Student name:\_\_\_\_\_\_\_\_\_\_

**1)** The theory of evolution states that genetic changes are passed to future generations from parent to offspring.

 ⊚ true
 ⊚ false

 **Question Details**Bloom's : 1. Remember
Section : 01.07
Topic : History of Evolutionary Theory
Learning Outcome : 01.07.04 State how the theory of evolution is related to the gene theory.
Accessibility : Keyboard Navigation
Gradable : automatic

**2)** Some living organisms possess RNA as their only genetic material.

 ⊚ true
 ⊚ false

 **Question Details**Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Topic : Characteristics of Life
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**3)** The simplest organisms do not have nuclei. In the list below, which group has the simplest organisms?

 A) Bacteria
 B) Fungi
 C) Plantae
 D) Animalia
 E) Protista

 **Question Details**Topic : Levels of Biological Organization
Section : 01.01
Learning Outcome : 01.01.01 List the six kingdoms of life.
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**4)** The process of using and transforming energy in living cells is called

 A) response to stimulation.
 B) complexity.
 C) metabolism.
 D) homeostasis.
 E) evolution.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Section : 01.04
Learning Outcome : 01.04.01 Explain the five general themes that define biology as a science.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation
Gradable : automatic

**5)** There are five properties of living things. Which of the following properties provides and increase in the number of organisms within a population?

 A) growth and reproduction
 B) metabolism
 C) cellular organization
 D) homeostasis
 E) heredity

 **Question Details**Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Topic : Characteristics of Life
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**6)** All living things are able to maintain stable internal conditions, whether they are unicellular, or complex, multicellular organisms. This property is called

 A) metabolism.
 B) homeostasis.
 C) heredity.
 D) cellular organization.
 E) growth and reproduction.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Section : 01.04
Learning Outcome : 01.04.01 Explain the five general themes that define biology as a science.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation
Gradable : automatic

**7)** In a multicellular organism, different tissues that function together are grouped into

 A) organisms.
 B) cells.
 C) organs.
 D) tissue systems.
 E) atoms.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 List the 13 hierarchical levels of the organization of life.
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation
Gradable : automatic

**8)** All the populations of a particular kind of organism, that are able to interact with each other, are members of the same

 A) community.
 B) species.
 C) habitat.
 D) ecosystem.
 E) kingdom.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 List the 13 hierarchical levels of the organization of life.
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation
Gradable : automatic

**9)** The different populations of all the species in a given area make up a(n)

 A) community.
 B) association.
 C) ecosystem.
 D) population.
 E) habitat.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 List the 13 hierarchical levels of the organization of life.
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation
Gradable : automatic

**10)** Charles Darwin used \_\_\_\_\_\_\_\_ to visualize the mechanisms of natural selection.

 A) artificial selection
 B) biology
 C) natural history
 D) evolution
 E) scientific reasoning

 **Question Details**Section : 01.04
Learning Outcome : 01.04.01 Explain the five general themes that define biology as a science.
Bloom's : 2. Understand
Topic : History of Evolutionary Theory
Accessibility : Keyboard Navigation
Gradable : automatic

**11)** There are five general themes that serve to both unify and explain the science of biology. Which of the following falls outside of the underlying themes?

 A) cooperation
 B) flow of energy
 C) evolution
 D) creation
 E) homeostasis

 **Question Details**Bloom's : 1. Remember
Section : 01.04
Learning Outcome : 01.04.01 Explain the five general themes that define biology as a science.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation
Gradable : automatic

**12)** The proper order for steps in the scientific process is

 A) predictions→testing→observation→hypothesis.
 B) testing→observation→predictions→hypothesis.
 C) hypothesis→observation→testing→predictions.
 D) observation→hypothesis→predictions→testing.
 E) predictions→observation→hypothesis→testing.

 **Question Details**Bloom's : 1. Remember
Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Accessibility : Keyboard Navigation
Gradable : automatic

**13)** All organisms possess a genetic system that is based on

 A) RNA.
 B) protein.
 C) DNA.
 D) cells.
 E) sugars.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Topic : Characteristics of Life
Learning Outcome : 01.07.03 State how the theory of heredity is related to the chromosomal theory of
Section : 01.07
Accessibility : Keyboard Navigation
Gradable : automatic

**14)** The proper order for the hierarchy of increasing complexity is

 A) organelles - cells - molecules - tissues - organs.
 B) cells - molecules - organs - tissues - organelles.
 C) molecules - organs - cells - tissues - organelles.
 D) molecules - organelles - cells - tissues - organs.
 E) organs - organelles - cells - molecules - tissues.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 List the 13 hierarchical levels of the organization of life.
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation
Gradable : automatic

**15)** The test of a hypothesis is called a(n)

 A) control.
 B) experiment.
 C) variable.
 D) prediction.
 E) conclusion.

 **Question Details**Bloom's : 1. Remember
Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Accessibility : Keyboard Navigation
Gradable : automatic

**16)** Who is credited with discovering cells?

 A) Charles Darwin
 B) Anton van Leeuwenhoek
 C) Robert Hooke
 D) Francis Crick
 E) Joseph Farman

 **Question Details**Bloom's : 1. Remember
Topic : Characteristics of Life
Section : 01.07
Learning Outcome : 01.07.01 State the cell theory.
Topic : Cell Theory
Accessibility : Keyboard Navigation
Gradable : automatic

**17)** DNA (deoxyribonucleic acid)

 A) contains the information specifying what a cell is like.
 B) is a source of energy that can be harvested by a cell.
 C) is only present in higher cells.
 D) is not passed from cell to cell.
 E) is the main structural protein of a cell.

 **Question Details**Bloom's : 1. Remember
Section : 01.07
Learning Outcome : 01.07.02 Define the term gene.
Topic : Gene Expression
Accessibility : Keyboard Navigation
Gradable : automatic

**18)** It is often publicized that excess dietary fats are linked to higher incidences of heart disease and cancer in humans. Choose the hypothesis that a scientist could test to examine this observation.

 A) Eating more meatcauses cancer.
 B) Eating a diet of lard makes you fat.
 C) Dietary fat, heart disease, and cancer are all somehow interrelated.
 D) Calories from fat are correlated with an increase in heart disease.
 E) The intake of 30% more than the recommended dietary fat, is correlated with an increase in heart disease and cancer.

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Bloom's : 3. Apply
Accessibility : Keyboard Navigation
Gradable : automatic

**19)** A biologist wants to test the effectiveness of a new food additive on growth in mice. An effective control group would be one that

 A) ate a higher concentration of food additive.
 B) was kept in different conditions across the city with altering food additives.
 C) was fed the same ration without the food additive.
 D) ate a lower concentration of the food additive.
 E) was kept under the same conditions and fed the same ration but without the food additive.

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Bloom's : 3. Apply
Accessibility : Keyboard Navigation
Gradable : automatic

**20)** A scientist wants to study the effect of vitamin C on colds. He recruits 100 people with colds and gives the experimental group a pill containing 1,000 mg of vitamin C per day. The appropriate control group of this study would be given

 A) nothing.
 B) 2,000 mg of vitamin C per day.
 C) orange juice every day.
 D) a pill similar to the one containing vitamin C but lacking vitamin C.
 E) 1,000 mg of another brand of vitamin C per day.

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Bloom's : 3. Apply
Accessibility : Keyboard Navigation
Gradable : automatic

**21)** Scientists employ \_\_\_\_\_\_\_\_ at the very beginning of the scientific process.

 A) observations
 B) deductions
 C) predictions
 D) experiments
 E) theories

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**22)** After scientists observed that an ozone hole was developing over Antarctica, they measured levels of chemicals in the upper atmosphere. They found a surprising concentration of ozone-destroying

 A) chlorofluorocarbons.
 B) helium.
 C) super nitricoxide.
 D) mercury.
 E) nitrogen.

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**23)** In 1865, Gregor Mendel stated that all genes of an organism are inherited as discrete units. This is known as the

 A) theory of evolution.
 B) theory of heredity.
 C) natural selection observation.
 D) gene theory.
 E) cell theory.

 **Question Details**Bloom's : 1. Remember
Learning Outcome : 01.07.03 State how the theory of heredity is related to the chromosomal theory of
Section : 01.07
Topic : Gene Expression
Accessibility : Keyboard Navigation
Gradable : automatic

**24)** The cell theory

 A) is supported by evidence provided by Hooke, van Leeuwenhoek, Schleiden, and Schwann.
 B) states cells come from preexisting cells.
 C) states living organisms are composed of cells.
 D) states cells are the basic unit of life.
 E) All of the answer choices are correct.

 **Question Details**Bloom's : 1. Remember
Section : 01.07
Learning Outcome : 01.07.01 State the cell theory.
Topic : Cell Theory
Accessibility : Keyboard Navigation
Gradable : automatic

**25)** At the end of an experiment, a conclusion is formed based on the

 A) analysis of the experiment.
 B) general observations during the experiment.
 C) needs of the group funding the experiment.
 D) feelings or beliefs of the scientist conducting the experiment.
 E) All of these choices are used by scientists to form conclusions.

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**26)** Which kingdom contains photosynthetic multicellular organisms that live on the land?

 A) Fungi
 B) Plantae
 C) Animalia
 D) Protista
 E) Archaea

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 List the six kingdoms of life.
Topic : Kingdoms and Domains of Life
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**27)** Which kingdom contains nonphotosynthetic multicellular organisms that digest their food externally?

 A) Fungi
 B) Plantae
 C) Animalia
 D) Protista
 E) Archaea

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 List the six kingdoms of life.
Topic : Kingdoms and Domains of Life
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**28)** Which kingdom contains nonphotosynthetic multicellular organisms that digest their food internally?

 A) Fungi
 B) Plantae
 C) Animalia
 D) Protista
 E) Archaea

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 List the six kingdoms of life.
Topic : Kingdoms and Domains of Life
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

**29)** Which statement would lose points on an exam about the scientific process?

 A) Hypotheses can berejected.
 B) Alternativehypotheses can be proposed and tested after initial experimentation.
 C) A scientifictheory is mainly an educated "guess."
 D) Supernaturalphenomena are not scientifically testable.
 E) In a controlexperiment, the variable is not altered.

 **Question Details**Section : 01.06
Learning Outcome : 01.06.01 Distinguish between hypothesis and theory.
Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Topic : Experimental Design
Bloom's : 4. Analyze
Accessibility : Keyboard Navigation
Gradable : automatic

**30)** The kingdom that includes mushrooms and yeast is the \_\_\_\_\_\_\_\_.

 **Question Details**Bloom's : 1. Remember
Section : 01.01
Learning Outcome : 01.01.01 List the six kingdoms of life.
Topic : Kingdoms and Domains of Life
Accessibility : Keyboard Navigation
Gradable : automatic

**31)** All living things use energy, a property known as \_\_\_\_\_\_\_\_.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation
Gradable : automatic

**32)** As life-forms become more advanced, new properties occur. These properties are referred to as \_\_\_\_\_\_\_\_.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Topic : Levels of Biological Organization
Learning Outcome : 01.03.02 Explain the origin of emergent properties.
Accessibility : Keyboard Navigation
Gradable : automatic

**33)** The information that determines what a cell is like, and how it interacts with other cells, is stored in the \_\_\_\_\_\_\_\_ molecule.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Topic : Characteristics of Life
Section : 01.07
Learning Outcome : 01.07.02 Define the term gene.
Topic : Gene Expression
Accessibility : Keyboard Navigation
Gradable : automatic

**34)** The final step in the scientific process is the development of a \_\_\_\_\_\_\_\_.

 **Question Details**Bloom's : 1. Remember
Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Topic : Experimental Design
Accessibility : Keyboard Navigation
Gradable : automatic

**35)** A collection of related hypotheses that have been shown to be true after extensive testing can be collectively called a \_\_\_\_\_\_\_\_.

 **Question Details**Bloom's : 1. Remember
Section : 01.06
Learning Outcome : 01.06.01 Distinguish between hypothesis and theory.
Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Accessibility : Keyboard Navigation
Gradable : automatic

**36)** A discrete unit of genetic information is called a \_\_\_\_\_\_\_\_.

 **Question Details**Bloom's : 1. Remember
Topic : Characteristics of Life
Section : 01.07
Learning Outcome : 01.07.02 Define the term gene.
Topic : Gene Expression
Accessibility : Keyboard Navigation
Gradable : automatic

**37)** Imagine that you have discovered a new organism that has all five properties of life. What hereditary material would it have?

 **Question Details**Section : 01.02
Learning Outcome : 01.02.01 Name and describe the five basic properties shared by all living things.
Topic : Characteristics of Life
Bloom's : 3. Apply
Accessibility : Keyboard Navigation
Gradable : automatic

**38)** The theory of \_\_\_\_\_\_\_\_ explains the diversity of finch observed on the Galápagos Islands.

 **Question Details**Section : 01.07
Bloom's : 2. Understand
Topic : History of Evolutionary Theory
Learning Outcome : 01.07.04 State how the theory of evolution is related to the gene theory.
Accessibility : Keyboard Navigation
Gradable : automatic

**39)** Heat maps of the atmosphere indicate where the ozone layer is thinning. In thinner areas, you could hypothesize that there are higher amounts of \_\_\_\_\_\_\_\_ being emitted.

 **Question Details**Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Topic : Experimental Design
Bloom's : 4. Analyze
Accessibility : Keyboard Navigation
Gradable : automatic

**40)** At the cellular level, explain the hierarchical relationship between macromolecules, atoms, and molecules.

 **Question Details**Section : 01.03
Learning Outcome : 01.03.01 List the 13 hierarchical levels of the organization of life.
Topic : Levels of Biological Organization
Bloom's : 3. Apply
Accessibility : Keyboard Navigation
Gradable : manual

**41)** Many people think the term "theory" means someone's idea about something. Explain the scientific use of the term "theory," especially as it relates to the biological concept of evolution.

 **Question Details**Section : 01.06
Learning Outcome : 01.06.01 Distinguish between hypothesis and theory.
Topic : Scientific Method
Bloom's : 3. Apply
Accessibility : Keyboard Navigation
Gradable : manual

**42)** Explain how a depletion inozone might lead to a rise in theincidence of skin cancer.

 **Question Details**Topic : Scientific Method
Section : 01.05
Learning Outcome : 01.05.01 Explain how the six stages of a scientific investigation allow biologists
Topic : Experimental Design
Bloom's : 4. Analyze
Accessibility : Keyboard Navigation
Gradable : manual

**Answer Key**Test name: chapter 01

1) TRUE

Charles Darwin stated that modification of genes are passed down. Please see section 1.7.

2) FALSE

Only some viruses, which are not alive, use RNA in this way. Please see section 1.2.

3) A

The Bacteria and the Archaea lack even the nuclear membrane which defines a true nucleus. Please see section 1.1.

4) C

Metabolism produces all of the chemicals needed for life. Please see sections 1.2 and 1.4, focusing on metabolism.

5) A

Growth and reproduction provides an increase in an organisms size and an increase in the population. Please see section 1.2.

6) B

Homeostasis shows an organism working against the increase in entropy, or disorder, within itself. Please see sections 1.2 and 1.4.

7) C

Organs are an intermediate level in the hierarchical organization ofliving things. Please see section 1.3.

8) B

Species consists of the same organism that are able to interact with each other. Please see section 1.3.

9) A

Communities include the living things which interact in a given area. Please see section 1.3.

10) A

Artificial selection, which occurs when humans select organisms for particular traits, drives evolution like natural selection does. Please see section 1.4.

11) D

Creation is an idea related to religion, which cannot be properly tested using the scientific method. Please see section 1.4.

12) D

Review section 1.5. Testing can only come when observations have led to a hypothesis and predictions based on the hypothesis.

13) C

All living organisms have genes that are inherited. This genetic information is the form of genes on DNA. Please see sections 1.2 and 1.7.

14) D

The items in the hierarchical organization of life get larger as you proceed from atoms to ecosystems. Please see section 1.3.

15) B

Experiments have treatments designed to see the effects of the variable which the hypothesis is trying to explain. Please see section 1.5.

16) C

Hooke looked at a piece of cork and saw what looked like tiny rooms. Please see section 1.7.

17) A

Genes are encoded in DNA. Please see section 1.7.

18) E

A hypothesis has to have testable material in it. Please see section 1.5.

19) E

A control omits the treatment which the experimenter wants to better understand, leaving a baseline for comparison. Please see section 1.5.

20) D

A vitamin-C-free pill would simply eliminate any effect of vitamin C on health without confounding the experiment by using a non-pill treatment. Please see section 1.5.

21) A

Observations of the living world lead a biologist to wonder why or how some process occurs. Finding the answer to that question requires the scientific process. Please see section 1.5.

22) A

Please see section 1.5. The noting of many atmospheric details led to the discovery of the ozone hole.

23) B

Review section 1.7. Gregor Mendel made the first advances in describing inheritance of genes.

24) E

Please see section 1.7. Robert Hooke, Anton van Leeuwenhoek, Matthias Schleiden, and Theodor Schwann were the first contributors of the cell theory.

25) A

The conclusion involves accepting or rejecting the hypothesis. The results of the experimental treatment(s) are compared to those of the control(s) to decide about the hypothesis. Please see section 1.5.

26) B

The land plants are large organisms growing on land, unlike the photosynthetic protists. Please see section 1.1.

27) A

Fungi release enzymes into their habitat and absorb the nutrients released. Please see section 1.1.

28) C

Animals ingest their food by one of several mechanisms, such as filter feeding. Please see section 1.1.

29) C

Hypotheses are not just guesses but based on existing knowledge and theory. Please see sections 1.5 and 1.6.

30) Fungi

Mushrooms are spore-producing bodies of some fungi. Please see section 1.1.

31) metabolism

Metabolism interconverts chemical compounds with energy stored in their bonds. Please see section 1.2.

32) emergent

Emergent properties arise from complexity and interaction. Please see section 1.3.

33) DNA

DNA is the hereditary molecule of all living things. Please see sections 1.2 and 1.7.

34) conclusion

The scientific process requires a decision to accept or reject a tested hypothesis. Please see section 1.5.

35) theory

Please see sections 1.5 and 1.6. Few hypotheses last so long to become theory.

36) gene

Genes are units of DNA sequence coding for some function. Please see section 1.7.

37) DNA

All living things use DNA for genetic information. Please see section 1.2.

38) evolution

Evolution says that natural selection chooses adaptations to various habitats. Please see section 1.7.

39) [chlorofluorocarbons, or CFCs]

Review the case study of the ozone hole discussed in section 1.5.

40) Review section 1.3.

Atoms are the basic element of all matter. Atoms link together to form molecules. Smaller molecules link together to form macromolecules. Please see section 1.3.

41) Please see section 1.6. Evolution has been highly tested for over a century in various ways.

A theory in biology is a collection of related hypotheses that have been repeatedly tested and have stood the test of time. The theory of evolution means that substantial evidence has been found to verify the notion that evolution has and is occurring among living organisms on earth.

42) Please see sections 1.5. Successful hypotheses can be used to make predictions about the future.

The layer of ozone surrounding the earth shields us from the sun's harmful ultraviolet rays. The UV rays are mutagenic, triggering changes in the DNA of our skin cells, giving rise to skin cancer. With less ozone, more UV rays hit the earth. If ozone-destroying CFCs continue to pollute the atmosphere, skin cancer rates will continue to climb.