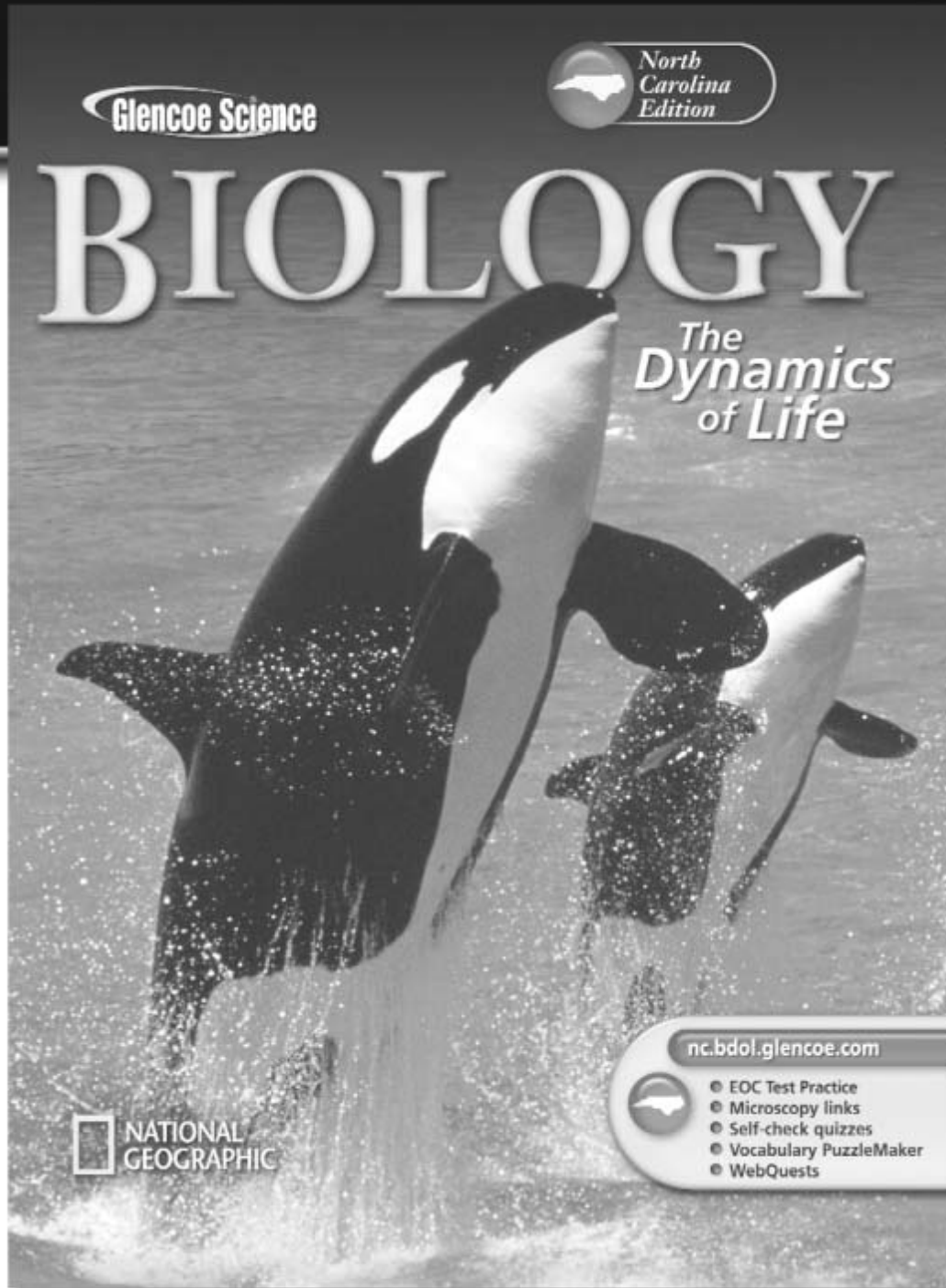


Mastering the End of Course (EOC) Biology Test

Student Edition



Glencoe



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Contents

Introduction	1
Task Regimen	2
Competency Goal 1: Scientific Inquiry	3
<i>Benchmark Test</i>	<i>7</i>
Competency Goal 2: Physical, Chemical, and Cellular Basis of Life . . .9	9
<i>Benchmark Test</i>	<i>13</i>
Competency Goal 3: Continuity of Life and the Changes of Organisms Over Time	15
<i>Benchmark Test</i>	<i>19</i>
Competency Goal 4: Unity and Diversity of Life	21
<i>Benchmark Test</i>	<i>25</i>
Competency Goal 5: Ecological Relationships Among Organisms . . .27	27
<i>Benchmark Test</i>	<i>31</i>

Introduction

What is in this book?

Welcome to the Student Edition of *Mastering the End of Course (EOC) Biology Test*.

There are two sections in this workbook:

- ***Task Regimen***

This section provides you with methods to tackle test questions. Using the methods in this section, you will learn how to use the process of elimination, how to identify important information in the tests' graphs, charts, and tables, as well as other skills that can help you succeed on tests. Carefully study the methods in this section before you begin the test questions in this workbook. Each task has an assignment for you to do on your own at home and one to do in class.

- ***Test Practice: EOC Review, Practice, and Preparation***

The questions in this section are designed to prepare you for the EOC. The format of the questions found in these practice tests is very similar to the format of the questions found in the EOC.

Task Regimen

A unique three-part **Task Regimen** designed to maximize the benefits of using this workbook is presented in this section. Each of the three tasks is designed to help you identify challenges and improve your performance.

Each task has an assignment for you to do on your own at home and one to do in class. Often the homework and the in-class activities will be coordinated, so it is important that you concentrate on both equally.

TASK

At-Home Assignment

In-Class Assignment

TASK 1

For each question you missed, find the pages in the textbook that cover the material and explain what specific information was needed to answer the question correctly. If you cannot find any helpful information in the textbook, write out three questions about the test question that you did not understand.

Work in a group to discuss any confusing questions and content areas. Then work through the confusing questions together.

TASK 2

For every incorrect question, go through each answer choice and explain why it is correct or incorrect. Include any tips or hints you noticed that helped you eliminate choices. Place a question mark beside any question you cannot figure out and bring it to class for discussion.

Your teacher will lead a discussion for each question. Share your ideas and observations with the class. Keep notes of the discussion to help your review.

TASK 3

Your teacher will provide you with a list of questions to work on. For each question, make observations and write down all of the information given in the test in the form of a graphic, a passage, or otherwise. Write the information directly onto the test.

Work in a group to discuss each question. Make sure to note the location in the textbook where helpful information was found.

MULTIPLE-CHOICE QUESTIONS

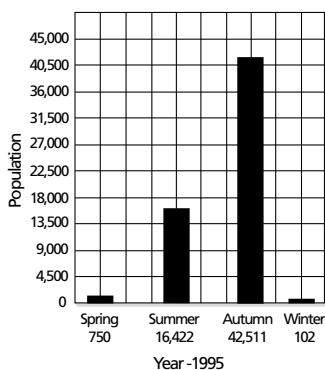
Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

Use the table below to answer questions 1–2.

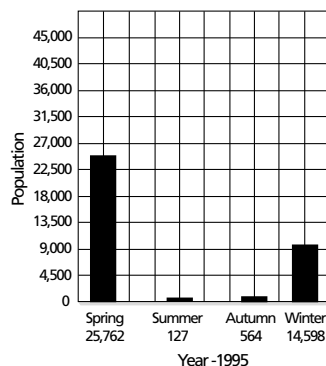
Population of Unknown Organisms				
Year	Spring	Summer	Autumn	Winter
1995	564	14,598	25,762	127
1996	750	16,422	42,511	102
1997	365	14,106	36,562	136

1 Which of the following graphs correctly reflects the data in the table?

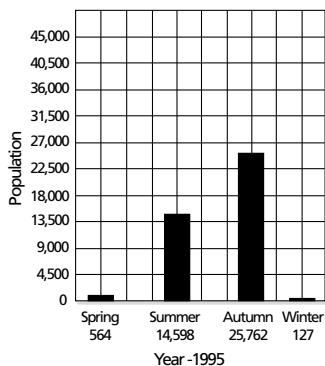
A



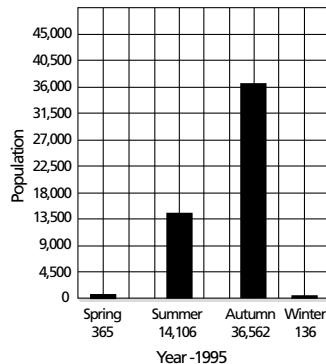
B



C



D



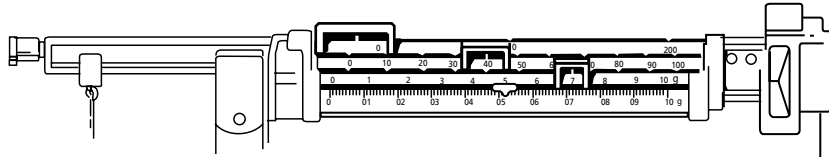
MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 2** Based on the data on page 3, what can you conclude about the organism?
- A It has a short lifespan.
 - B It has a long lifespan.
 - C It thrives in even-numbered years.
 - D It does not like cold or hot temperatures.
- 3** Why should quantitative experiments be repeated?
- A To publish results
 - B To communicate results
 - C To clearly display information
 - D To reduce the chance of error
- 4** If there is a clear chemical on your table during a lab, how should you identify it?
- A Ask your instructor what it is.
 - B Taste the chemical.
 - C Smell the chemical.
 - D Rub the chemical between your fingers.
- 5** Which is the correct way to hold a test tube while heating its contents?
- A Pointing straight up
 - B Pointing horizontally
 - C Pointing away from yourself and others
 - D Pointing straight at yourself
- 6** You are performing a lab that involves a mouse. In your lab, you see the safety symbol of a mouse, indicating a biological specimen will be used. Who does this precaution protect?
- A You and the mouse
 - B You only
 - C The mouse only
 - D Your instructor

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



7 What is the mass of the object being measured in the figure above?

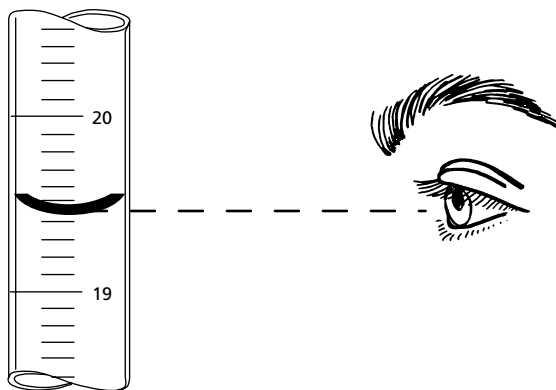
- A 47.52 g
- B 147.52 g
- C 407.52 g
- D 527.40 g

8 The surface of liquids in a glass cylinder is always curved. This curved surface is called a meniscus. When reading a volume of a liquid, read the bottom of the meniscus. What is the most precise volume of the liquid shown in the figure below?

- A 19.4 mL
- B 19.42 mL
- C 19.57 mL
- D 20.58 mL

9 A student measured the length of a piece of string that was 64.34 cm long. Her measurements were 67.02 cm, 67.07 cm, 67.05 cm, and 67.04 cm. Which of the following statements is true?

- A The measurements were accurate but not precise.
- B The measurements were precise but not accurate.
- C The measurements were both precise and accurate.
- D The measurements were neither accurate nor precise.



MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 10** For the measurements in question 3, which of the following statements is **NOT** a likely source of error?
- A** The calibrations on the meterstick were read incorrectly.
 - B** The end of the string was not placed at the end of the meterstick.
 - C** The meterstick itself was not accurately calibrated.
 - D** The string stretched when it was being measured.



Goal I Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

A student designed and performed an experiment to determine the relative densities of several liquids. The following table was used to organize the results. Use this data table to answer questions 1–3.

Liquid's Measurement Data					
Liquid	Mass of cup (g)	Mass of liquid and cup (g)	Mass of liquid only (g)	Volume of liquid (mL)	Density (g/mL)
Tap water	7	106	99	100	0.99
Salt water	6	110	104	100	1.04
Oil	6	98	92	100	0.92

- 1** Which of the following is true about the experiment?
- A The density is the independent variable, the liquid is the dependent variable, and the volume is constant.
 - B The liquid is the independent variable, the density is the dependent variable, and the volume is constant.
 - C The mass of cup is the independent variable, the density is the dependent variable, and the volume is constant.
 - D The mass of liquid is the independent variable, the volume of liquid is the dependent variable, and the mass of cup is constant.
- 2** Which of the following hypotheses is supported by the data in the table?
- A Density can be determined from the mass of the cup and liquid and the volume.
 - B Oil will float on tap water, and tap water will float on salt water.
 - C Salt water is less dense than either tap water or oil.
 - D The greater the volume of a liquid, the greater its density.
- 3** Other than the cup mentioned in the data table, what laboratory equipment would you need to use to perform this experiment?
- A Graduated cylinder, balance
 - B Beaker, spring scale
 - C Beaker, balance
 - D Graduated cylinder, spring scale

Goal I Benchmark Test

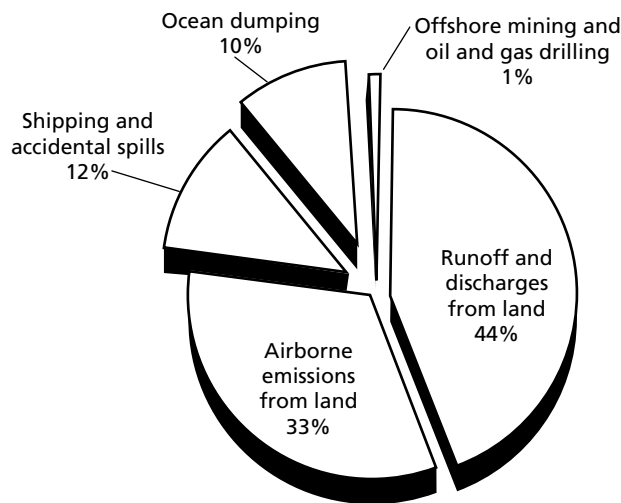
MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 4** If you wanted to determine the effects of climate on plants, which of the following would you least likely use to gather information?
- A Scientific inquiry
 - B Newspapers
 - C Textbooks
 - D The Internet

Pollution is the introduction of non-native, harmful substances into an environment. Oil is considered a pollutant when it enters oceans. A pollutant is a substance that causes damage to organisms by interfering with life processes. The graph shows the percentage of different sources of oil that enter the oceans each year.

- 5** What can you infer from the data in the graph below?
- A More accidents occur on land than at sea.
 - B Offshore mining accounts for as much oil pollution as gas and oil drilling.
 - C More than three-fourths of the oil entering oceans originates on land.
 - D Ocean dumping is a small and relatively easy problem to address.



Name:

Date:

Class:

Competency Goal 2

Physical, Chemical and Cellular Basis of Life

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

1 Cells use _____ for energy storage and insulation.

- A** proteins
- B** carbohydrates
- C** lipids
- D** enzymes

2 A protein that facilitates chemical reactions is called a(n) _____.

- A** enzyme
- B** amino acid
- C** lipid
- D** nucleic acid

3 Cells rely on _____ to store and release energy.

- A** lipids
- B** proteins
- C** carbohydrates
- D** glycerol

4 A macromolecule that stores cellular information in the form of a code is a(n) _____.

- A** nucleic acid
- B** enzyme
- C** carbohydrate
- D** lipid

5 RNA and DNA are examples of _____.

- A** amino acids
- B** lipids
- C** carbohydrates
- D** nucleic acids

MULTIPLE-CHOICE QUESTIONS

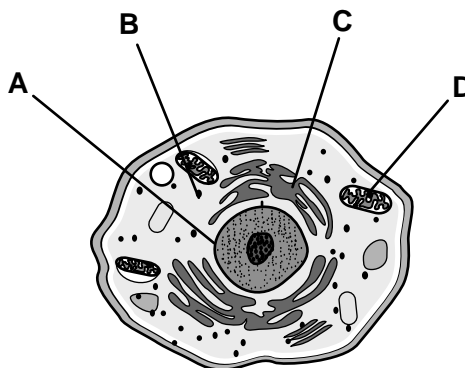
Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

6 Chromosomes are produced in what part of a eukaryotic cell?

- A** cell wall
- B** nucleus
- C** ribosomes
- D** vacuole

7 Vesicles formed in Golgi bodies are called _____.

- A** mitochondria
- B** lysosomes
- C** ribosomes
- D** chromatin



8 Which organelle shown in the diagram above provides energy for the cell by performing aerobic respiration?

- A** A
- B** B
- C** C
- D** D

Name:

Date:

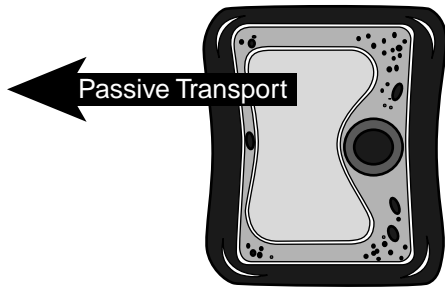
Class:

Competency Goal 2

Physical, Chemical and Cellular Basis of Life

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 9** In the diagram above, the concentration of ions and molecules outside the cell is MOST likely _____.
- A** twice as high as the concentration of ions and molecules inside the cell
 - B** the same as the concentration of ions and molecules inside the cell
 - C** lower than the concentration of ions and molecules inside the cell
 - D** composed of a different variety of ions and molecules than is inside the cell

- 10** Active transport of materials through a membrane against a concentration gradient requires _____.
- A** a carrier protein and energy
 - B** energy only
 - C** an isotonic solution
 - D** a carrier protein only

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 11** Which process uses carbon dioxide (CO_2), water (H_2O), and light energy to produce glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) and oxygen (O_2)?
- A** fermentation
 - B** photosynthesis
 - C** exocytosis
 - D** respiration
- 12** Cellular respiration occurs in _____.
- A** only animals
 - B** only plants
 - C** only protists
 - D** all living things
- 13** What are two reactants of aerobic respiration?
- A** glucose and oxygen
 - B** carbon dioxide and chlorophyll
 - C** carbon dioxide and oxygen
 - D** water and nitrogen
- 14** The stage of cellular respiration that is anaerobic is _____.
- A** the citric acid cycle
 - B** glycolysis
 - C** the electron transport chain
 - D** CO_2 formation
- 15** The electron transport chain is extremely efficient, producing _____ ATP molecules.
- A** 22
 - B** 24
 - C** 32
 - D** 38



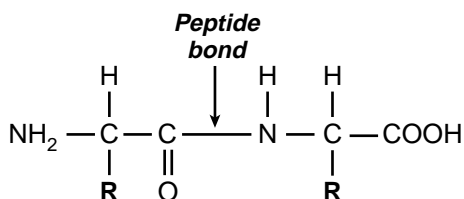
Goal 2 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

1 The formula $C_{57}H_{110}O_6$ is an example of a _____.

- A** lipid
- B** carbohydrate
- C** nucleic acid
- D** protein



2 The substance drawn above is produced in what part of a eukaryotic cell?

- A** cell wall
- B** nucleus
- C** ribosomes
- D** vacuoles

3 If a cell contains a 10% concentration of salt and is surrounded by water that also contains a 10% concentration of salt, which of the following will occur?

- A** Water will leave the cell only.
- B** Water will enter the cell only.
- C** Water will enter and leave the cell.
- D** The cell will die.

4 Energy from sunlight is trapped by chlorophyll located in the _____.

- A** citric acid cycle
- B** mitochondria
- C** electron transport chain
- D** thylakoid membranes

5 In the complete process of photosynthesis, the _____.

- A** Calvin cycle yields CO_2
- B** light reactions release oxygen
- C** Calvin cycle breaks down H_2O
- D** light reactions produce $NADP^+$ from $NADPH + H^+$

6 How many carbon dioxide molecules (CO_2) result from the respiration of six sugar molecules?

- A** 6
- B** 12
- C** 24
- D** 36

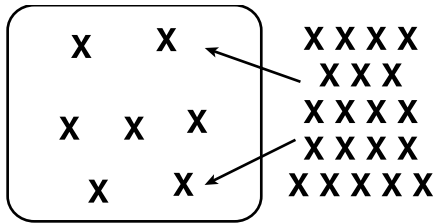
7 During photosynthesis, plants _____.

- A** take in oxygen and carbon dioxide
- B** take in oxygen and give off carbon dioxide
- C** give off oxygen and carbon dioxide
- D** take in carbon dioxide and give off oxygen

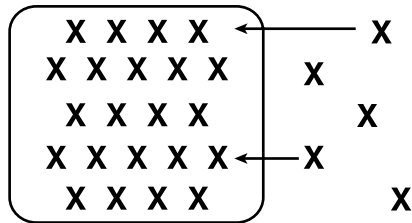
Goal 2 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



Cell 1



Cell 2

X = salt molecule

- 8** The arrows in the diagrams above indicate the movement of salt molecules through two cell membranes. The X's represent salt molecules. Which two processes do the diagrams illustrate?
- A** diffusion and active transport
 - B** dehydration synthesis and diffusion
 - C** diffusion and osmosis
 - D** passive transport and cellular respiration

- 9** In which of the following cell organelles does protein synthesis occur?

- A** chloroplasts
- B** mitochondria
- C** nucleus
- D** ribosomes

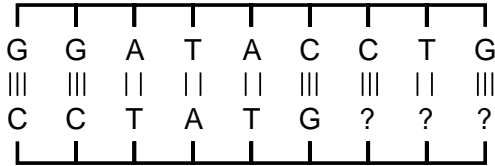
- 10** Which process produces the greatest amount of ATP per glucose molecule metabolized?

- A** respiration
- B** digestion
- C** fermentation
- D** photosynthesis



MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

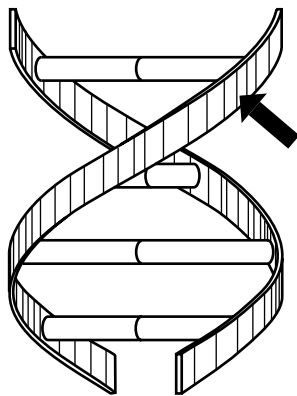


- 1** The diagram above shows a portion of a DNA molecule. The letters in the diagram represent the four bases: adenine (A), thymine (T), guanine (G), and cytosine (C). Which of the following sequences of bases do the question marks represent?

A C-A-C
B G-C-A
C G-A-C
D T-C-A

- 2** The arrow in the diagram below points to a structure called a _____.

A base
B hydrogen bond
C nucleotide
D cell wall



- 3** The DNA message depends on the order of the _____.

A nitrogen bases
B acids
C sugars
D genes

- 4** For asexual reproduction to be successful, a cell nucleus divides to form two new nuclei, each containing a complete copy of the parental chromosomes. This process is called _____.

A fermentation
B meiosis
C mitosis
D non-disjunction

	Father		
	B	b	
Mother	b	Bb	bb
	b	Bb	bb

B = dominant gene
b = recessive gene

- 5** A married couple plans to have children. The wife has blue eyes (*bb*), and her husband has brown eyes (*Bb*). The husband's mother had blue eyes. Based on the Punnet square above, what percentage of their children could they predict will have blue eyes?

A 25%
B 50%
C 75%
D 100%

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 6** Karen has two pet guinea pigs with black fur. When her guinea pigs mated, one of their four offspring had white fur, while the others had black fur. Which of the following conclusions is most likely true for Karen's guinea pigs?
- A** Both parents are heterozygous for the white-fur trait, which is dominant.
 - B** Both parents are heterozygous for the white-fur trait, which is recessive.
 - C** Both parents are homozygous for the white-fur trait, which is dominant.
 - D** Both parents are homozygous for the white-fur trait, which is recessive.
- 7** Some humans can roll their tongues, while others cannot. Simple dominant traits, such as tongue rolling, are determined in humans by _____.
- A** cleaved DNA
 - B** a point mutation on the X chromosome from the mother only
 - C** dominant alleles from the father only
 - D** dominant alleles from either the father or the mother, or both
- 8** A black-feathered chicken and a white-feathered chicken are crossed by a farmer. All of the offspring chickens have both black and white feathers. Which of the following does this exemplify?
- A** genetic mutation
 - B** codominant alleles
 - C** dominant alleles
 - D** multiple alleles
- 9** To be inherited by future generations, a gene mutation would have to occur in _____.
- A** brain cells
 - B** liver cells
 - C** sex cells
 - D** skin cells
- 10** A mutation in which a single base is added or deleted from DNA is called _____.
- A** frameshift mutation
 - B** point mutation
 - C** chromosomal mutation
 - D** nucleotide mutation

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 11** What is the name of the process through which scientists create genetically identical organisms?

A sequencing
B cloning
C recombining
D splicing

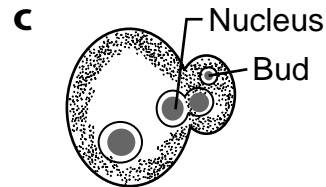
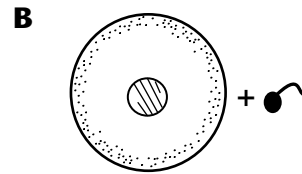
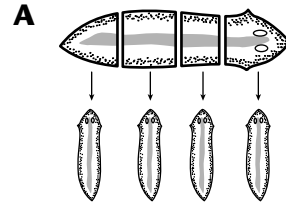
- 12** Recombinant DNA is used in making _____.

A insulin
B bacteria
C diabetes
D wires

- 13** A transgenic organism contains _____.

A enzymes
B genes from another species
C alleles of the host organism
D human chromosomes

- 14** Which of the diagrams below represents the method of reproduction that is characteristic of vertebrates?



Name:

Date:

Class:

Competency Goal 3

Continuity of Life and the Changes of Organisms Over Time

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

15 Which conclusion may be drawn when comparing fossils found in previously undisturbed strata of sedimentary rock?

- A** Fossils in the upper strata are younger than those in the lower strata.
- B** Fossils in the upper strata are older than those in the lower strata.
- C** Fossils in the upper strata are generally less complex than those in the lower strata.
- D** There are no fossils in the upper strata that resemble those in the lower strata.

16 The theory that whales evolved from ancestors that had legs is most likely based on information gathered from _____.

- A** embryology research
- B** population studies
- C** the fossil record
- D** DNA analysis

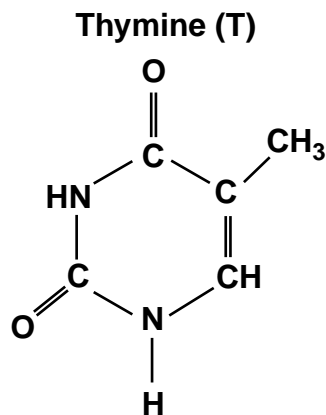


Goal 3 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** When DNA replicates, each new DNA molecule has _____.
- A** two new strands
 - B** one original strand and one new strand
 - C** two original strands
 - D** one new strand



- 2** Which base is the complementary strand of the base shown above?
- A** adenine
 - B** guanine
 - C** cytosine
 - D** uracil

- 3** Which of the following statements is true?
- A** In both mitosis and meiosis, the chromosomes separate once.
 - B** In both mitosis and meiosis, the chromosomes separate twice.
 - C** In mitosis the chromosomes separate once, while in meiosis the chromosomes separate twice.
 - D** In meiosis the chromosomes separate once, while in mitosis the chromosomes separate twice.

R = red eyes	XX = female
r = white eyes	XY = male

- 4** Examine the information in the box above. In fruit flies, the allele for eye color is a sex-linked trait. In other words, this gene is found only on the X chromosome. Which of the following fruit fly crosses could produce a white-eyed female?
- A** $X^R X^R \times X^r Y$
 - B** $X^R X^r \times X^r Y$
 - C** $X^R X^r \times X^R Y$
 - D** $X^r X^r \times X^R Y$

Goal 3 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

5 Punctuated equilibrium in evolution results in _____.

- A** small changes over a long period of time
- B** large changes over a long period of time
- C** small changes over a short period of time
- D** large changes over a short period of time

6 The emergence of harmful, recessive traits is one disadvantage of _____.

- A** the human genome
- B** selective breeding
- C** genetic equilibrium
- D** DNA sequencing

7 Sepals and petals along with stamens and pistils are present in _____.

- A** mosses
- B** ferns
- C** gymnosperms
- D** angiosperms

8 One use of recombinant DNA technology is to correct genetic disorders. This application is called _____.

- A** DNA fingerprinting
- B** cloning
- C** chromosomal mutation
- D** gene therapy

		Male	
		X^H	Y
Female	X^H	X^HX^H	X^HY
	X^h	X^HX^h	X^hY

H = normal blood clotting
h = hemophilia
XX = female
XY = male

9 Examine the Punnet square above. A married couple plans to have children. The husband (X^HY) and wife (X^HX^h) both have blood that clots normally. Which of these combinations will produce a child who suffers from hemophilia?

- A** X^HX^H
- B** X^HY
- C** X^HX^h
- D** X^hY

10 Out of four children, the expected number of girls with hemophilia is _____.

- A** none
- B** one
- C** two
- D** four



MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

1 Which of these represents a parasitic relationship?

- A** whale/plankton
- B** tick/dog
- C** Spanish moss/trees
- D** shark/fish

2 A relationship in which one organism benefits at the expense of another is _____.

- A** parasitism
- B** symbiosis
- C** mutualism
- D** commensalism

3 A dog fetching a paper is an example of _____ behavior.

- A** innate
- B** learned
- C** parental care
- D** migration

4 All of these are examples of innate animal behavior EXCEPT for _____.

- A** a duckling forming a social attachment to its mother
- B** a frog's tongue that flicks out to catch an insect
- C** male fireflies flashing distinct light patterns to attract females of the same species
- D** a species of bird migrating to South America when it is winter in North America

5 All behavior starts with a _____.

- A** stimulus
- B** reward
- C** response
- D** smell

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

6 The simplest innate behavior is _____.

- A** imprinting
- B** a reflex
- C** an instinct
- D** conditioning

7 Plants use the Sun's energy to make glucose through the process of photosynthesis. The energy stored in glucose is released in the process of _____.

- A** cellular respiration
- B** digestion
- C** replication
- D** transpiration

8 When you inhale, oxygen is transported to your body's cells. Which of these living systems does this process require?

- A** respiratory and circulatory only
- B** respiratory, circulatory, and digestive only
- C** muscular, respiratory, and circulatory only
- D** reproductive and circulatory only

9 The gray wolf is classified as *Canis lupus*. The domestic dog, formerly classified as *Canis familiaris*, is now classified as *Canis lupus familiaris*. This change reflects biologists' new belief that the domestic dog and the gray wolf belong to the same _____.

- A** kingdom
- B** genus
- C** species
- D** phylum

Classification of Rabbits

Level	Jackrabbit	Cottontail
Kingdom	Animalia	Animalia
Phylum	Chordata	Chordata
Class	Mammalia	Mammalia
Order	Lagomorpha	Lagomorpha
Family	Leporidae	Leporidae
Genus	<i>Lepus</i>	<i>Sylvilagus</i>
Species	<i>californicus</i>	<i>floridanus</i>

10 According to the classification table above, what is the LOWEST taxonomic level that jackrabbits and cottontails have in common?

- A** class
- B** family
- C** genus
- D** order

MULTIPLE-CHOICE QUESTIONS

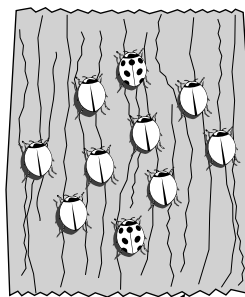
Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 11** A polar bear's scientific name is *Ursus maritimus*, while the scientific name of a brown bear is *Ursus arctos*. According to this information, it is apparent that the polar bear and the brown bear are _____.

- A** not in the same family
- B** the same animal called by two different names
- C** the same species
- D** the same genus

- 12** Some plants have small leaves that are covered with a waxy coating. For which type of habitat are such plants BEST adapted?

- A** temperate forest
- B** grassland
- C** desert
- D** tropical rain forest



Bark of Tree —

- 13** See the illustration above. What would happen to the beetle population if, over a period of many years, the bark on all the trees of this type became spotted?

- A** The population of spotted beetles would increase and the population of plain beetles would decrease.
- B** The population of plain beetles would increase and the population of spotted beetles would decrease.
- C** The population of spotted beetles would increase and the population of plain beetles would increase.
- D** The population of plain beetles would increase and the population of spotted beetles would stay the same.

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 14** If one population of sparrows adapted a type of feather that made it easier to survive, this sparrow population might increase because _____.
- A** the sparrows with the better feathers would live longer and pass the new trait onto their young
 - B** the sparrows would have fewer owls hunting them
 - C** there would be many more grasshoppers available for each sparrow to eat
 - D** the sparrows that did not adapt new wings would die, leaving more grasshoppers for the remaining sparrows



Goal 4 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** Some bacteria produce an enzyme that makes them resistant to penicillin. Their offspring will also MOST likely be resistant to penicillin because _____.
- A** bacteria have an unusually high rate of mutation
 - B** penicillin is no longer effective against bacteria
 - C** bacteria produce a large amount of antibodies
 - D** bacteria reproduce asexually
- 2** When plants reproduce, which process replicates their chromosomes?
- A** photosynthesis
 - B** fertilization
 - C** meiosis
 - D** pollination
- 3** When animals use past experiences to help them in new situations, they are using a form of reasoning called _____.
- A** imprinting
 - B** cyclic behavior
 - C** insight
 - D** instinct
- 4** The forelegs of a cat and a bat are examples of _____.
- A** comparative biochemistry
 - B** homologous structures
 - C** analogous structures
 - D** comparative embryology

Goal 4 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

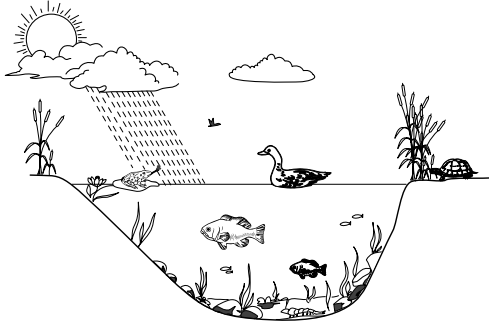
Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 5** An enzyme found in mitochondria has the same sequence of amino acids in both chimpanzees and humans. This observation supports the hypothesis that _____.
- A** chimpanzees and humans have similar diets.
 - B** chimpanzees and humans have a common ancestor.
 - C** amino acids are a characteristic of all animals.
 - D** lower organisms are not able to synthesize proteins.



MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 1** Examine the diagram above. The diagram shows the living and non-living factors that interact in a particular geographic area. The term that best describes these interactions is _____.

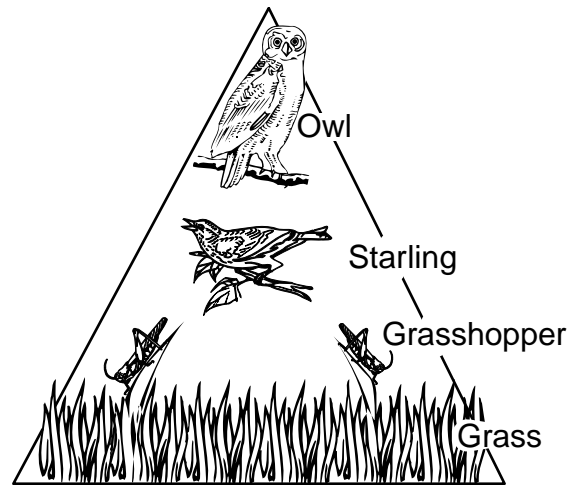
A biome
B environment
C ecosystem
D population

- 2** Relationships among different organisms in an environment are known as _____.

A interactive biomass
B biotic factors
C diversifications
D communal activities

- 3** Non-living aspects of the environment are called _____.

A biotic factors
B living factors
C limiting factors
D abiotic factors



- 4** Examine the pyramid above. A food pyramid is a way of showing how energy in an ecosystem flows from one organism to another. Based on this pyramid, which organism has the MOST energy available to it?

A grass
B grasshopper
C starling
D owl

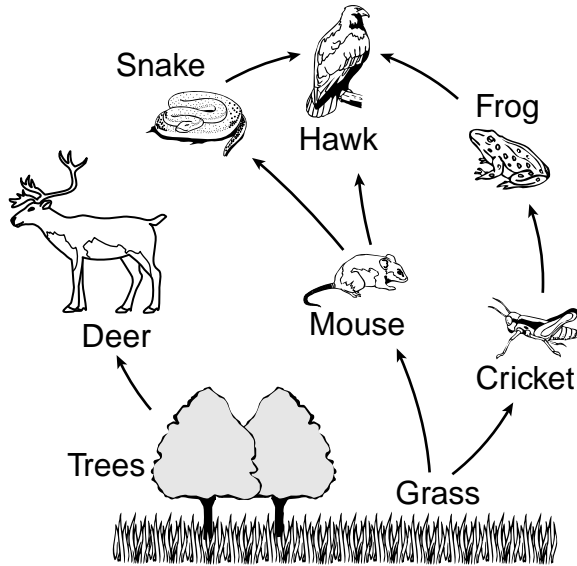
MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 5** Producers obtain energy primarily from _____.
- A** nutrients in the soil
 - B** the Sun
 - C** water
 - D** decomposing organisms
- 6** Farmers often introduce ladybugs into crops as predators to reduce the number of aphids feeding on their plants. In a short time, the number of aphids significantly decreases. This is an example of _____.
- A** migration
 - B** population equilibrium
 - C** a host-parasite relationship
 - D** abiotic control of pests
- 7** A major threat to ecosystems is the activity brought about by _____.
- A** plants
 - B** humans
 - C** algae
 - D** recycled nutrients
- 8** Carbon _____ through the carbon cycle.
- A** increases in quantity
 - B** decreases in quantity
 - C** follows various paths
 - D** follows a single path

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 9** Examine the diagram above. The food web shows how many secondary (second-order) consumers?
- A** none
B one
C two
D three
- 10** Alligators in wetland regions normally feed on animals such as shorebirds. Shorebirds usually feed on small fish and frogs. Recently, scientists released a large number of alligators into a wetland region. Scientists expected that as a result of this increase in the alligator population, the population of small fish and frogs would _____.
- A** remain about the same
B rapidly decrease
C become extinct
D notably increase

- 11** An abiotic factor affecting the behavior and survival of organisms, such as birds and insects, in a community is the _____.
- A** number of secondary consumers
B number of daylight hours
C number of herbivores
D incidence of harmful bacteria
- 12** Certain plants and animals have adaptations that enable them to survive in a desert ecosystem. The MOST important abiotic factor that affects these adaptations is the _____.
- A** number of consumers
B number of producers
C amount of rainfall
D temperature range

Name:

Date:

Class:

Competency Goal 5

Ecological Relationships Among Organisms

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

13 The total amount of carbon on Earth remains the same through time. Animals acquire the carbon stored in plants when they eat carbohydrates. Carbon returns to the atmosphere when animals exhale carbon dioxide as a by-product of respiration. This carbon dioxide gas is used by plants to manufacture complex carbohydrates through the process of _____.

- A** photosynthesis
- B** protein synthesis
- C** respiration
- D** transpiration

14 The water in Earth's atmosphere comes partly from _____.

- A** the chemical separation of water molecules in the oceans
- B** precipitation such as rain, snowfall and sleet
- C** transpiration of trees in the process of photosynthesis
- D** the melting of polar ice caps



Goal 5 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

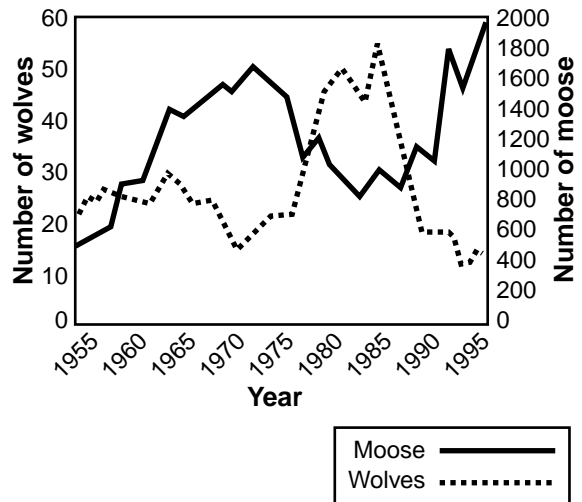
Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

1 The carbon dioxide that we breathe out has come originally from our _____.

- A** cells
- B** skin
- C** diaphragm
- D** urinary bladder

2 The oxygen in Earth's atmosphere comes mainly from _____.

- A** the chemical separation of water molecules in the oceans
- B** the chemical breakdown of minerals in the soil
- C** the process of photosynthesis occurring in green plants and algae
- D** the process of cellular respiration occurring in all organisms



3 The graph shows the changes in the populations of two animals that are part of a forest ecosystem. Which is a reason for the changes in these populations after 1985?

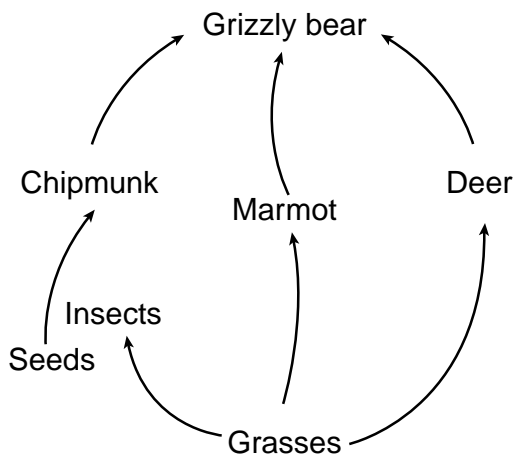
- A** All the plant populations in this ecosystem decreased.
- B** The wolf population preyed on the moose population.
- C** The wolf population competed for food more successfully than the moose population.
- D** An epidemic of disease reduced the wolf population.

Goal 5 Benchmark Test

MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 4** Two abiotic factors affecting the distribution of organisms in the ocean are _____.
- A** light and temperature
 - B** humidity and altitude
 - C** temperature and precipitation
 - D** light and latitude



- 5** Which of these statements is TRUE about the food web shown above?
- A** Grizzly bears have the highest biomass.
 - B** Grasses have the lowest biomass.
 - C** Deer have a higher biomass than do grizzly bears.
 - D** Seeds have a lower biomass than do chipmunks.

The gypsy moth was brought to the United States in 1869 in an attempt to start a silkworm industry. Escaping soon after, the gypsy moth has become a major tree pest in the forests of northeastern United States and southeastern Canada.

- 6** What is the MOST significant conclusion that can be drawn from the events reported in the paragraph above?
- A** Imported species can disrupt a balanced ecosystem.
 - B** Gypsy moths produce silk.
 - C** Imported species have difficulty adapting to a new environment.
 - D** Gypsy moths are herbivores.

