The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

LIVING ENVIRONMENT

Wednesday, January 23, 2002 — 1:15 to 4:15 p.m., only

Student Name _____

School Name _____

Print your name and the name of your school on the lines above. Then turn to the last page of this booklet, which is the answer sheet for Part A. Fold the last page along the perforations and, slowly and carefully, tear off the answer sheet. Then fill in the heading of your answer sheet.

This examination has three parts with a total of 71 questions. You must answer all questions in this examination. Write your answers to the Part A multiple-choice questions on the separate answer sheet. Write your answers for the questions in Parts B and C directly in this examination booklet. All answers should be written in pen, except for graphs and drawings which should be done in pencil. You may use scrap paper to work out the answers to the questions, but be sure to record all your answers on the answer sheet and in this examination booklet.

When you have completed the examination, you must sign the statement printed on the Part A answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet cannot be accepted if you fail to sign this declaration.

DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Part A

Answer all questions in this part. [35]

Directions (1–35): For *each* statement or question, write on the separate answer sheet the number of the word or expression that, of those given, best completes the statement or answers the question.

1 Which statement accurately compares cells in the human circulatory system to cells in the human nervous system?

(1) Cells in the circulatory system carry out the same life function for the organism as cells in the nervous system.
(2) Cells in the circulatory system are identical in structure to cells in the nervous system.
(3) Cells in the nervous system are different in structure from cells in the circulatory system, and they carry out different specialized functions.
(4) Cells in the nervous system act independently, but cells in the circulatory system function together.

2 An iodine test of a tomato plant leaf revealed that starch was present at 5:00 p.m. on a sunny afternoon in July. When a similar leaf from the same tomato plant was tested with iodine at 6:00 a.m. the next morning, the test indicated that less starch was present. This reduction in starch content most likely occurred because starch was

(1) changed directly into proteins
(2) transported out of the leaves through the guard cells
(3) transported downward toward the roots through tubes
(4) changed into simple sugars

3 Luciferin is a molecule that, when broken down in fireflies, produces heat and light. The rate at which luciferin is broken down in cells is controlled by

(1) a carbohydrate
(2) a simple sugar
(3) an enzyme
(4) a complex fat

4 Communication between cells is affected if there is decreased ability to produce

(1) digestive enzymes and gametes
(2) antibodies and chloroplasts
(3) hormones and nerve impulses
(4) antibiotics and guard cells

5 Tomato plants in a garden are not growing well. The gardener hypothesizes that the soil is too acidic. To test this hypothesis accurately, the gardener could

(1) plant seeds of a different kind of plant
(2) move the tomato plants to an area with less sunlight
(3) change the pH of the soil
(4) reduce the amount of water available to the plant

6 A glucose-tolerance test was conducted to observe the effect of time on glucose concentration in the blood. An animal was fed 10 milliliters of glucose solution. At five different times after the ingestion of the solution, the blood glucose concentration was determined, and the results were recorded in the data table below.

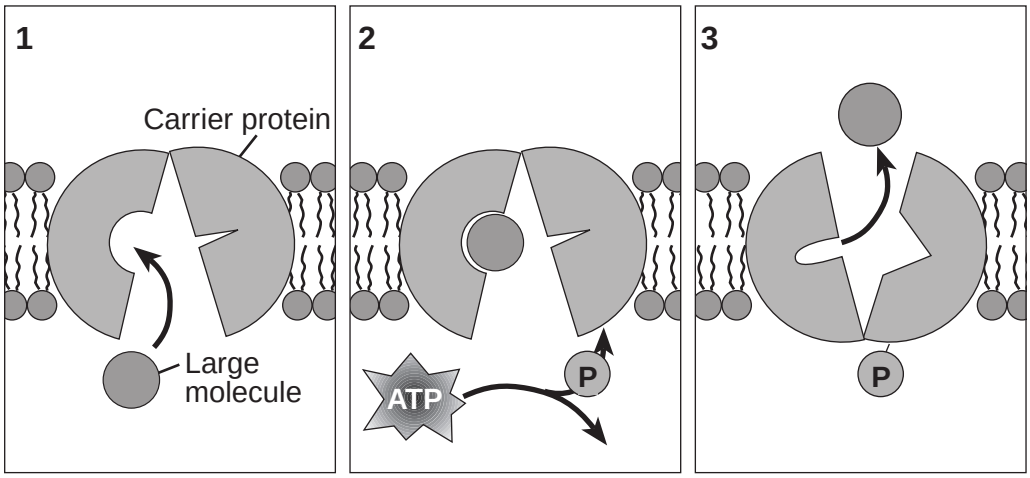
Data Table

Time After Glucose Ingestion (minutes)	Glucose Concentration in Blood (mg/100 dL)
0	75
30	125
60	110
90	90
120	80
180	70

The change in glucose concentration in the blood between 0 and 30 minutes was probably due to

(1) the liver releasing glucose into the small intestine
(2) glucose being absorbed from the digestive system
(3) the synthesis of glucose from starch
(4) glucose being used for cellular respiration

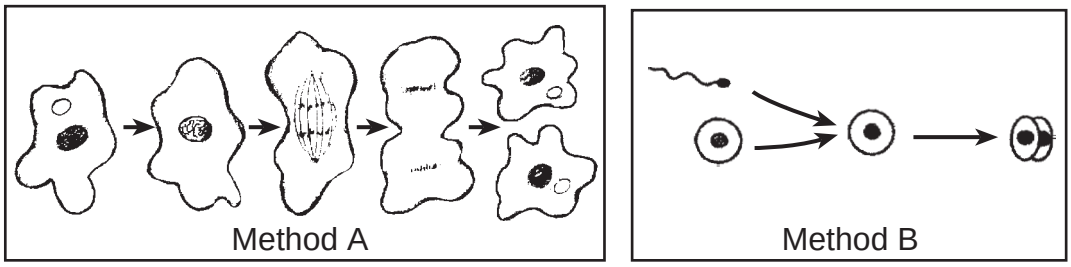
7 The diagram below represents movement of a large molecule across a membrane.



Which process is best represented in this diagram?

(1) active transport
(2) diffusion
(3) protein building
(4) gene manipulation

8 How does the type of reproduction shown in method *A* in the diagram below differ from the type of reproduction shown in method *B*?



(1) Method *A* illustrates sexual reproduction, and method *B* illustrates asexual reproduction.
(2) Offspring produced by method *B* will be genetically alike, but offspring produced by method *A* will be genetically different.
(3) The two cells shown in the last step of method *A* are genetically alike, but the two cells shown in the last step of method *B* are genetically different.
(4) Offspring produced by method *A* will be genetically like the parent, but offspring produced by method *B* will be genetically different from the parents.

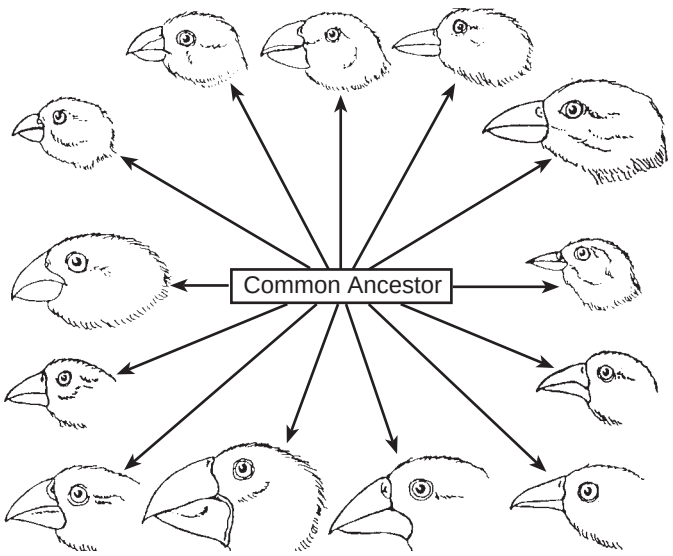
9 When humans first domesticated dogs, there was relatively little diversity in the species. Today, there are many variations such as the German shepherd and the dalmation. This increase in diversity is most closely associated with

(1) cloning of selected body cells
(2) selective breeding
(3) mitotic cell division
(4) environmental influences on inherited traits

10 As a result of sexual reproduction, an organism can pass a gene mutation to its offspring if the mutation occurs in

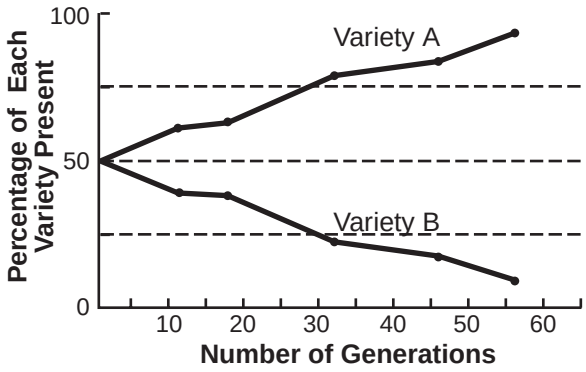
(1) a body cell
(2) a gamete
(3) liver tissue
(4) white blood cells

11 The diversity within the wild bird species in the diagram below can best be explained by which process?



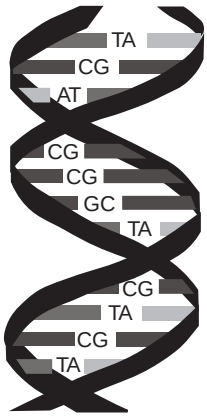
(1) natural selection
(2) asexual reproduction
(3) ecological succession
(4) mitotic cell division

12 What is the most probable reason for the increase in the percentage of variety *A* in the population of the species shown in the graph below?



(1) There is no chance for variety *A* to mate with variety *B*.
(2) There is no genetic difference between variety *A* and variety *B*.
(3) Variety *A* is less fit to survive than variety *B* is.
(4) Variety *A* has some adaptive advantage that variety *B* does not have.

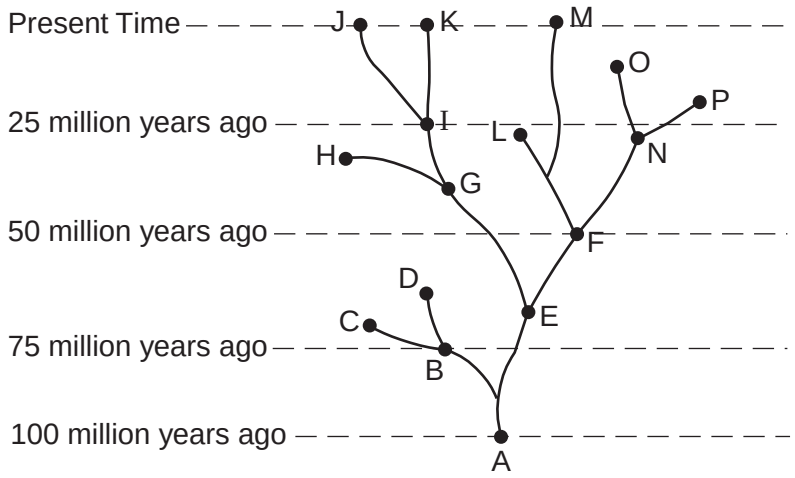
13 The type of molecule represented below is found in organisms.



Which statement correctly describes the sequence of bases found in this type of molecule?

(1) It changes every time it replicates.
(2) It determines the characteristics that will be inherited.
(3) It is exactly the same in all organisms.
(4) It directly controls the synthesis of starch within a cell.

14 The diagram below illustrates a proposed evolutionary path of certain organisms, based on the theory of evolution.



Which statement could best be inferred from the information in this diagram?

(1) Evolution does not involve gradual change.
(2) Evolutionary changes can result in extinction.
(3) Evolution begins with plants.
(4) Evolution produces organisms that all fill the same niche.

15 Which statement best describes the result of some of the processes involved in genetic engineering?

(1) They alter the arrangement of hereditary material.
(2) They provide energy for mitosis and meiosis.
(3) They are necessary for normal gamete formation.
(4) They reduce variation in organisms that reproduce asexually.

16 A characteristic of mutations is that they usually

(1) are caused only by the events of mitosis
(2) do not occur at random
(3) result in different genetic sequences
(4) occur to meet the needs of a species

17 Regulation of sexual reproductive cycles of human males is related most directly to the presence of the hormone

(1) estrogen
(2) progesterone
(3) testosterone
(4) insulin

18 The nucleus is removed from a body cell of one organism and is placed in an egg cell that has had its nucleus removed. This process, which results in the production of organisms that are genetically alike, is known as

(1) cloning
(2) fertilization
(3) biological adaptation
(4) DNA production

19 Most cells in the body of a fruit fly contain eight chromosomes. In some cells, only four chromosomes are present, a condition which is a direct result of

(1) mitotic cell division
(2) meiotic cell division
(3) embryonic differentiation
(4) internal fertilization

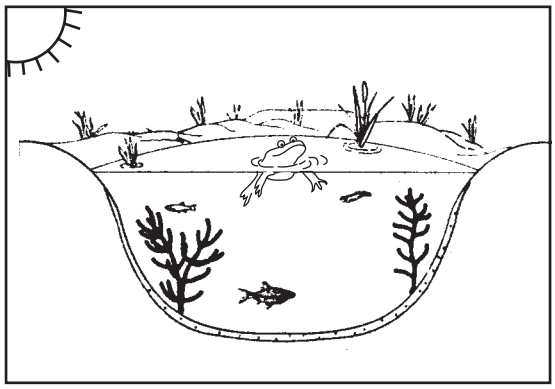
20 People with AIDS are unable to fight multiple infections because the virus that causes AIDS

(1) weakens their immune systems
(2) produces antibodies in their blood
(3) attacks muscle tissue
(4) kills pathogens

21 Feedback mechanisms are best described as processes that help

(1) reduce hormone levels to below normal in the blood
(2) destroy hormones in the blood
(3) directly control muscle contraction in the leg
(4) keep body conditions near a normal, steady state

22 A pond ecosystem is represented in the diagram below.



Energy for this ecosystem originally comes from

(1) water
(2) consumers
(3) sunlight
(4) plants

23 Which type of model provides the most complete representation of the feeding relationships within a community?

(1) a material cycle
(2) a predator-prey association
(3) a food chain
(4) a food web

24 An ecosystem will most likely remain stable if

(1) it has more predators than prey
(2) it has a high level of biodiversity
(3) biotic factors decrease
(4) finite resources decrease

25 Heavy cigarette smoking and the use of alcohol throughout pregnancy usually increase the likelihood of

(1) the birth of twins
(2) the birth of a male baby
(3) a baby being born with a viral infection
(4) a baby being born with medical problems

26 The mass of some corn plants at the end of their growth period was 6 tons per acre. Most of this mass was produced from

(1) water and organic compounds absorbed from the soil
(2) minerals from the soil and oxygen from the air
(3) minerals and organic materials absorbed from the soil
(4) water from the soil and carbon dioxide from the air

27 The gene for the production of human insulin is inserted into certain bacterial cells. The offspring of these bacterial cells will most likely be able to

(1) destroy pathogens
(2) reproduce sexually
(3) synthesize this hormone
(4) form human tissue

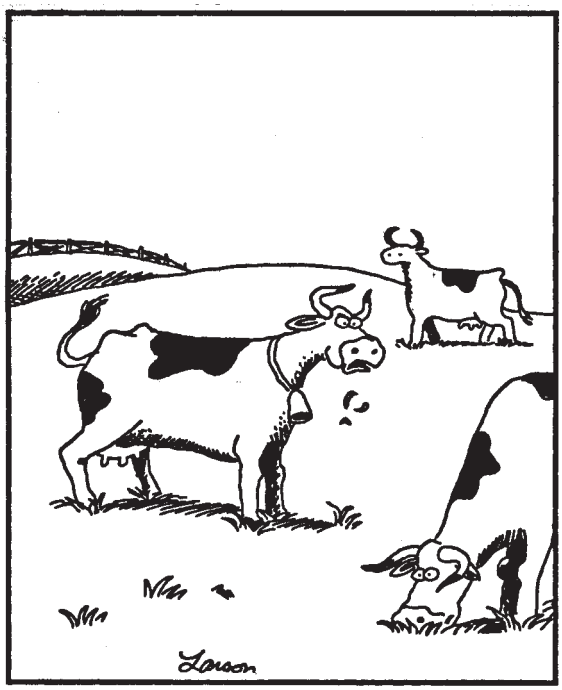
28 A characteristic of hormones and enzymes that allows them to work effectively with other organic molecules is their

(1) specific shape
(2) small size
(3) concentration of carbon and hydrogen atoms
(4) high-energy bonds

29 Both a deer and a tree react to changes in their external surroundings, helping them to maintain a constant internal environment. This statement describes

(1) predation
(2) homeostasis
(3) antibiotic resistance
(4) autotrophic nutrition

30 Which sequence best represents the flow of energy in the cartoon below?



"Hey, wait a minute! This is grass! We've been eating grass!"

(1) prey → predator
(2) host → parasite
(3) producer → herbivore
(4) autotroph → carnivore

31 What would most likely occur after an ecosystem is disrupted by fire?

(1) The ecosystem would eventually return to its original state.
(2) The ecosystem would return to its previous state immediately.
(3) The ecosystem would evolve into a new ecosystem that is totally different from the original.
(4) The ecosystem would become an ever-changing environment with no stability.

32 Car exhaust has been blamed for increasing the amount of carbon dioxide in the air. Some scientists believe this additional carbon dioxide in the air may cause

(1) global warming
(2) increased biodiversity
(3) habitat preservation
(4) ozone destruction

33 Which statement illustrates how human activities can most directly change the dynamic equilibrium of an ecosystem?

(1) A hurricane causes a stream to overflow its banks.
(2) Increased wind increases water evaporation from a plant.
(3) Water pollution causes a decrease in fish populations in a river.
(4) The ozone shield helps prevent harmful radiation from reaching the surface of Earth.

34 Some factories have a negative impact on Earth's ecosystems because they

(1) have high energy demands that require the use of fossil fuels and nuclear fuels
(2) utilize agricultural technology that decreases soil erosion
(3) decrease the need for finite resources
(4) limit the amount of emissions produced each year

35 For a natural ecosystem to be self-sustaining, many essential chemical elements must be

(1) converted to energy
(2) changed into fossil fuels such as oil and coal
(3) permanently removed from the environment
(4) cycled between organisms and the environment

Part B

Answer all questions in this part. [30]

Directions (36–63): For those questions that are followed by four choices, circle the number of the choice that best completes the statement or answers the question. For all other questions in this part, follow the directions given in the question and record your answers in the spaces provided.

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Base your answers to questions 36 through 40 on the information below and on your knowledge of biology.

An insect known as a sawfly is found in evergreen forests in North America. Sawfly cocoons are the main source of food for shrews (small mammals) and some bird species. Scientists studied 1-acre plots in various parts of a state to determine the average number of sawfly cocoons, shrews, and robins. The data collected are shown in the table below.

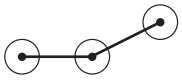
Data Table

Average Number of Sawfly Cocoons per Acre (in thousands)	**Average Number of Shrews per Acre**	**Average Number of Robins per Acre**
100	5.0	0
300	7.5	0.5
600	19.0	0.8
900	23.5	1.0
1200	23.5	1.3

Directions (36–38): Using the information in the data table, construct a line graph on the grid provided *on the next page,* following the directions below. You may use pen or pencil for your answer.

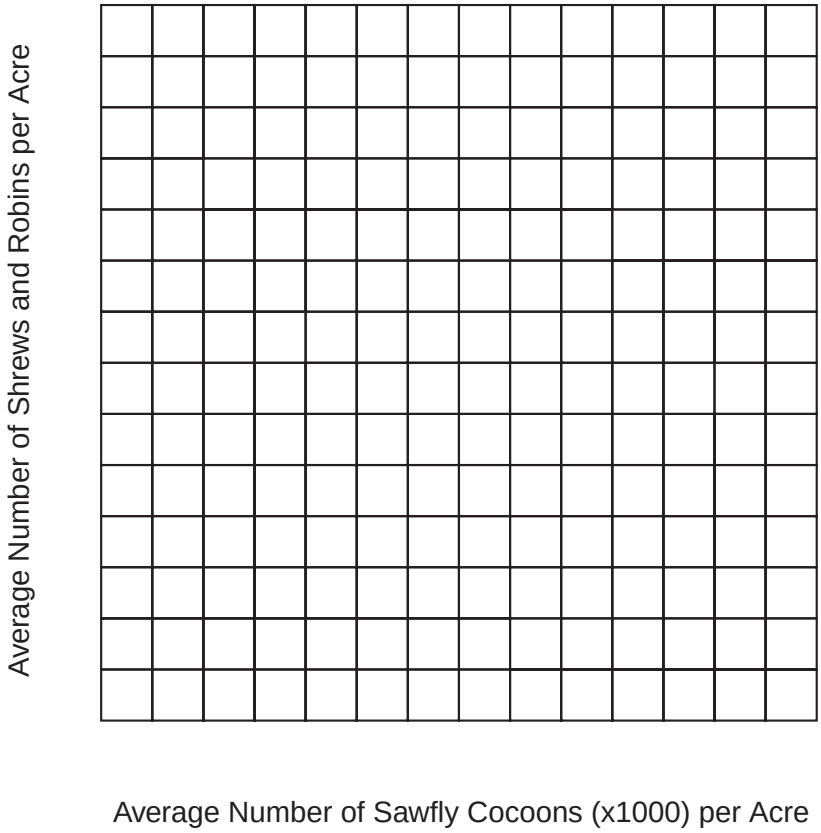
36 Mark an appropriate scale on each axis. [1]

37 Plot the data for shrews. Surround each point with a small circle and connect the points. [1]

Example: 

38 Plot the data for robins. Surround each point with a small triangle and connect the points. [1]

Example: 



39 What is the average number of shrews per acre when the average number of sawfly cocoons is 500,000? [1]

_____

40 State what would most likely happen to the number of sawfly cocoons per acre if the shrews and robins were removed from the area. [1]

_____

_____

_____

_____

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36 ☐

37 ☐

38 ☐

39 ☐

40 ☐

Base your answers to questions 41 through 43 on the information and graph below and on your knowledge of biology.

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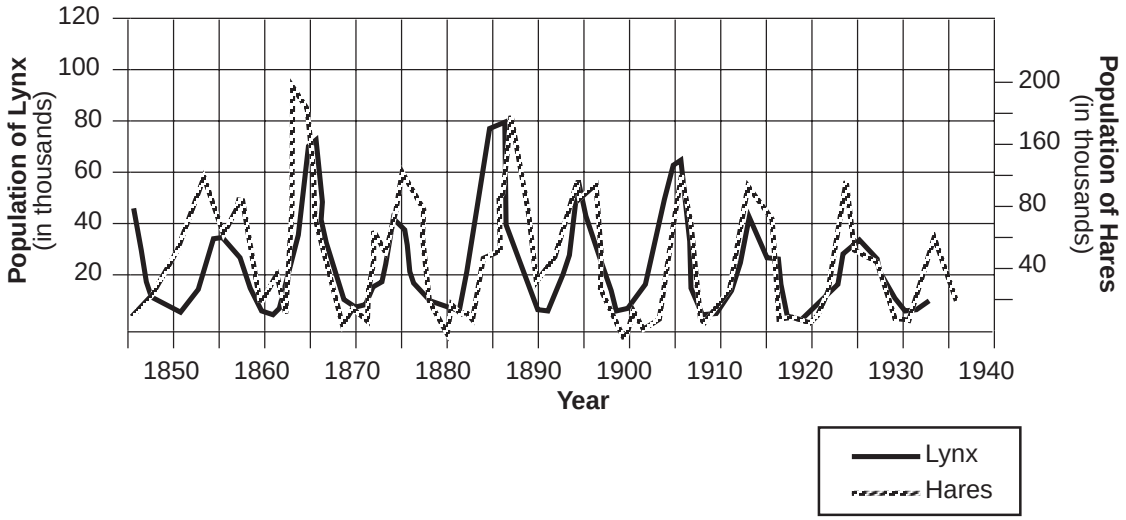
A Closer Look at Cycles in Predator and Prey Populations

Scientists have hypothesized that the populations of both lynx and snowshoe hares should show cyclic changes with increases in the predator population size lagging behind increases in prey population size, if the assumption is made that snowshoe hares are eaten only by lynx.

Does this out-of-phase population cycle of predators and prey actually occur in nature? A classic example of such a cycle was observed by counting all the fur pelts (skins) from northern Canada lynx and snowshoe hares purchased by the Hudson Bay Company between 1845 and 1935. Population cycles of snowshoe hares and their lynx predators, based on the number of pelts received by the Hudson Bay Company, are shown in the graph below.

As with any field investigation, many variables could influence the relationship between hare and lynx. One problem is that hare populations have been shown to fluctuate even without lynx present, possibly because the carrying capacity of their environment had been exceeded.

To test this hypothesis about population cycles more scientifically, investigators turned to controlled laboratory studies on populations of small predators and their prey.



41 Identify *two* variables other than the size of the lynx population that can affect the size of the hare population. [2]

1. _____

2. _____

41

42 The phrase "carrying capacity" refers to

(1) storing extra food for the winter

(2) the number of organisms a habitat can support

(3) transporting food to organisms in an area

(4) the maximum possible weight of an individual organism

42 ☐

43 Why would scientists want to have a laboratory study on populations of different predators and their prey? [1]

_____

_____

_____

43 ☐

Base your answers to questions 44 and 45 on the diagram below, which provides information related to heredity, and on your knowledge of biology.

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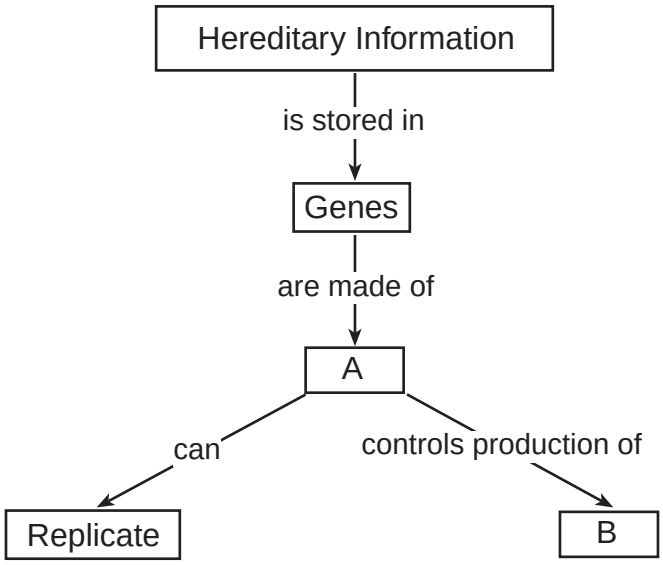


44 The type of molecule in box *A* serves as a template. Explain what this means. [1]

_____

_____

44 ☐

45 Which molecules are represented by box *B*?

(1) bases

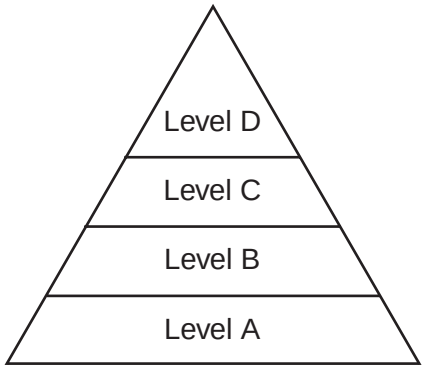
(2) proteins

(3) amino acids

(4) simple sugars

45 ☐

Base your answers to questions 46 through 49 on the energy pyramid below and on your knowledge of biology.



46 Energy from nutrients is transferred to ATP in

(1) level *A*, only

(2) levels *B* and *C*, only

(3) levels *B*, *C*, and *D*, only

(4) levels *A*, *B*, *C*, and *D*

46 ☐

47 The greatest amount of available energy is transferred from level

(1) *A* to level *B*

(2) *A* to level *C*

(3) *B* to level *A*

(4) *D* to level *A*

47 ☐

48 Which energy levels could contain carnivores?

(1) *A* and *B*

(2) *B* and *C*

(3) *C* and *D*

(4) *D* and *A*

48 ☐

49 In a community where grass, cats, insects, and mice are found, which of these organisms would fill level *A*? [1]

_____

49 ☐

50 A student designed an investigation to determine the effect of temperature on the rate of seed germination. The student placed moist filter paper in each of four culture dishes. Ten bean seeds were placed on the filter paper in each dish. The four dishes were numbered and placed in the dark at different temperatures as follows: Dish 1: 10°C, Dish 2: 15°C, Dish 3: 20°C, Dish 4: 25°C. The total number of germinated seeds in each culture dish was counted each day for two weeks.

Which data table is best for recording the results of this investigation?

Petri Dish	Day	Temperature	Amount of Light
1			
2			
3			
4			

(1)

Day	Temperature			
	Dish 1	Dish 2	Dish 3	Dish 4

(3)

Petri Dish	Amount of Water	Number of Germinated Seeds	Amount of Light
1			
2			
3			
4			

(2)

Day	Number of Germinated Seeds			
	10°C	15°C	20°C	25°C

(4)

50 ☐

51 The Pine Barrens is a government-protected environment located on the eastern end of Long Island. A proposal has been made to allow a shopping mall to be built in the middle of the Pine Barrens. Although the developer has promised jobs for people in the surrounding communities, some community members oppose the building of the mall due to the negative effects it would have on this fragile ecosystem.

Identify *two* negative effects this mall would most likely have on the Pine Barrens. [2]

1. _____

2. _____

51 ☐

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52 In an investigation to determine the change in heart rate with increased activity, a biology teacher asked students to take their pulses immediately before and immediately after exercising for 2 minutes. The data showed an average heart rate of 72 beats per minute before exercising and 90 beats per minute after exercising. If a valid conclusion is to be made from the results of this investigation, which assumption must be made?

(1) In most students, the average heart rate is not affected by exercise.

(2) Exercise causes the heart rate to slow down.

(3) Each student exercised with the same intensity.

(4) The heart rate of each student goes up 18 beats after jogging for 2 minutes.

52 ☐

Base your answers to questions 53 and 54 on the word equation below and on your knowledge of biology.

$$\text{glucose} + \text{oxygen} \xrightarrow[\text{energy}]{\text{enzymes}} \text{carbon dioxide} + \text{water} + \text{X}$$

53 Name the process represented by the equation. [1]

_____

53 ☐

54 Name the molecule represented by letter *X*. [1]

_____

54 ☐

Base your answers to questions 55 and 56 on the data table below and on your knowledge of biology. The data table shows the amount of oxygen that will dissolve in freshwater and seawater at different temperatures. The amount of oxygen is expressed in parts per million (ppm).

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Data Table

Temperature (°C)	**Freshwater Oxygen Content** (ppm)	**Seawater Oxygen Content** (ppm)
1	14.24	11.15
10	11.29	9.00
15	10.10	8.09
20	9.11	7.36
25	8.27	6.75
30	7.56	6.19

55 Write a statement comparing the oxygen-holding ability of freshwater with the oxygen-holding ability of seawater in the temperature range shown. [1]

55 ☐

56 State how the oxygen-holding ability of freshwater varies with changes in temperature. [1]

56 ☐

Base your answers to questions 57 and 58 on the information below and on your knowledge of biology.

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A student completed a series of experiments and found that a protein-digesting enzyme (intestinal protease) functions best when the pH is 8.0 and the temperature is 37°C. During an experiment, the student used some of the procedures listed below.

Procedures

(A) Adding more protease
(B) Adding more protein
(C) Decreasing the pH to 6.0
(D) Increasing the temperature to 45°C
(E) Decreasing the amount of light

57 Which procedure would have the *least* effect on the rate of protein digestion?

(1) *A*
(2) *E*
(3) *C*
(4) *D*

57 ☐

58 Which two procedures would most likely cause a *decrease* in the rate of protein digestion?

(1) *A* and *D*
(2) *B* and *C*
(3) *C* and *D*
(4) *A* and *E*

58 ☐

Base your answers to questions 59 through 61 on the information below and on your knowledge of biology.

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An investigation was performed to determine the resistance of two species of *Anopheles* mosquito to the insecticides malathion and dieldrin. In May, two groups of 10,000 insects of each species were sprayed with insecticide. One group was sprayed with malathion, the second group with dieldrin. The number of surviving insects was recorded after the first spraying. The surviving insects were then allowed to reproduce. Several generations of new offspring were produced over the following three months. On the first day of each month they were sprayed, and the number of survivors was recorded in the table below.

Species	Insecticide	Number Before First Spraying	Number of Survivors			
			May	June	July	Aug
Anopheles culifacies	malathion	10,000	31	129	1,654	4,055
	dieldrin	10,000	78	339	1,982	3,106
Anopheles strephensi	malathion	10,000	28	56	1,207	1,744
	dieldrin	10,000	30	71	1,321	2,388

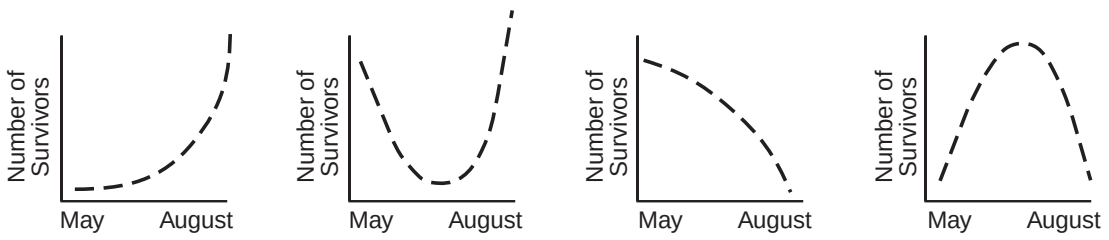
59 State *one* valid conclusion that can be drawn from these data. [1]

59 ☐

60 State *one* negative impact that the use of these two insecticides might have on the environment. [1]

60 ☐

61 Which graph best represents the number of survivors after spraying in the *Anopheles culifacies* population from May to August?



61 ☐

62 To test the effect of hormones on plant growth, six potted plant seedlings of the same species were measured and then sprayed with auxin (a growth hormone). After four weeks of growth under ideal conditions, the plants were measured again. To set up a proper control for this experiment, the investigator should

(1) spray the same plants with different amounts of auxin

(2) spray auxin on six plant seedlings of the same species and grow them in the dark for four weeks

(3) wash the auxin off three of the plants after two weeks

(4) grow another six plant seedlings of the same species under the same conditions, spraying them with distilled water only

62 ☐

63 A student wanted to determine if slugs preferred green leaf lettuce leaves over purple cabbage leaves for food. Pieces of both leaves were cut. One piece of each type of leaf and one slug were placed in each of ten containers. After three days, the surface area of each leaf section was measured and the results were recorded in a data table. State *one* reason that the results of this experiment might be considered invalid. [1]

_____

_____

63 ☐

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Part C

Answer all questions in this part. [20]

Directions (64–71): Record your answers in the spaces provided in this examination booklet.

Base your answers to questions 64 through 66 on the information below and on your knowledge of biology.

Telomere Tales

The number of times a human body cell reproduces is dependent on the length of its special chromosome tips. These tips, which are known as telomeres, act as cell division clocks. With each division, the length of the telomere shortens until a critical length is reached, signaling cell reproduction to stop. Knowledge of telomeres could be used in cancer diagnosis, in understanding diseases of aging, and in providing information that would lead to the survival of transplanted organs.

As most body cells divide, their telomeres shorten and, in turn, the overall chromosome length is reduced. However, tissues such as bone marrow and most cancer cells lengthen their shrinking chromosome tips with the help of an enzyme, telomerase. As a result, the chromosomes of these rapidly dividing cells never reach critical length, and the cells continue to reproduce.

Transplantation speeds up the aging process in donor cells. The telomeres of transplanted cells are shorter than those in normal bone marrow cells. If telomerase is inserted into donor cells, the donor tissues may live longer. This procedure would greatly benefit organ transplants and the treatment of patients who have HIV (the virus that causes AIDS). For example, blood-forming cells could be removed from these patients early in the disease, cultured with telomerase to extend their telomeres, and then returned to the bodies of the patients as their blood cell counts fall.

64 State the relationship between the presence of telomerase, telomere length, and the number of cell divisions. [2]

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_____ 64

65 Explain how the knowledge of telomerase may lead to an effective treatment for cancer. [1]

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_____

_____ 65

For Teacher Use Only

66 State *one* way telomerase could be used to treat patients who have HIV. [1]

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66 ☐

67 Vaccinations play a major role in medicine today. Explain the role of vaccines in the prevention of disease. Your answer must include at least:

- a description of the contents of a vaccine [1]
- a description of how a vaccine protects the body from disease [1]
- *one* specific reason certain vaccinations are required for students to attend public schools [1]

67 ☐

68 In the past, a specific antibiotic was effective in killing a certain species of bacteria. Now, most members of this bacterial species are resistant to this antibiotic. Explain how this species of bacteria has become resistant. Your answer must include at least the concepts of:

- overproduction [1]
- variation [1]
- natural selection [1]
- adaptation to the environment [1]

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68

Base your answers to questions 69 and 70 on the information and data table below and on your knowledge of biology.

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You are the head of the research division of the Leafy Lettuce Company. Your company is experimenting with hydroponic technology. Hydroponic technology involves growing plants in containers of growth solution in a greenhouse. No soil is used. Your first experiment used five groups of five plants of the same size and species. Each group was grown in a different growth solution for the same period of time. The results of the experiment are shown in the table below.

Group	Growth Solution	Average Growth in Height (cm)	Average Surface Area of Leaves (cm^2)
1	H_2O	4.4	7.6
2	H_2O + N	5.1	10.0
3	H_2O + N + P	11.5	37.5
4	H_2O + N + P + Mg	13.0	125.0
5	H_2O + N + P + Mg + K	20.3	306.5

Key
N = Nitrogen
P = Phosphorus
Mg = Magnesium
K = Potassium

69 Prepare a brief report to the president of the Leafy Lettuce Company summarizing the results of your experiment and identifying another possible variable that could be investigated to improve the growth of the lettuce. In your report, be sure to include:

- a recommendation of the best growth solution to use for hydroponic lettuce [Support your recommendation.] [2]
- another possible variable (besides the growth solution) that might be investigated to improve the growth of the hydroponic lettuce [1]
- a recommendation for an extension of this investigation to make it more valid [1]

69

70 Could the results of this investigation be used to select the best growth solution for other species of plants? Justify your answer. [1]

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70

71 Just like complex organisms, cells are able to survive by coordinating various activities. Complex organisms have a variety of systems, and cells have a variety of organelles that work together for survival. Describe the roles of *two* organelles. In your answer be sure to include:

- the names of *two* organelles and the function of each [2]
- an explanation of how these two organelles work together [1]
- the name of an organelle and the name of a system in the human body that have similar functions [1]

71

Tear Here

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

LIVING ENVIRONMENT

Wednesday, January 23, 2002 — 1:15 to 4:15 p.m., only

ANSWER SHEET

Student . . . . . Sex: ☐ Female ☐ Male

Teacher . . . . . .

School . . . . . Grade . . . . . .

Part	Maximum Score	Student's Score
A	35	
B	30	
C	20	
Total Raw Score (maximum Raw Score: 85)		
Final Score (from conversion chart)		

Raters' Initials

Rater 1 . . . . . Rater 2 . . . . . .

Record your answers to Part A on this answer sheet.

Part A

1	13	25 . . . . .
2	14	26 . . . . .
3	15	27 . . . . .
4	16	28 . . . . .
5	17	29 . . . . .
6	18	30 . . . . .
7	19	31 . . . . .
8	20	32 . . . . .
9	21	33 . . . . .
10	22	34 . . . . .
11	23	35 . . . . .
12	24	

The declaration below must be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination and that I have neither given nor received assistance in answering any of the questions during the examination.

Signature

Tear Here

Tear Here

Tear Here