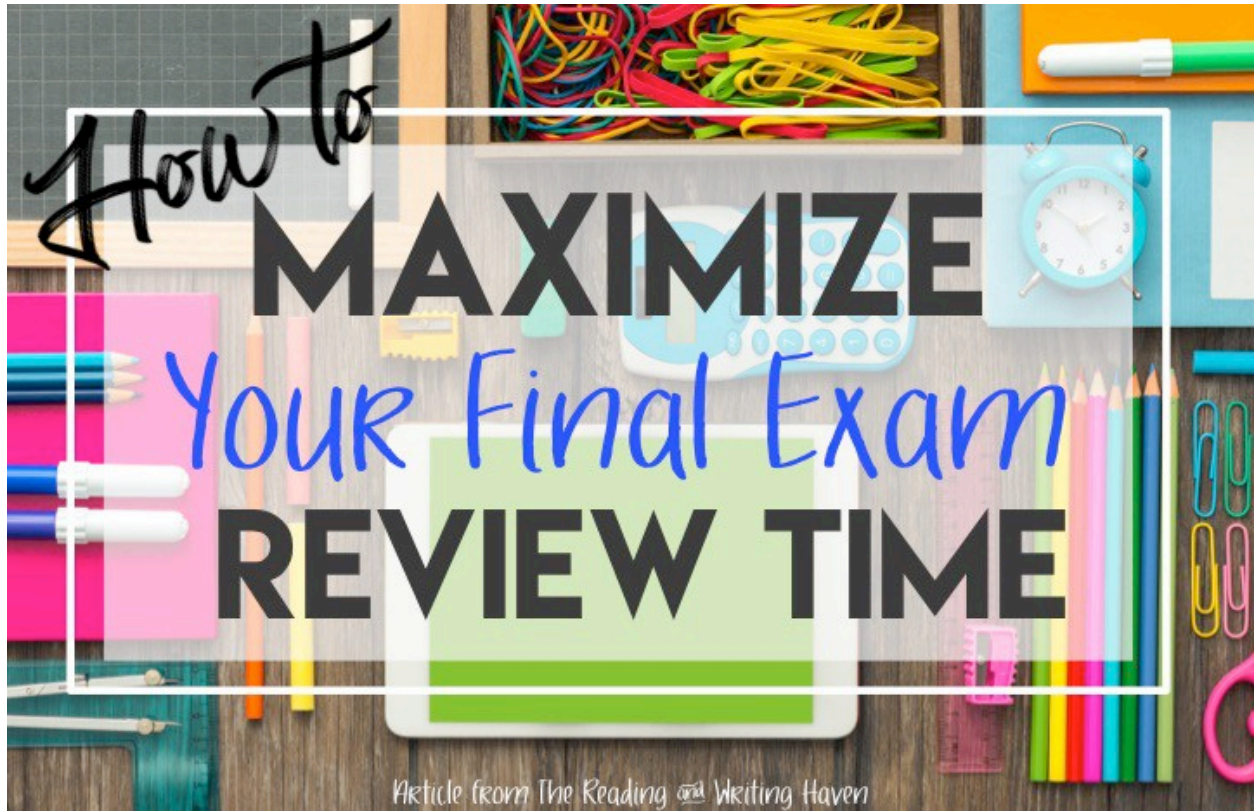


Living Environment Regents Review Questions



As you answer the questions in the packet, remember to use the strategies that we have discussed in class – underlining, circling, crossing out, analyzing diagrams, etc. Be an active reader! Make sure you are self-assessing using G U S. What are your strengths and weaknesses? These strategies will allow you to better utilize your study time. If you are still struggling in certain areas, come to extra help after school. Additionally, use the YouTube review videos to relearn past information and use the optional CL assignments to practice more Regents Questions.

Name: _____ Date: _____ Biology- Block _____ Mrs. Jordy

Name: _____

Date: _____

Biology _____

Topic 1: Scientific Method Regents Review Questions

Directions (1-6): Answer all questions in the space provided.

G U S _____1. Which activity would be an appropriate first step when designing an experiment?

1. reporting a conclusion based on multiple experimental trials
2. researching the problem, using information from a variety of sources
3. creating a data table to organize experimental observations
4. repeating the experiment with a different hypothesis

G U S _____2. Students noticed that some of their classmates have a hard time concentrating during class. They thought it may have some connection with the fact that these students consume energy drinks just before class. An experiment was proposed to find out if there is a connection between energy drinks and the lack of ability to concentrate in class. A properly designed experiment to determine this would include having

1. the whole class drink energy drinks and no water at all, for the entire time of the experiment
2. the whole class drink water and no energy drinks at all, for the entire time of the experiment
3. the students drink both water and an energy drink just before class
4. half the students drink water and the other half drink an energy drink just before class

Base your answer to questions 3-5 on the information below and on your knowledge of biology.

An experiment was carried out to answer the question “Does the pH of water affect the growth of radish plants?” Two groups of ten radish plants were set up. One group was watered with water having a pH of 3.0, and the other group was watered with water having a pH of 7.0. Both groups of plants received the same amount and intensity of light, the same amount of water, and they were grown in the same type of soil. The heights of the radish plants were measured every 2 days for a period of 2 weeks.

G U S _____3. Which sentence is a possible hypothesis that was tested in this experiment?

1. Does the pH of water affect the growth of radish plants?
2. Will the amount of water alter the heights of the radish plants?
3. The temperature of the water will affect the heights of the radish plants.
4. The pH of the water will affect the heights of the radish plants.

G U S _____4. Which activity might help to increase the validity of this experiment?

1. repeating the experiment several times
2. using two different types of radish seeds in each group
3. using the same pH for both groups of plants
4. placing one set of plants in sunlight and one in darkness

G U S _____5. What was the dependent variable in this experiment?

1. heights of the plants
2. temperature of the water
3. pH of the water
4. type of soil

6. Daphnia are freshwater organisms sometimes referred to as “water fleas.” Design an experiment that could be used to test the effects of temperature on the size of a daphnia population. In your experimental design, be sure to:

- **G U S** - state a hypothesis to be tested _____

- **G U S** - describe how the control group will be treated differently from the experimental group

- **G U S** - identify the independent variable in the experiment _____
- **G U S** - identify the type of data that will be collected _____
- **G U S** - State one way to increase the validity of the experiment _____

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____ 1-2 correct _____ 3-4 correct _____ 5-6 correct _____ 7-8 correct _____ 9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

Topic 2: Graphing Regents Review Questions

Base your answers to questions 1 through 2 on the information and data table below and on your knowledge of biology.

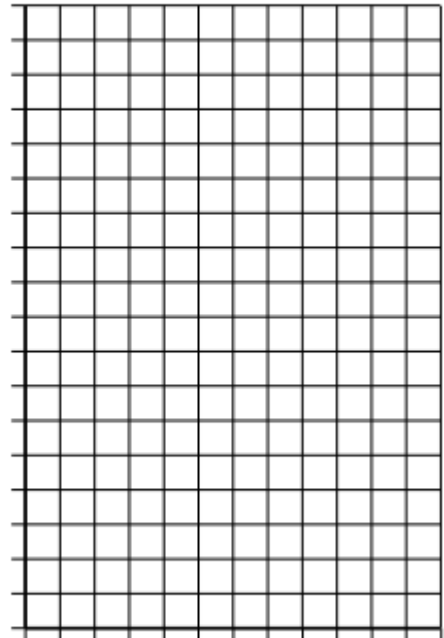
Directions (1–3): Using the information in the data table, construct a line graph on the grid below, following the directions below.

G U S 1 Provide an appropriate label for the y-axis, including units, on the line provided. [1]

G U S 2 Mark an appropriate scale, without any breaks in the data, on each labeled axis. [1]

G U S 3 Plot the data on the grid, connect the points, and surround each point with a small circle. [1]

Gas Collected with Light Source at Different Distances from Plant



Distance of Light Source from Plant (cm)

Gas Collected with Light Source at Different Distances from Plant

Distance of Light Source from Plant (cm)	Gas Collected in Tube (mm)
5	85
10	37
15	15
20	8
25	5



Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well can I set up a graph?

_____ I can make a constant scale for the x and y axes

_____ I can accurately plot the dots

_____ I can connect the dots

_____ I did NOT connect to zero

_____ I did NOT include a break in the data

_____ I did NOT extend my lines

_____ I correctly labeled the y-axis and included units

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

Base your answers to questions 4 through 5 on the information and data table below and on your knowledge of biology.

Directions (4–5): Using the information in the data table, construct a bar graph on the grid, following the directions below.

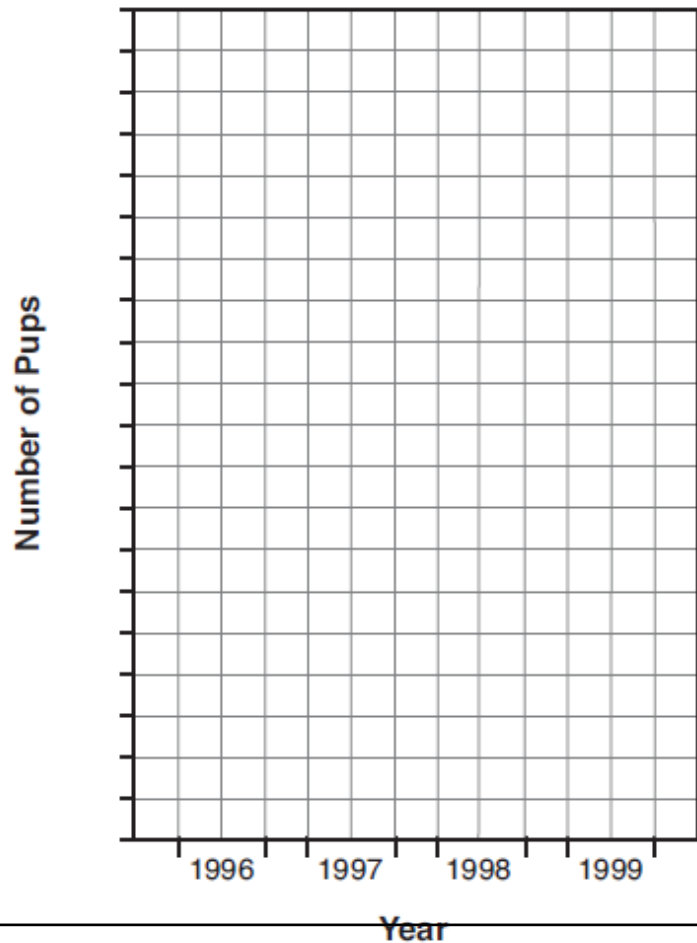
Number of Wolf Pups Observed

Year	Number of Pups
1996	11
1997	64
1998	42
1999	61

G U S 4 Mark an appropriate scale, without any breaks, on the axis labeled “Number of Pups.” [1]

G U S 5 Construct vertical bars to represent the data. Shade in *each* bar.

Number of Wolf Pups Observed



Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well can I set up a graph?

_____ I can make a constant scale for the y axis

_____ I can accurately construct the bars

_____ I can shade in the bars

_____ I did NOT include a break in the data

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

Name: _____
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Date: _____

Topic 3: Biochemistry Regents Review Questions

G U S _____ 1. One effect of uncontrolled diabetes is that the blood might develop an acidic pH. As a result, cells may not be able to regulate their internal pH. Within these cells, this could cause a disruption of the function of biological catalysts known as

1. Enzymes
2. Toxins
3. Antibodies
4. antigens

G U S _____ 2. In order to enter cells and be useful to the body, starch must be

1. absorbed through the skin
2. digested into simple sugars
3. broken down into fats and water
4. converted to carbon dioxide and ATP

G U S _____ 3. Organic compounds are used as building blocks for

- (1) water, DNA, and starches
- (2) proteins, DNA, and carbon dioxide
- (3) water, proteins, and oxygen
- (4) proteins, starches, and fats

Base your answers to questions 4-5 on the information below and on your knowledge of Biology.

Enzyme Investigation

An enzyme was isolated from digestive juices taken from the small intestine. An experiment was set up to test the ability of the enzyme to break down protein. Two test tubes, labeled *A* and *B*, were placed in a hot water bath at 37°C, human body temperature.

Test tube *A* contained only protein and test tube *B* contained protein and the enzyme. The chart to the right shows the set-up.

Test Tube	Contents
A	protein
B	protein, enzyme

After two hours, the contents of both test tubes were analyzed. Test tube *A* showed only the presence of protein. Test tube *B* showed the presence of the end products of protein digestion, indicating the enzyme had successfully broken down the protein.

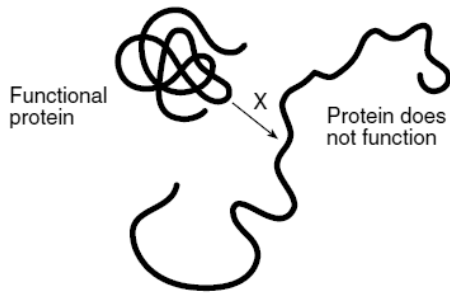
G U S 4. State what the result would be if the same enzyme that was added to test tube *B* was added to a test tube containing starch. Support your answer. _____

G U S 5. Identify the end products of protein digestion that made up the contents of test tube *B* after the two hours. _____

G U S _____ 6. A fully functioning enzyme molecule is arranged in a complex three-dimensional shape. This shape determines the

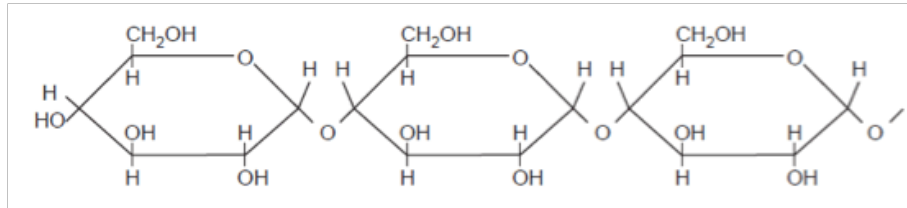
1. specific type of molecule it interacts with during a reaction
2. rate at which the enzyme breaks down during a reaction it regulates
3. pH of all body systems
4. temperature of the products of the reaction it regulates

G U S _____7. In the diagram below, X represents a process that causes a protein to unfold and stop functioning. Process X is most likely caused by



1. the digestion of the amino acids that make up the proteins
2. the synthesis of a protein with different simple sugars
3. removal of the gene that codes for the production of the protein
4. an internal factor in the body, such as a temperature increase

Base your answer to questions 8 and 9 on the diagram below and on your knowledge of biology. The diagram represents a portion of a starch molecule.



G U S _____8. The energy in this molecule is stored

- | | |
|------------------------------------|--|
| 1. in the bonds between atoms | 3. in the oxygen found in the molecule |
| 2. when the carbon atoms break off | 4. when water breaks this molecule apart |

G U S _____9. The building blocks for this molecule are

- | | | | |
|---------------|------------------|---------|--------------------|
| 1. amino acid | 2. simple sugars | 3. Fats | 4. molecular bases |
|---------------|------------------|---------|--------------------|

G U S _____10. Which statement explains the importance of maintaining a constant internal environment to ensure proper enzyme functioning?

1. Changes in pH and temperature will cause the enzyme reaction rate to be too fast.
2. Temperature and pH determine amino acid sequences in enzymes.
3. Changes in pH will change the genetic instructions of enzymes.
4. Increasing the temperature and pH can alter the specific shape of enzymes.

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____ 1-2 correct _____ 3-4 correct _____ 5-6 correct _____ 7-8 correct _____ 9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

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Mrs. Jordy

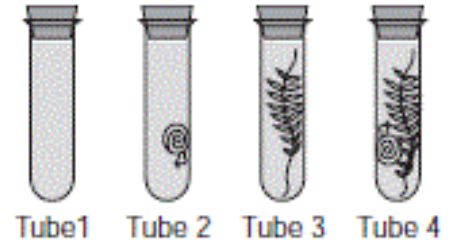
Topic 4: Photosynthesis and Respiration Regents Review Questions

G U S _____1. Which dissolved substance do aquatic animals remove from their external environment for use in cellular respiration?

1. carbon dioxide
2. ATP molecules
3. oxygen molecules
4. nitrogen gas

Base your answer to questions 2-3 on the information and diagram below and on your knowledge of biology.

The setup below shows four test tubes. Tube 1 contains water only. Tube 2 contains a live snail. Tube 3 contains a live green water plant. Tube 4 contains both a live green water plant and a live snail.



G U S _____2. Which compound that directly provides energy in living cells is being produced in every tube where cellular respiration is occurring?

1. Oxygen
2. Glucose
3. DNA
4. ATP

G U S _____3. In this setup, which tubes contain at least one organism carrying on cellular respiration?

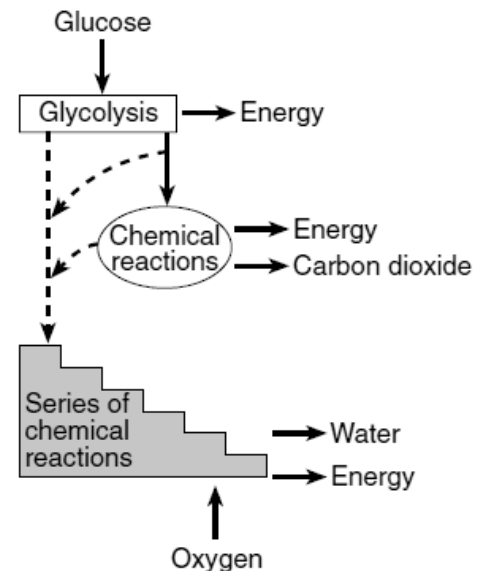
1. tubes 1 and 2, only
2. tubes 2 and 4, only
3. tubes 3 and 4, only
4. tubes 2, 3, and 4, only

Base your answer to questions 4-5 on the diagram to the right and on your knowledge of biology. The diagram illustrates the steps in a process that occurs in the cells of many organisms.

G U S _____4. Identify *one* specific molecule used to store the energy being released during this process. _____

G U S _____5. Based on the diagram, the process of glycolysis most likely

1. begins the breakdown of glucose
2. produces oxygen for organisms to use
3. stores energy in molecules of water and carbon dioxide
4. recycles glucose within the cells of simple organisms



Adapted from: Biology: A Community Context,
W. H. Leonard and J. Penick, 1998

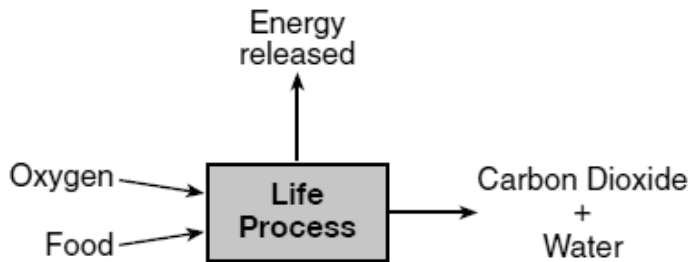
G U S _____6. Which structures regulate water loss and gas exchange in the leaves of plants?

1. Vacuoles
2. Chloroplasts
3. guard cells
4. mitochondria

G U S _____7. A cell in the leaf of a corn plant contains more chloroplasts than a cell in the stem of a corn plant. Based on this observation, it can be inferred that, when compared to the cell in the stem, the cell in the leaf

- | | |
|----------------------------|----------------------------------|
| 1. synthesizes more sugar | 3. has a higher chromosome count |
| 2. produces fewer proteins | 4. uses less carbon dioxide |

G U S _____8. Which life process carried out by a green plant is represented in the diagram below?

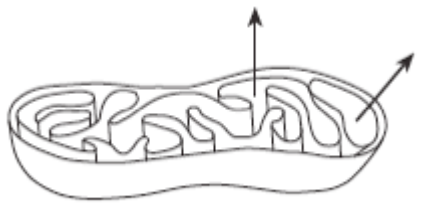


1. respiration
2. photosynthesis
3. digestion
4. replication

G U S _____9. As it grows from a seed to a mature plant, a plant will grow taller and thicker. Which are abiotic factors most responsible for the increase in the mass of the plant?

- | | |
|-----------------------------------|--------------------------------------|
| 1. water, minerals, bacteria | 3. sunlight, oxygen, plant receptors |
| 2. minerals, water, plant enzymes | 4. water, sunlight, carbon dioxide |

G U S _____10. The diagram below represents a cell structure involved in converting energy stored in organic molecules into a form used by animal cells.



The arrows represent the movement of which substances?

1. carbon dioxide and sugar
2. oxygen and ATP
3. ATP and carbon dioxide
4. oxygen and sugar

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____1-2 correct _____3-4 correct _____5-6 correct _____7-8 correct _____9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

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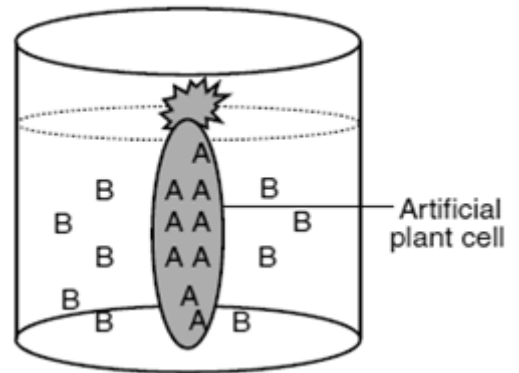
Date: _____
Mrs. Jordy

Topic 5: Life Processes, the Cell, and Cell Transport Regents Review Questions

G U S 1. There is a group of plants, known as halophytes, that has traits that enable them to survive in salty environments. Describe *one* change, other than death, that would be observed in the cells of a plant that did *not* have these traits and was planted in a salty environment. _____

Base your answer to questions 2-3 on the information and diagram below and on your knowledge of biology. The diagram shows an experimental setup using an artificial plant cell.

Molecules *A* and *B* are commonly found in plant cells. When tested, it was discovered that molecule *A* quickly passed through the artificial plant cell membrane. Molecule *B* did not pass through.



G U S 2. State *one* way the two molecules could differ that would explain the difference in their ability to pass through the artificial plant cell membrane. _____

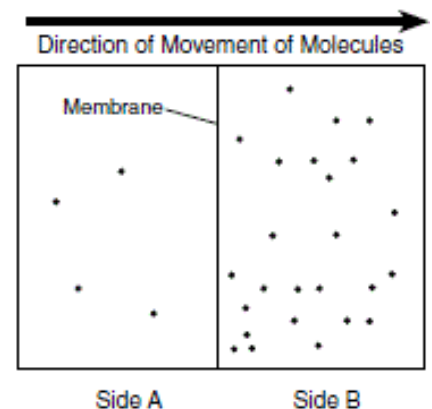
G U S _____ 3. The locations of molecules *A* and *B* at the beginning of the experiment are shown. Which statement best describes what was observed when the setup was examined 20 minutes later?

1. Molecule *A* remained inside the artificial cell and molecule *B* remained outside.
2. Only molecule *A* was found both inside and outside the artificial cell.
3. Only molecule *B* was found both inside and outside the artificial cell.
4. Both molecules *A* and *B* were found inside and outside the artificial cell.

G U S _____ 4. The diagram to the right represents the results of the net movement of a specific kind of molecule across a living cell membrane.

The movement of molecules from side *A* to side *B* is an example of the process of

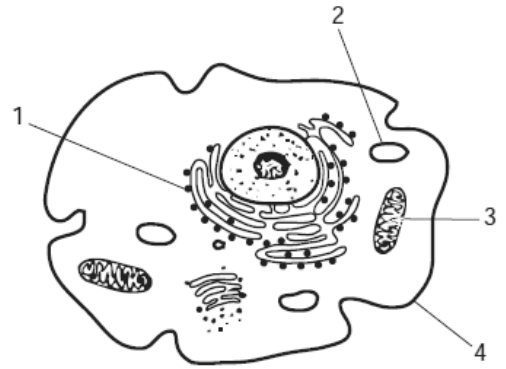
1. active transport
2. cellular respiration
3. chromatography
4. diffusion



G U S _____ 5. The processes of diffusion and active transport are both used to

1. break down molecules to release energy
2. move molecules into or out of cells of the body
3. bring molecules into cells when they are more concentrated outside of the cell
4. move molecules against a concentration gradient, using ATP molecules

For questions 6-8 use the diagram to the right, which represents a cell that produces digestive enzymes.



G U S _____ 6. Which cellular structure would be the most likely location for the synthesis of these enzymes?

1. 1 2. 2 3. 3 4. 4

G U S _____ 7. Which structure is responsible for the synthesis of ATP?

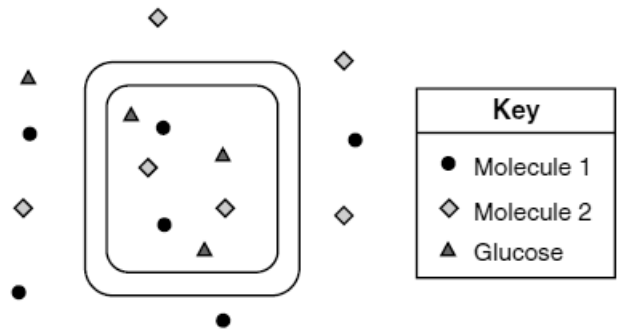
1. 1 2. 2 3. 3 4. 4

G U S _____ 8. Which structure is responsible for the passage of materials into and out of the cell?

1. 1 2. 2 3. 3 4. 4

G U S _____ 9. The diagram represents a plant leaf cell and two different molecules used in the process of glucose synthesis. Molecules 1 and 2 enter the cell and glucose leaves the cell through the process of

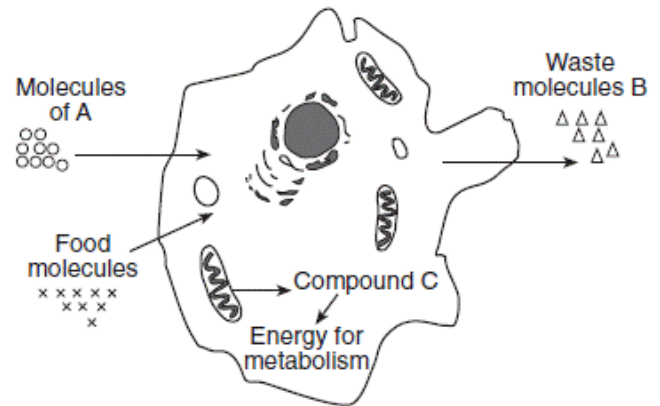
1. Respiration 3. digestion
2. active transport 4. diffusion



G U S _____ 10. The activity of a single-celled organism is represented in the diagram below.

Which concept is best illustrated by this diagram?

1. The life functions performed by single-celled organisms are different from the life functions performed by complex organisms.
2. Single-celled organisms carry out life functions that are essential for survival.
3. Since single-celled organisms lack organs, they can survive only in moist environments.
4. Single-celled organisms contain one organelle that performs all the life functions.



Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____ 1-2 correct _____ 3-4 correct _____ 5-6 correct _____ 7-8 correct _____ 9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

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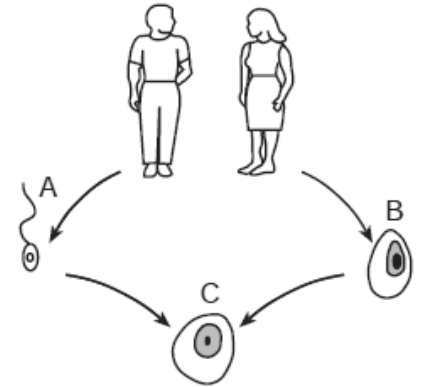
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Topic 6: Reproduction Regents Review Questions

G U S _____ 1. The diagram to the right represents events that occur during sexual reproduction.

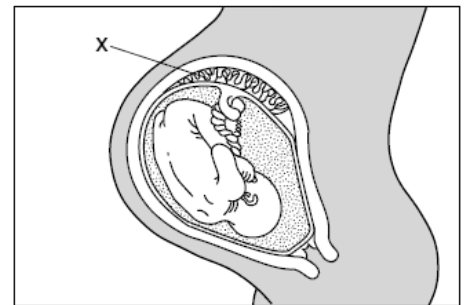
The stages labeled *A*, *B*, and *C* are necessary to ensure that the offspring will inherit

1. half of their chromosomes from each parent
2. double the amount of chromosomes from each parent
3. pairs of chromosomes from each parent
4. double the amount of chromosomes from one parent



G U S _____ 2. Which statement best describes an important process carried out by structure *X*?

1. Milk passes from the mother to the fetus.
2. Materials are exchanged between fetal and maternal blood.
3. Maternal blood is converted into fetal blood.
4. Oxygen diffuses from fetal blood to maternal blood.



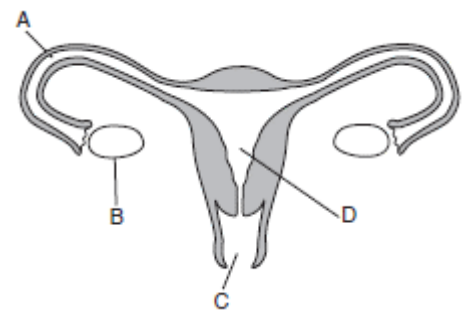
G U S _____ 3. Exposure to certain environmental toxins, such as pesticides, may reduce fertility in males by interfering with their ability to produce gametes. These toxins are most likely having an effect on the

- | | |
|----------------------------|-----------------------------|
| 1. testes and progesterone | 3. ovaries and testosterone |
| 2. ovaries and estrogen | 4. testes and testosterone |

G U S _____ 4. The diagram to the right represents structures found in the female reproductive system.

If the areas labeled *A* were completely blocked on both sides, the most likely result would be that

1. egg and estrogen production would stop
2. sperm and insulin production would stop
3. fertilization would not occur
4. an embryo would develop



G U S _____ 5. The paramecium is a single-celled organism that reproduces asexually. The offspring of a paramecium usually contain

- | | |
|--|---|
| 1. only half of the genes of the parent cells | 3. more DNA than the parent cell |
| 2. genetic material identical to that of the parent cell | 4. fewer mutations than the parent cell |

G U S _____ 6. The following events occur during sexual reproduction:

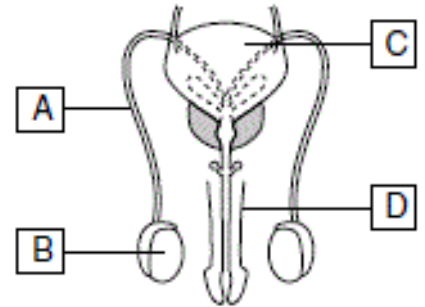
- A- mitosis
- B- meiosis
- C- fertilization
- D- birth

Which sequence represents the correct order of these events during sexual reproduction?

- 1. $A \rightarrow C \rightarrow B \rightarrow D$
- 2. $B \rightarrow C \rightarrow A \rightarrow D$
- 3. $C \rightarrow B \rightarrow A \rightarrow D$
- 4. $B \rightarrow A \rightarrow C \rightarrow D$

G U S _____ 7. A reproductive system is represented in the diagram. Which structure is correctly paired with its reproductive function?

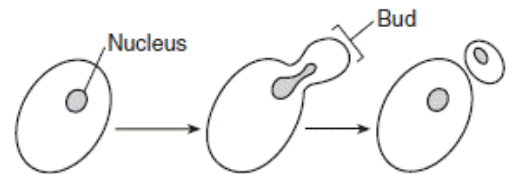
- 1. A – pathway of gametes
- 2. B – synthesis of progesterone
- 3. C – production of sperm
- 4. D – regulation of homeostasis



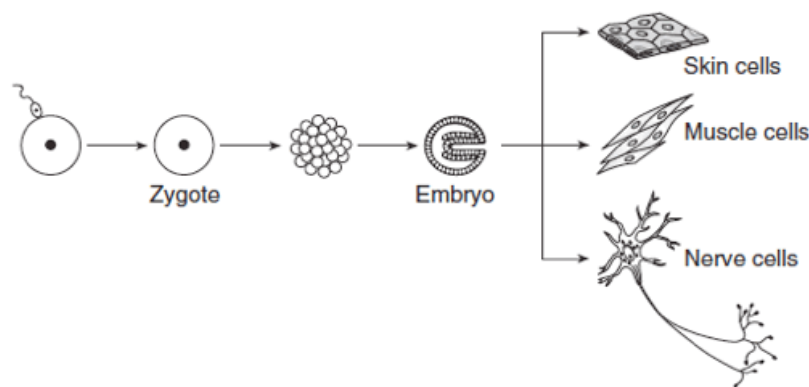
G U S _____ 8. The diagram below represents reproduction in a yeast cell. The genes in the bud are identical to the genes in the parent.

This type of production of offspring is a form of

- 1. sexual reproduction
- 2. gene manipulation
- 3. asexual reproduction
- 4. genetic engineering



G U S _____ 9. The development of nerve, muscle, and skin cells is represented in the diagram below.



Which statement best explains how each of the different cell types can develop from the same embryo?

- 1. The cells have identical genetic instructions, but different parts of these instructions are being expressed in each cell.
- 2. The cells have identical genetic instructions, and all parts of these instructions are being expressed in each cell.
- 3. The cells are produced by asexual reproduction and contain identical genetic instructions.
- 4. The cells contain genetic instructions from two different parents and will express the instructions from one parent, only.

G U S _____ 10. Which statement concerning sexual reproduction is correct?

1. It is not necessary in order for the individual to survive.
2. The offspring are identical to the parent.
3. It is necessary in order for the individual to survive.
4. The offspring are identical to each other.

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____ 1-2 correct _____ 3-4 correct _____ 5-6 correct _____ 7-8 correct _____ 9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

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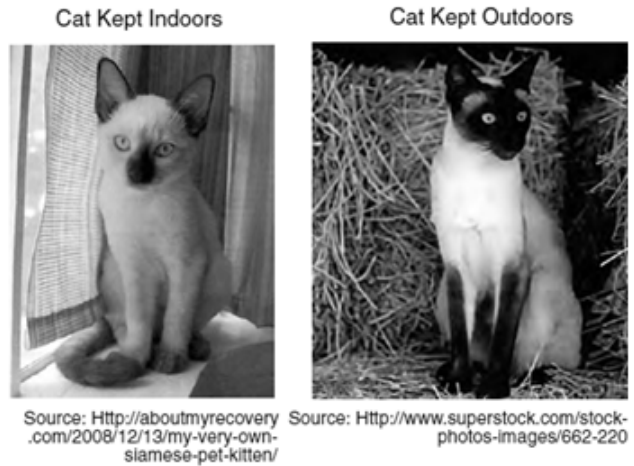
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Biology – Block _____

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Topic 7: Genetics and Biotechnology Regents Review Questions

G U S _____1. The photographs to the right are of two Siamese cats.

The Siamese breed has a gene that controls fur color. The cat in the first photograph was kept indoors while the cat in the second photograph was kept outdoors. Which statement best explains the differences in fur color between these two cats?



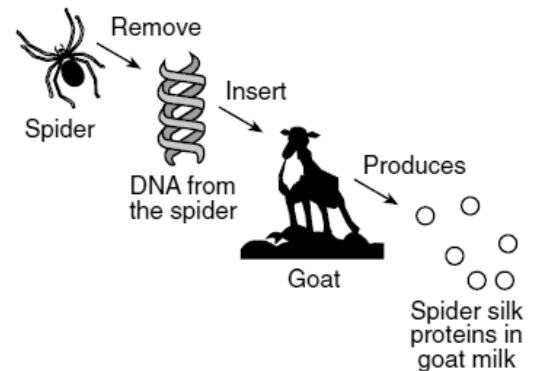
1. The cat kept indoors is older than the cat kept outdoors.
2. The environment influenced the expression of fur color genes.
3. The environment influenced the production of all the proteins in the cat kept outdoors.
4. The cat kept outdoors has a gene mutation that prevents it from producing light-colored fur.

G U S _____2. Although all of the cells of a plant contain the same genetic material, root cells and leaf cells are *not* identical because they

1. use different genetic bases for the synthesis of DNA
2. use different parts of their genetic instructions
3. select different cells to express
4. delete different sections of their enzymes

G U S _____3. A sequence of events is represented in the diagram below.

Which statement best describes a result of this process?



1. The spider from which the DNA sample was obtained can no longer produce spider silk.
2. The goat milk now contains DNA molecules made of spider silk proteins.
3. Both the spider and the goat can now produce both spider silk and goat milk.
4. Spider silk proteins can now be produced in large quantities without killing spiders to obtain them.

G U S _____4. State *one* way scientists could use the banding patterns produced by gel electrophoresis. _____

G U S _____5. Which statement is an accurate description of genes?

1. Proteins are made of genes and code for DNA.
2. Genes are made of proteins that code for nitrogen bases.
3. DNA is made of carbohydrates that code for genes.
4. Genes are made of DNA and code for proteins.

G U S _____6. The table below represents a segment of a DNA molecule found in a stomach cell, both before and after undergoing replication.

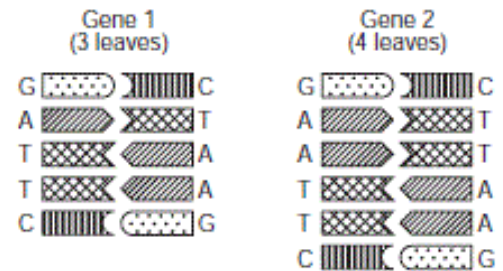
Which statement best describes a change that would most likely be observed in the cells formed as a result of this mitotic division?

DNA Segment Before and After Replication

Before replication	TGT	ATG	AAA	CAC	AAT	TAT
After replication	TGT	ATT	AAA	CAC	AAT	TTT

1. An enzyme the cell produces might no longer function
2. The cells would begin to form gametes to be released.
3. Many new hormones would be synthesized by the cells.
4. Chloroplasts would be produced by the ribosomes.

G U S _____7. The diagrams below represent portions of two genes that code for leaf structure in the same species of clover. Gene 1 was taken from the cells of a clover plant with 3 leaves and gene 2 was taken from the cells of a clover plant with 4 leaves.

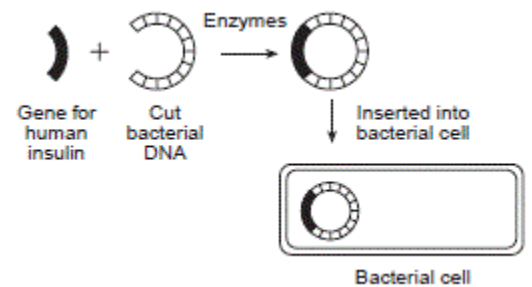


The clover plant having gene 2 (4 leaves) was most likely the result of

1. an insertion
2. a deletion
3. a substitution
4. normal replication

G U S _____8. The diagram below represents some steps in a procedure used in the field of biotechnology. This bacterial cell can now be used to produce

1. the bacterial gene for insulin that can be inserted into humans
2. human genes for enzymes that can be inserted into humans
3. insulin that can be used by humans
4. enzymes necessary to treat human diseases



G U S _____9. The instructions for the genetic traits of an organism are directly determined by the

1. numbers of A, T, C, and G units in a sugar molecule
2. sequence of bases in DNA molecules
3. length of a DNA molecule
4. way the bases are paired in the two strands of a DNA molecule

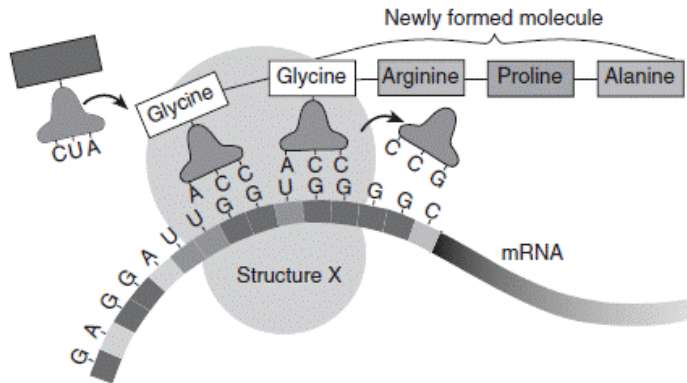
G U S _____10. The basic building blocks of a protein are

1. glucose molecules
2. amino acids
3. Hormones
4. fats

G U S _____11. In a cell, protein synthesis is the primary function of

1. ribosomes
2. Mitochondria
3. Chloroplasts
4. vacuoles

G U S _____12. The diagram below represents a process that occurs in living cells, and on your knowledge of biology.



The process shown in the diagram is

1. cellular respiration
2. cellular reorganization
3. gene recombination
4. protein synthesis

G U S _____13. The Old English Bulldog is extinct. To produce a new English Bulldog, dogs having the desired physical features, but not the aggressive nature of the old bulldogs, were mated. The result was a bulldog that was similar in appearance to the extinct bulldog, but without its fierce nature. Which technique was most likely used to develop this new variety of dog?

1. Cloning
2. mutations
3. genetic engineering
4. selective breeding

G U S _____14. Caretakers at a zoo are trying to determine which of two male tigers fathered the newest cub. They obtained DNA from the tiger cub, the mother tiger, and the two male tigers. The DNA was analyzed. The results of the analysis are shown below.

The technique used to separate the DNA for analysis is

1. genetic engineering
2. electrophoresis
3. chromatography
4. protein synthesis

Male 1	Male 2	Cub	Female
		—	—
—	—	—	—
—	—	—	—
	—		
—	—		
		—	—
—			

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____1-2 correct _____3-5 correct _____6-8 correct _____9-11 correct _____12-14 correct

2. What challenges are you having with this topic? (What is still confusing you?)

3. What are your goals for this unit?

4. On the first page, add words that you are unfamiliar with.

Topic 8: Evolution Regents Review Questions

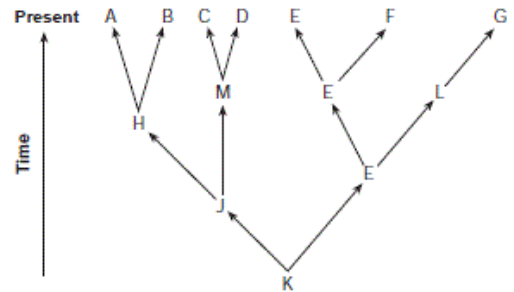
G U S _____1. Finches on the Galapagos Islands express a variety of traits. Variability in the offspring of these finches is a result of

- 1. mutation and cloning
- 2. mitosis and asexual reproduction
- 3. meiosis and mutation
- 4. mitosis and genetic recombination

G U S _____2. Scientists recently discovered that three different types of squid, a marine animal, previously thought to be three different species, were actually all members of one species. Their earlier ideas were based on using squid carcasses (dead bodies). The new, more accepted classification is most probably based on an analysis of

- 1. a greater number of squid carcasses
- 2. a number of newly found squid fossils
- 3. the feeding habits of the three different species
- 4. the DNA present in the cells of squid

G U S _____3. The diagram below represents evolutionary pathways of seven groups of organisms alive today.



Which two living species would be expected to have the most similar proteins?

- 1. A and C
- 2. E and F
- 3. B and C
- 4. H and M

Population	Type of Reproduction	Average Life Span of Individuals	Total Number of Offspring Produced
1.	sexual	13 days	100
2.	asexual	13 days	100
3.	sexual	12 weeks	25
4.	asexual	12 weeks	25

G U S _____4. Which population in the chart to the right has the best chance for survival in a rapidly changing environment?

G U S _____5. As a result of habitat destruction, the size of the Florida panther population has been drastically reduced. It is estimated that there are only 100 to 160 Florida panthers in the wild. Which statement best explains why the Florida panther population may *not* continue to evolve?

- 1. There is no longer a chance of mutations occurring in the population.
- 2. There is a lack of competition for limited environmental resources.
- 3. There is no longer a chance of a trait providing a reproductive advantage to the population.
- 4. There is a lack of genetic variation for selection to act upon.

G U S 6. During the laboratory activity *The Beaks of Finches*, you obtained food under two conditions: with competition and with no competition. State *one* way the results obtained from these two conditions differed when you did this activity. _____

G U S _____7. The theory of evolution states that

1. species that are extinct have no biological relationship to living species
2. different animal species always interbreed to form new and different species
3. species change over time, sometimes developing into new species
4. the environment of Earth is constant over time

G U S _____8. A shark and a dolphin have similarly shaped bodies and fins. However, these two organisms are not closely related: The shark is a fish, and the dolphin is a mammal. Some species may have similar body structures even if they are not related because they evolved in

1. similar environments and specific traits increased their chances of survival
2. similar environments and were exposed to factors that caused exactly the same mutations
3. different environments, but tried to adapt in the same ways so they could survive
4. different environments, but ate similar foods that affected their growth and development

G U S _____9. Plant species *X* lives in a hot, dry environment. Slowly, over hundreds of years, the climate becomes wetter. Fungi attack species *X* and cause the population of species *X* to decrease. However, plant species *X* could survive if the plants

1. try to mutate quickly and synthesize new proteins
2. are watered often and fertilized with extra nutrients
3. can adapt to the new conditions by mating with the fungus
4. have a few members of the population that are fungus-resistant

G U S _____10. Many domestic plants that are currently used for food by humans share a wild plant ancestor. The changes that have occurred in four common plants and the results are shown in the chart below.

Wild Plant Ancestor	Change That Occurred	Resulting Modern Plant
wild mustard	reduced flower development	broccoli
wild mustard	sterile flowers	cauliflower
wild mustard	enlargement of leaves	kale
wild mustard	shortened stem length	cabbage

What event most likely produced the changes that occurred in the wild plant ancestor?

1. Mutations in wild mustard sex cells were passed on to offspring.
2. Humans did not like to eat wild mustard.
3. Competition for survival occurred in all ecosystems of the world.
4. Ancient herbivores overgrazed wild mustard.

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____1-2 correct _____3-4 correct _____5-6 correct _____7-8 correct _____9-10 correct

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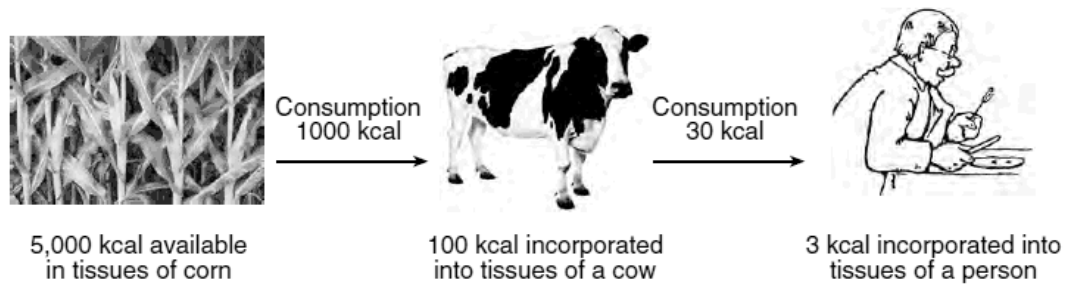
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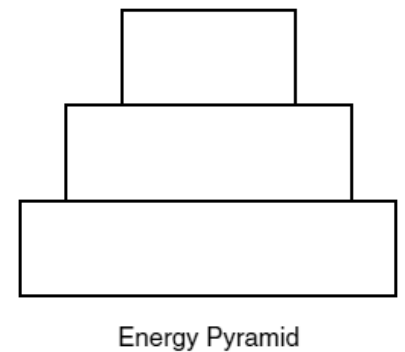
Topic 9: Ecology Regents Review Questions

Base your answers to questions 1-2 on the diagram below and on your knowledge of biology. The diagram represents the energy in kilocalories (kcal) available at different feeding levels in a food chain.



G U S _1. Explain why there is a different amount of energy represented at each level of this energy pyramid. _____

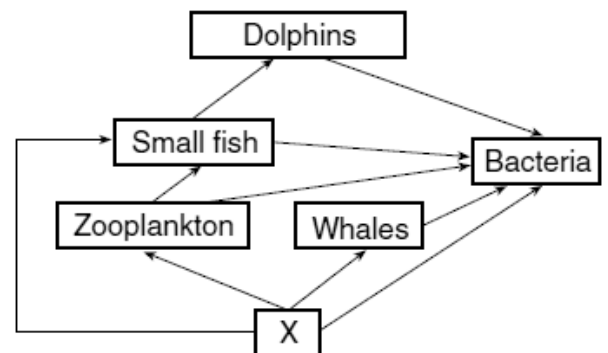
G U S _2. Complete the energy pyramid provided to the right by writing herbivore, plant, and carnivore in the correct locations. →



G U S _____3. The diagram below represents a marine food web.

The organisms represented by X are

1. decomposers
2. producers
3. carnivores
4. scavengers



G U S _____4. A fruit fly is classified as a consumer rather than as a producer because it is unable to

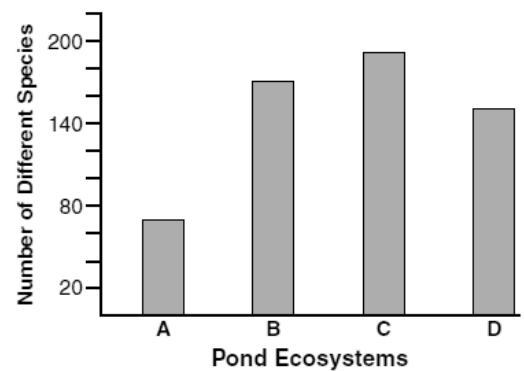
1. reproduce asexually
2. synthesize its own food
3. release energy stored in organic molecules
4. remove wastes from its body

G U S _____5. The bar graph below shows the number of species in four pond ecosystems.

Based on this information, which ecosystem is likely to be the most stable?

1. *A*
2. *B*
3. *C*
4. *D*

Number of Species in Four Pond Ecosystems



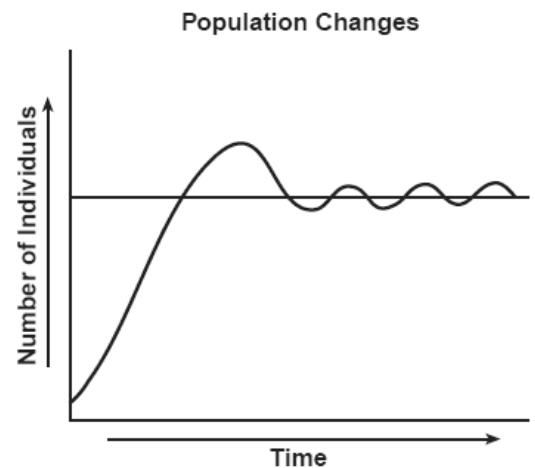
G U S _____6. Fungi are decomposers that play an important role in the maintenance of an ecosystem. The role of fungi is important because they

1. synthesize energy-rich compounds that are directly used by producers
2. break down materials that can then be used by other organisms
3. limit the number of plants that can perform photosynthesis in an area
4. are competitors of other consumers such as herbivores

G U S _____7. The graph below represents some changes in the number of individuals in a particular population in a stable ecosystem over a period of time.

Which statement best describes the trend shown in this graph?

1. Ecosystem conditions will eventually cause a population to become extinct.
2. In a stable ecosystem, the number of individuals in a population is usually maintained within a certain range.
3. The interactions between a population and various factors in an environment are always predictable.
4. In order for any ecosystem to maintain a balance, populations must be reduced to half their original number.



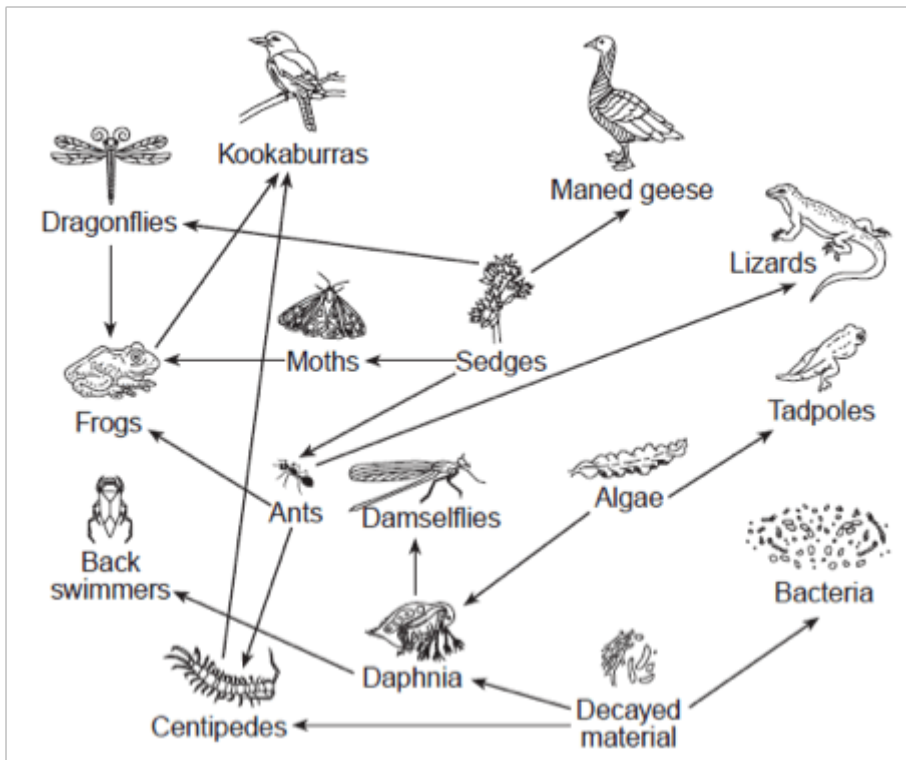
G U S _____8. Abandoned farmland that once grew corn is now covered with bushes and small trees. These observed changes resulted directly from

1. evolutionary change
2. ecological succession
3. loss of biodiversity
4. selective breeding

G U S _____9. Which statement best describes a situation where competition occurs in an ecosystem?

1. A deer outruns an attacking wolf.
2. A deer, during the winter, consumes tree bark.
3. A deer and a rabbit consume grass in a field.
4. A deer and a rabbit are both startled by a hawk flying overhead.

G U S _____ 10. The diagram represents part of a food web.



Which population would be most immediately affected by the removal of the lizard population?

1. sedges
2. algae
3. ants
4. centipedes

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____ 1-2 correct _____ 3-4 correct _____ 5-6 correct _____ 7-8 correct _____ 9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

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4. On the first page, add words that you are unfamiliar with.

Name: _____
Biology – Block _____

Date: _____

Topic 10: Human Impact Regents Review Questions

G U S _____ 1. A variety of pear tree, known as Bradford, was originally introduced into the eastern United States in the 1960s. Today, this tree is crowding out other plants in these states. This situation best illustrates

1. an unintentional negative effect of altering an ecosystem
2. how a foreign species is controlled in the eastern United States
3. that the introduction of a foreign species does not affect food webs
4. that serious environmental consequences can be avoided by importing a foreign species

G U S _____ 2. The increased use of wind turbines and solar collectors to generate electric power will

1. negatively affect ecosystems by increasing biodiversity
2. negatively alter the chemical composition of soil and water
3. reduce the amount of pollution that comes from the burning of fossil fuels
4. increase oil consumption for business and industry

G U S _____ 3. Microbeads are tiny, smooth, plastic spheres found in common household products such as facial soap. These beads, measuring from 0.0004 to 1.24 mm, roughly the size of some fish eggs, are too small to be removed by water treatment systems. Thus, they end up in rivers, lakes, and other bodies of water. The accumulation of these microbeads is an environmental concern for aquatic biologists because microbeads

1. make the lakes and rivers cloudy and dirty, affecting their appearance
2. may stick to some household water pipes, preventing drainage problems
3. could be mistaken for food by some species, working their way up the food chain
4. could clog fishing nets, affecting the ability of fishermen to catch fish

G U S _____ 4. Palm oil, produced from palm trees, is not only a biofuel, but is also used in food additives, cosmetics, and lubricants. Palm tree plantations are now cultivated in areas that were formerly natural forests. One ecological concern raised by this expansion is that

1. the natural forest ecosystem may harm the palm trees
2. the use of the land for agriculture will increase the biodiversity of the area
3. humans are changing the basic processes of the palm trees
4. planting large expanses of one crop reduces the biodiversity of the area

G U S _____ 5. The Nature Conservancy is an organization that protects a variety of habitats around the world. A project this organization would probably support is one that

1. uses endangered animals for medical research
2. protects the biodiversity of areas for future generations
3. alters habitats for industry and housing
4. prevents animal species from migrating to other habitats

G U S _____6. A company that produces paint is planning to build a small factory in a rural community. The factory would provide many needed jobs. Before the community agrees to allow the factory to be built, the community should

1. investigate the use of paint as a method of biological control
2. consider just the economic advantages of building the new factory
3. assess the risks of the new factory and compare these to the benefits
4. insist the factory use finite resources located in the community

G U S _____7. In some states, cars are inspected to be sure they are not releasing excessive amounts of several gases into the atmosphere. This is done in an effort to

1. recycle more nutrients
2. reduce global warming
3. reduce biodiversity
4. increase the growth rates of forests

G U S _____8. The graduating class of a high school would like to give the school a gift that would have a positive impact on the environment. Which plan would be the best choice?

1. making wooden benches by harvesting trees from school property
2. planting native trees along the border of the school property
3. introducing a new population of foxes, the school mascot, to school grounds
4. clearing an area to make room for additional student parking

G U S _____9. Which human activity would interfere most directly with the production of oxygen in the environment?

1. using fertilizer for agriculture
2. accelerating deforestation
3. using nuclear fuels
4. preserving wetlands

G U S _____10, The burning of fossil fuels has harmed the environment by

1. decreasing acid rain in the northeast United States
2. adding carbon dioxide to the atmosphere
3. increasing biodiversity in the lakes and ponds of the Adirondacks
4. depleting the ozone shield directly over western New York State

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

_____1-2 correct _____3-4 correct _____5-6 correct _____7-8 correct _____9-10 correct

2. What challenges are you having with this topic? (What is still confusing you?)

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4. On the first page, add words that you are unfamiliar with.

Name: _____
Biology – Block _____

Date: _____

Topic 11: Human Body Regents Review Questions

G U S _____ 1. An allergic reaction to certain types of natural, unprocessed foods, such as peanuts, is caused by

1. a lack of digestive enzymes
2. microorganisms living within the food
3. a response to specific antigens
4. high levels of carbon dioxide in the air

G U S _____ 2. When getting a vaccination, which substance is injected into the body?

1. bacteria to combat a pathogen
2. a weakened form of a virus
3. white blood cells to engulf a pathogen
4. antibiotics to kill a virus

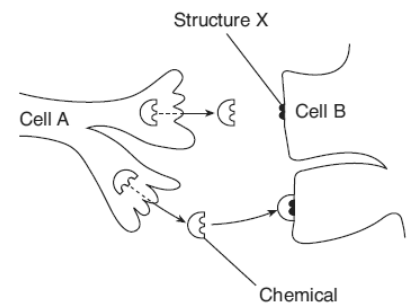
G U S _____ 3. *Pneumocystis* is an organism normally found in the human lungs that can cause pneumonia. It seldom causes problems in individuals with healthy immune systems. However, people with AIDS sometimes become seriously ill with pneumonia. This is most likely due to the fact that individuals with AIDS have

1. inherited a tendency to contract pneumonia
2. an allergy to this organism
3. difficulty fighting off infections
4. hormones that strengthen the infection

G U S _____ 4. The diagram below represents the region between two nerve cells. Cell A releases a chemical that travels to and binds with structure X on cell B.

Structure X most likely represents

1. a receptor molecule
2. a ribosome
3. an inorganic substance
4. an antibody



G U S _____ 5. The action of insulin on sugar levels in the blood helps to

1. interfere with homeostasis
2. coordinate enzyme production
3. maintain dynamic equilibrium
4. regulate digestion of protein

G U S _____ 6. An increase in the level of hormone A causes an increase in the level of hormone B. The increase in the level of hormone B then causes a decrease in the level of hormone A. This process is an example of

1. a failure to maintain homeostasis
2. a disruption in cellular coordination
3. the breakdown of chemicals
4. a feedback mechanism

G U S _____ 7. An infection in the body might result in a sudden

1. decrease in the activity of antigens produced by the mitochondria
2. decrease in the amount of DNA present in the nuclei of cells
3. increase in the activity of white blood cells
4. increase in the number of red blood cells

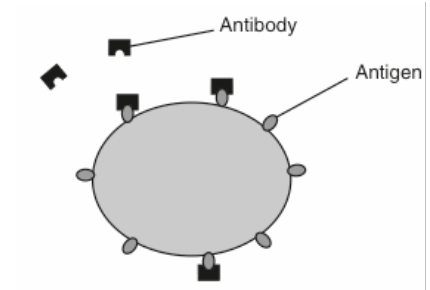
G U S _____9. Like humans, animals including dogs and cats get goose bumps. On a cold day, these goose bumps cause their coats to expand creating a layer of insulation. If the animal is scared, the coat will also expand making the animal look larger to predators. These responses serve as examples of

1. allergic reactions
2. detection and response to stimuli
3. learned behaviors
4. reproductive and feeding success

G U S _____10. An activity that occurs in the human body is shown below.

This activity helps to

1. provide protection against pathogens
2. produce antibiotics to control disease
3. eliminate harmful gene alterations
4. regulate production of ATP by the cell



G U S _____11. Which statement best explains why some cells in the reproductive system only respond to certain hormones?

1. These cells have different DNA than the cells in other body systems.
2. These cells have specific types of receptors on their membranes.
3. Reproductive system cells could be harmed if they made contact with hormones from other body systems.
4. Cells associated with the female reproductive system only respond to the hormone testosterone

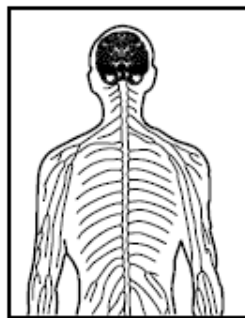
G U S _____12. During periods of vigorous physical activity, a person's breathing and heart rates increase. This enables the cells of the body to perform more efficiently because it helps the cells to

1. remove waste products faster
2. reduce the amount of ATP produced
3. store excess glucose in muscles
4. convert more oxygen to glucose

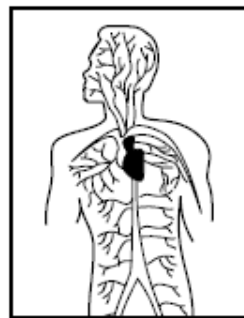
Base your answer to questions 13-14 on the diagrams below and on your knowledge of biology. The diagrams represent some of the systems that make up the human body.



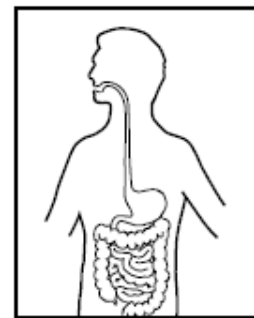
System A



System B



System C



System D

G U S _____13. A similarity between these systems is that they all

1. are made of cells that are identical in structure and function
2. contain organs that work independently from other organs in that system
3. work together to maintain a stable internal environment
4. are separate and do not interact with other body systems

G U S _____ 14. Which row in the chart below correctly identifies the main function of these systems?

Row	System A	System B	System C	System D
1.	response	excretion	circulation	digestion
2.	movement	response	circulation	digestion
3.	response	circulation	excretion	digestion
4.	movement	circulation	digestion	reproduction

Self-Reflection and Goal Setting

1. Based on your answers to the questions, how well do you know the information from this unit?

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