ..... 2 .....	10 ..... 4 .....	18 ..... 3 .....	26 ..... 3 .....
3 ..... 4 .....	11 ..... 2 .....	19 ..... 2 .....	27 ..... 1 .....
4 ..... 2 .....	12 ..... 2 .....	20 ..... 4 .....	28 ..... 3 .....
5 ..... 3 .....	13 ..... 1 .....	21 ..... 3 .....	29 ..... 3 .....
6 ..... 2 .....	14 ..... 3 .....	22 ..... 2 .....	30 ..... 2 .....
7 ..... 3 .....	15 ..... 3 .....	23 ..... 4 .....	
8 ..... 3 .....	16 ..... 2 .....	24 ..... 3 .....	
Part B-1			
31 ..... 3 .....	35 ..... 2 .....	39 ..... 2 .....	43 ..... 1 .....
32 ..... 2 .....	36 ..... 4 .....	40 ..... 1 .....	
33 ..... 4 .....	37 ..... 3 .....	41 ..... 3 .....	
34 ..... 1 .....	38 ..... 3 .....	42 ..... 3 .....	
Part B-2			
47 ..... 2 .....	49 ..... 2 .....	50 ..... 2 .....	
Part D			
73 ..... 3 .....	75 ..... 3 .....	81 ..... 3 .....	
74 ..... 2 .....	76 ..... 2 .....	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 handscoring, 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 Tuesday, June 21, 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.

**Beginning in June 2011, 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 raw 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. Acceptable responses include, but are not limited to:

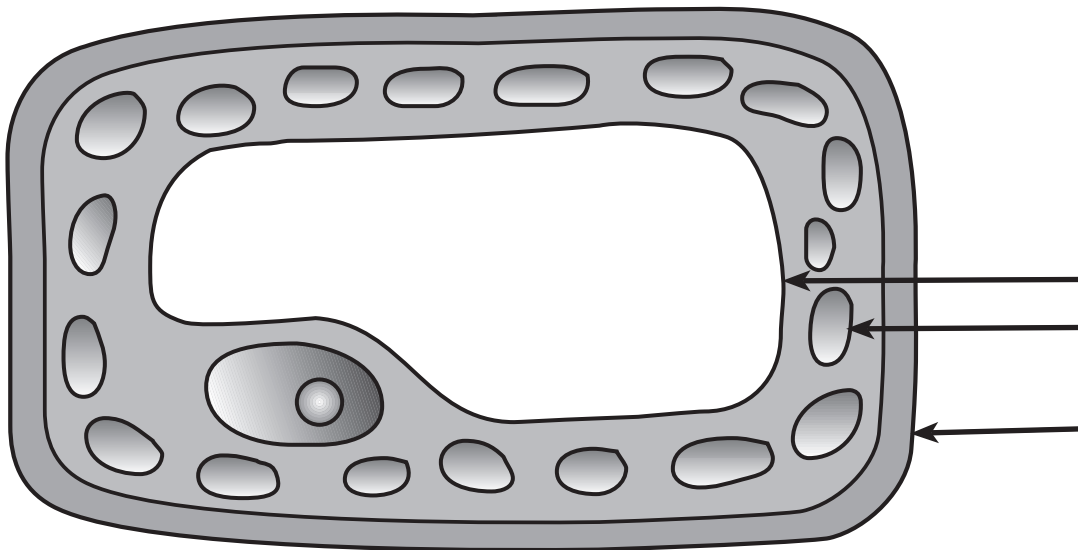
- increase the number of natural predators of the insect pest
- use a biological control
- use flypaper/traps

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

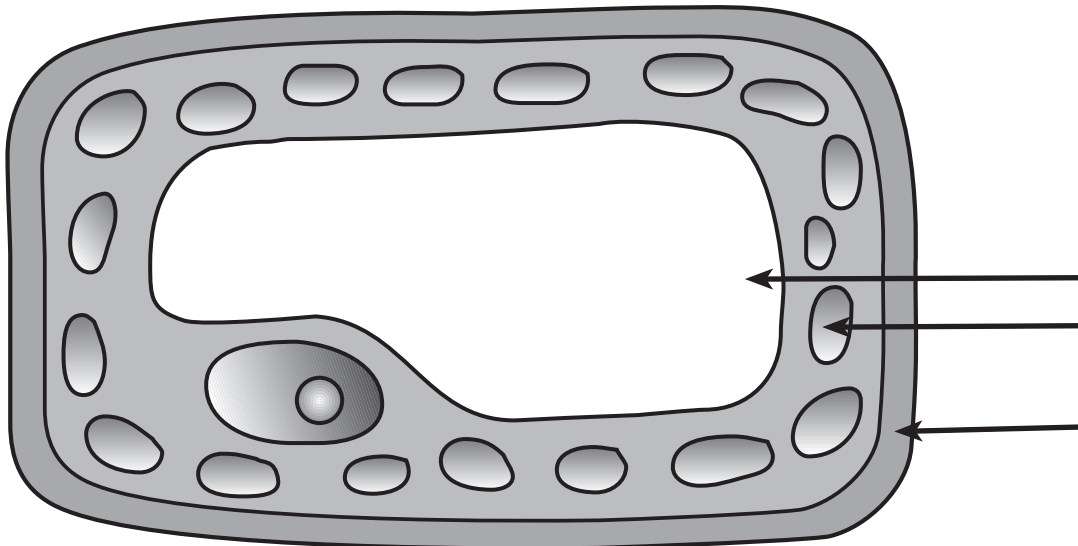
- Most organs begin to develop between weeks 3 and 6, whereas, in late pregnancy, these organs are fully formed.
- In late pregnancy, major organs would already have been formed and less damage would have occurred.

**46** [1] Allow 1 credit for an arrow indicating *one* of the three correct plant parts, shown below.

**Examples of 1-credit responses for question 46:**



*or*



**Note:** If more than one arrow is drawn, *all* arrows must be correct to receive credit.

**47 MC on Scoring Key**

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

- The BMI indicates the person is overweight and is therefore at risk for these diseases.
- There is a slight risk because the BMI places the person in the overweight range, but not in the obese range.
- yes, because the BMI is over 25

**49 MC on Scoring Key**

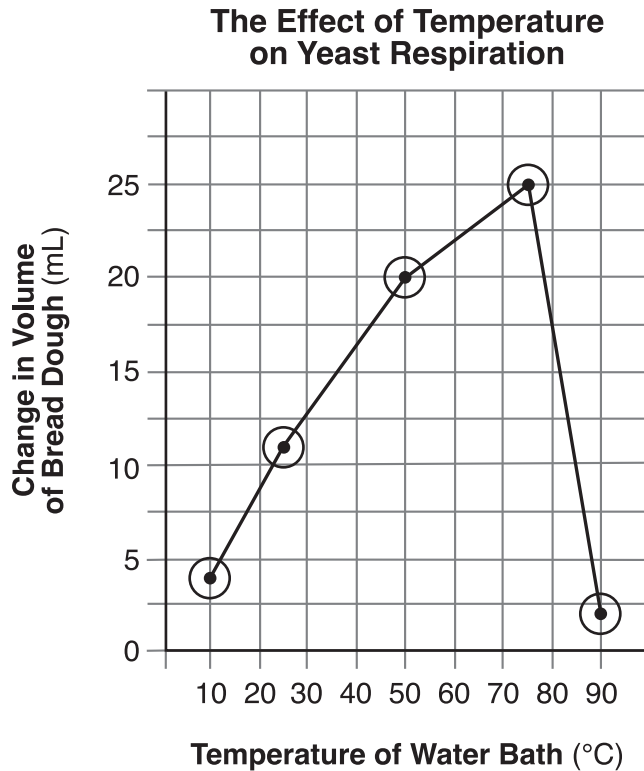
**50 MC on Scoring Key**

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

- It results in a smaller gene pool.
- It reduces the variety available for selection within populations.
- Tall varieties would not have a chance to reproduce.
- removes genes for tallness from the population

- 52 [1] Allow 1 credit for marking an appropriate scale, without any breaks, on the “Temperature of Water Bath (°C)” axis.
- 53 [1] Allow 1 credit for correctly plotting the data and connecting the points.

**Example of a 2-credit graph for questions 52 and 53:**



**Note:** Allow credit if the points are plotted correctly but not circled.  
Do *not* assume the intersection of the  $x$ -axis and  $y$ -axis 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.

- 54 [1] Allow 1 credit for 90°C or an answer consistent with the student’s graph for questions 52 and 53.
- 55 [1] Allow 1 credit for temperature.

## Part C

**Note:** The student's response to the bulleted items in question 56–59 need *not* appear in the following order.

- 56** [1] Allow 1 credit for identifying the human system that is responsible for this sensitivity to peanuts as the immune system.

**Note:** Do *not* accept circulatory system.

- 57** [1] Allow 1 credit for identifying the specific type of molecule that triggers an allergic reaction. Acceptable responses include, but are not limited to:

- antigen
- protein
- allergen

- 58** [1] Allow 1 credit for stating *one* reason why a person could be allergic to peanuts, but *not* be allergic to walnuts. Acceptable responses include, but are not limited to:

- One type of antibody only reacts with (fits) one type of antigen.
- Antibody reactions are specific.
- Walnuts and peanuts have different proteins.
- Walnuts and peanuts are made up of different chemicals.

- 59** [1] Allow 1 credit for describing how this reaction is similar to the rejection of a transplanted organ. Acceptable responses include, but are not limited to:

- Transplanted organs also have antigens that will stimulate antibodies that will attack the organ.
- They both stimulate immune responses.

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

- Global warming is impacted when more carbon dioxide is produced by many cars driven by the same number of students that could be transported by a few buses.
- The exhaust from additional cars may lead to air pollution that will affect the environment for years.

**Note:** The student's response must include a negative environmental impact. Stating “depleting fossil fuels” alone is *not* an acceptable answer.

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

- mutation
- changes in DNA
- recombination/recombining of genes

- 62** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The seeds from plants with shorter stems are less likely to be carried by the wind.
  - The short dandelions do not have an adaptation needed for survival in other areas of the lawn.
  - The seeds from the shorter dandelions did not land there.
- 63** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The dandelions out-compete the grass for the same limited resources.
  - The dandelions are better adapted for survival.
  - The dandelions shade the grass.
- 64** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Short dandelions are less likely to be cut down by a lawnmower.
  - Short dandelions will be left to reproduce.
- 65** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Organisms higher up in the food chain have a high concentration of toxins because they eat more of the organisms lower in the food chain and build up the concentration in their tissue.
  - Predators have a high concentration because they eat organisms that have already accumulated toxins.
- 66** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- pass laws to force individuals/companies to stop polluting
  - reduce runoff of environmental hazards from farms, roadways, or parking lots
  - remove the toxins from the environment
  - develop nontoxic alternatives to these chemicals
- 67** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- These processes reduce the amount of genetic information from each parent by half.
  - Each parent only contributes half of the genetic information that is contained in his or her own cells.
  - Each egg (or each sperm) will carry only half of the genetic information contained in the parent's body cells.

- 68** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- This process ensures that offspring will have all the genetic information needed.
  - Fertilization restores the full number of chromosomes characteristic of the species.
  - When the sperm and egg combine, the zygote will contain a full set of chromosomes.
- 69** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Doctors should prescribe antibiotics only for bacterial infections.
  - Patients should not use antibiotics without the advice of a doctor.
  - Patients should use the antibiotic for the prescribed number of days, and not stop taking it when they feel better.
  - Do not use antibiotics for viral infections.
- 70** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- obtain more farmland
  - more lumber available for sale
  - decrease the cost of lumber
  - space to build larger communities
  - increased profit
  - more jobs available
- 71** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- organisms lose habitats
  - many different species are removed
  - some species may become extinct
- 72** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- With fewer plants to absorb carbon dioxide, the carbon dioxide remains in the atmosphere, contributing to the greenhouse effect that causes global warming.
  - If the trees are burned, carbon dioxide will be added to the atmosphere.



## 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 for A.

78 [1] Allow 1 credit for species *C* or *D* or *E* and for supporting the answer. Acceptable responses include, but are not limited to:

- Species *C*, because it became extinct.
- *D*, because it is no longer alive.
- Species *E* does not continue to the present.

79 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- enzymes
- restriction enzymes
- biological catalyst

80 [1] Allow 1 credit for *W* and *Z* and for supporting the answer.

- because 4 of the 5 bands are identical
- They have the greatest number of matching bands.

81 MC on Scoring Key

82 MC on Scoring Key

- 83** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- When the student was sleeping, her activity was minimal and her pulse rate was slow. When she was walking, she used more energy, resulting in an increased pulse rate.
  - Pulse rate varies with activity level.
  - Her body was maintaining homeostasis.
  - Her heart beats faster when she is more active.
- 84** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Increased pulse rate increases the availability of food and oxygen to cells.
  - The pulse rate is an indication of the activity level of the body. Additional food and oxygen is provided to body cells with an increase in pulse rate.
  - increases the removal of wastes from cells
- 85** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The stoppers would pop out of the heated tubes and possibly injure someone.
  - The test tubes may explode.

**The *Chart for Determining the Final Examination Score for the June 2011 Regents Examination in Living Environment* will be posted on the Department's web site at: <http://www.p12.nysed.gov/apda/> on Tuesday, June 21, 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

## June 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			54	
Key Idea 2				
Key Idea 3		31, 33	47, 48, 52, 53	
Appendix A (Laboratory Checklist)		36	55	
Standard 4				
Key Idea 1	2, 9, 10, 28	34, 37, 38, 39, 40	46, 49	
Key Idea 2	6, 7, 11, 13, 14, 16, 17	41		
Key Idea 3	4, 18, 20		51	61, 62, 63, 64, 69
Key Idea 4	8, 21		45	67, 68
Key Idea 5	5, 15, 19, 22, 23, 25	35		56, 57, 58, 59
Key Idea 6	1, 3, 12, 24, 27, 29	32, 42, 43		65
Key Idea 7	26, 30		44, 50	60, 66, 70, 71, 72

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