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

**1)** Which is the correct sequence for levels of biological organization within amulticellular organism?

 A) atom - molecule - organelle - cell - tissue
 B) molecule - atom -organelle - tissue - cell
 C) cell - organelle -atom - tissue - molecule
 D) organelle -molecule - atom - tissue - cell
 E) atom - organelle -molecule - cell - tissue

 **Question Details**Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Topic : Levels of Biological Organization
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**2)** Which is the correct sequence for levels of biological organization occurring beyond an organism?

 A) population -ecosystem - community - biosphere
 B) community -population - ecosystem - biosphere
 C) community -population - biosphere - ecosystem
 D) population -community - ecosystem - biosphere
 E) ecosystem -population - biosphere - community

 **Question Details**Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Topic : Levels of Biological Organization
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**3)** All living organisms

 A) areprokaryotes.
 B) are either unicellular or multicellular.
 C) are eukaryotes.
 D) aremulticellular.
 E) areunicellular.

 **Question Details**Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**4)** Organisms that extract energy from nonliving environmental resources are called

 A) heterotrophs.
 B) decomposers.
 C) parasites.
 D) consumers.
 E) producers.

 **Question Details**Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**5)** You are sorting cards with pictures of organisms and their descriptions into groups. You would place the card with an osprey and the description "organisms that obtain energy by consuming other organisms" with cards for other

 A) autotrophs.
 B) plants.
 C) heterotrophs.
 D) producers.
 E) photosynthesizers.

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Bloom's : 3. Apply
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**6)** If you observed a newly discovered 'thing' and tried to decide if it might be alive, what would be the weakest distinction for life?

 A) homeostasis
 B) movement
 C) structuralorganization
 D) evolution
 E) energy use

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Bloom's : 2. Understand
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**7)** The four kingdoms included in the domain Eukarya are

 A) Bacteria, Fungi,Plantae, and Animalia.
 B) Bacteria, Protista,Plantae, and Animalia.
 C) Protista, Fungi,Plantae, and Animalia.
 D) Archaea, Bacteria,Plantae, and Animalia.
 E) Archaea, Fungi,Plantae, and Animalia.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**8)** A major difference between prokaryotes and eukaryotes is that prokaryotes

 A) have cell walls while eukaryotes do not.
 B) do not have a nucleus in their cells whileeukaryotes do.
 C) have a nucleus in their cells while eukaryotes do not.
 D) are autotrophs while eukaryotes are not.
 E) are not livingorganisms, while eukaryotes are.

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**9)** If you were grading a set of exams dealing with the scientific method, which statement would lead to a student losing points?

 A) It is a general wayof answering questions with evidence.
 B) It is a frameworkto consider ideas in a repeatable way.
 C) It begins withobservations.
 D) It does not applyto problems encountered in everyday life.
 E) It enables thetesting of ideas.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**10)** Which statement about ahypothesis is incorrect?

 A) It can be proventrue.
 B) It can be provenfalse.
 C) It is a tentativeexplanation.
 D) It is based onprevious knowledge.
 E) It must be testableto be useful.

 **Question Details**Section : 01.03
Bloom's : 4. Analyze
Learning Outcome : 01.03.03 Explain the limitations of the scientific method.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**11)** In a scientific experiment, the investigator manipulates the \_\_\_\_\_\_ variable(s) to determine whether it causes another variable to change.

 A) standardized
 B) control group
 C) dependent
 D) independent
 E) control group and standardized

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**12)** In a scientific experiment, the investigator measures the response of the \_\_\_\_\_\_\_ variable(s).

 A) independent
 B) dependent
 C) control group
 D) standardized
 E) dependent and independent

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**13)** Which of the following is nota "control" in an experimental procedure?

 A) a placebo
 B) a known standardof comparison
 C) a normal group
 D) an experimentalgroup
 E) a"zero"-value group

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**14)** A theory differs from a hypothesis in that a theory

 A) has more supportiveevidence than a hypothesis.
 B) is broader in scopethan a hypothesis.
 C) has predictivepower.
 D) ties together manyexisting observations.
 E) All answers are correct.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**15)** A structure consisting of tissues organized to carry out a specific function defines a(n)

 A) organ.
 B) cell.
 C) population.
 D) atom.
 E) molecule.

 **Question Details**Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation

**16)** In cleaning up after lab, you have to sort cards into boxes. You would put all of the below cards into a box marked "ecosystem" except

 A) community.
 B) biosphere.
 C) populations.
 D) organisms.
 E) nonlivingenvironmental components.

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Bloom's : 3. Apply
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation

**17)** Asexual reproduction differs from sexual reproduction in that

 A) asexualreproduction produces genetically diverse offspring.
 B) asexualreproduction utilizes DNA from two parentsto code for traits inoffspring.
 C) asexualreproduction occurs only in plants.
 D) asexual reproduction produces offspring containing DNA from only one parent.
 E) asexualreproduction only occursin animals.

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Bloom's : 2. Understand
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**18)** If you wanted to demonstrate homeostasis to a friend, you could use as an example

 A) a populationchanging over time.
 B) environmentalconditions holding constant through time.
 C) cellshavingenough water to survive.
 D) plants andanimals needing energy sources.
 E) an organismmaintaining nearly constant internal conditions.

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Bloom's : 2. Understand
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**19)** What statement deals with an aspect of experimentation but with the incorrect explanation?

 A) The larger the sample size, the more meaningful the results.
 B) The smaller the sample size, the more meaningful the results.
 C) A control group is an untreated group and provides a basis for comparison.
 D) It is important to standardize aspects of an experiment that might affect the outcome, other than the independent variable.
 E) All answers arecorrect.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**20)** The bacterium *Staphylococcus* *aureus* belongs to which domain?

 A) Eukarya
 B) Archaea
 C) Prokarya
 D) Protista
 E) Bacteria

 **Question Details**Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Bloom's : 2. Understand
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**21)** The bacterium *Staphylococcus aureus* has which of the following?

 A) nucleus and ribosomes
 B) DNA and nucleus
 C) DNA and cell membrane
 D) cell membrane andnucleus
 E) None of the answer choices are correct.

 **Question Details**Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Bloom's : 2. Understand
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**22)** *Homo sapiens* is in which domain?

 A) Archaea
 B) Bacteria
 C) Eukarya
 D) Animalia
 E) Protista

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**23)** What did Charles Darwin predict after observing the 11-inch long nectaries of the *Angraecum sesquipedale* orchid in Madagascar?

 A) the existence of a moth with a 10–11 inch long tongue
 B) the existence of a competitor that also possessed especially long nectaries
 C) the presence ofvery small bees that could fit into long nectaries
 D) that the orchidmust reproduce asexually
 E) that the orchidwas an evolutionary dead end and could no longer reproduce

 **Question Details**Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Scientific Method
Accessibility : Keyboard Navigation

**24)** In an experiment, Charles Darwin's prediction about long nectaries and long-tongued moths would be a(n)

 A) standardized variable.
 B) theory.
 C) independent variable.
 D) dependent variable.
 E) hypothesis.

 **Question Details**Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Bloom's : 2. Understand
Topic : Scientific Method
Topic : Experimental Design
Accessibility : Keyboard Navigation

**25)** You want to test Charles Darwin's prediction that an orchid with long pollen tubes has a pollinator with long, thin mouthparts that can reach the bottom of the elongated nectar tube. You place nets over some orchids, which allows pollinators with small, short mouthparts to enter but prevents the entry of pollinators with long, thin mouthparts. Next, you compare the number of seeds produced by plants with and without the nets. In this experiment, seed production is a(n)

 A) dependent variable.
 B) hypothesis.
 C) theory.
 D) independent variable.
 E) standardized variable.

 **Question Details**Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Bloom's : 4. Analyze
Topic : Scientific Method
Topic : Experimental Design
Accessibility : Keyboard Navigation
Learning Outcome : 01.00.01 Describe how science is used to study life.

**26)** What is the advantage to the Madagascan orchid of having an 11-inch long nectar tube?

 A) It can producenectar over a larger area and attract more pollinators.
 B) It can collectmore rainwater.
 C) It can be pollinated easily only by the moths with long tongues.
 D) It can collectmore sunlight for photosynthesis.
 E) It can trapinsects as a source of nutrients.

 **Question Details**Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Scientific Method
Accessibility : Keyboard Navigation

**27)** What is the advantage of a moth having a very long tongue if an orchid has a very long nectar spur?

 A) It is used toattract mates through sexual selection.
 B) It can pollinateonly one type of flower.
 C) It makes flyingmore efficient.
 D) It can be used tocapture other flying insects for food.
 E) It can reachnectar that no other pollinator can reach.

 **Question Details**Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Bloom's : 4. Analyze
Topic : Scientific Method
Accessibility : Keyboard Navigation

**28)** Pollination is a step of \_\_\_\_\_ in a plant.

 A) sexualreproduction
 B) asexualreproduction
 C) development
 D) metabolism
 E) homeostasis

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Topic : Scientific Method
Topic : Experimental Design
Accessibility : Keyboard Navigation

**29)** Why isn't scientific inquiry foolproof?

 A) Multipleinterpretations of the data are possible.
 B) Definitive answers may not exist.
 C) Observations canbe misinterpreted.
 D) Unexpectedconclusions are not always readily accepted.
 E) All answers arecorrect.

 **Question Details**Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.03 Explain the limitations of the scientific method.
Topic : Scientific Method
Topic : Experimental Design
Accessibility : Keyboard Navigation

**30)** Which of the following questions cannot be answered by science?

 A) What is themeaning of life?
 B) Why is the skythe color blue?
 C) What causes species' extinctions?
 D) How did I startfrom only an egg and sperm?
 E) Why is too muchfatty food bad for me?

 **Question Details**Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.03 Explain the limitations of the scientific method.
Topic : Scientific Method
Accessibility : Keyboard Navigation

**31)** How do you know the computer you are working on is not alive?

 A) It is not made ofcells.
 B) It does notmaintain an internal consistency of water, solutes, and other components.
 C) It cannotreproduce, asexually or sexually.
 D) It cannotevolve.
 E) All answers arecorrect.

 **Question Details**Section : 01.01
Learning Outcome : 01.01.01 Describe the characteristics that all living organisms share.
Bloom's : 3. Apply
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**32)** Gravity is a theory because it is

 A) a tentativeexplanation of an observation.
 B) an untestableprediction.
 C) a changeableelement of experiments.
 D) an opinion orhunch.
 E) an encompassing explanation of anatural phenomenon that is well accepted.

 **Question Details**Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.03 Explain the limitations of the scientific method.
Topic : Scientific Method
Accessibility : Keyboard Navigation

**33)** You perform an experiment in which you take 16 pots of strawberry plants and give half of them 1 gram of ammonium nitrate per liter of water and the other half receive only water. Each group is then split in half again, and exposed to either 8 or 16 hours of light each day. You monitor the height of the plants for 4 weeks. You observe that plants grown in ammonium nitrate and 16 hours of light grow taller than no ammonium nitrate and 8 hours of light.

 **Question Details**

**33.1)** Which of the following is/are independent variable(s) in this experiment?

 A) amount of ammonium nitrate and light
 B) amount of water
 C) amount of carbon dioxide
 D) height of the plants and amount of light
 E) height of the plants

 **Question Details**Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**33.2)** Which of the following is/are dependent variable(s) in this experiment?

 A) amount of ammonium nitrate and light
 B) amount of carbon dioxide
 C) amount of water
 D) height of the plants
 E) height of the plants and amount of light

 **Question Details**Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Bloom's : 3. Apply
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**33.3)** In this experiment, the size of the pot is

 A) an independentvariable.
 B) a dependentvariable.
 C) a standardizedvariable.
 D) a placebo.
 E) a control.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.01 Identify the variables in an experiment.
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**33.4)** Ammonium nitrate is

 A) an atom.
 B) a molecule.
 C) a cell.
 D) a tissue.
 E) a biosphere.

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**33.5)** The proximate reason for the uptake by plants of nutrients like ammonium nitrate is

 A) asexualreproduction.
 B) sexualreproduction.
 C) naturalselection.
 D) evolution.
 E) homeostasis.

 **Question Details**Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**33.6)** The leaf of a strawberry plant is

 A) an organ.
 B) a molecule.
 C) an organelle.
 D) a cell.
 E) an organism.

 **Question Details**Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.02 Apply the scientific method to design experiments and analyze data.
Topic : Experimental Design
Accessibility : Keyboard Navigation

**34)** If you found an organism that was single-celled and had a nucleus, you would classify it as a member of the Archaea.

 ⊚ true
 ⊚ false

 **Question Details**Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Bloom's : 4. Analyze
Topic : Levels of Biological Organization
Accessibility : Keyboard Navigation

**35)** The "kingdom" is the most all-inclusive taxonomic category.

 ⊚ true
 ⊚ false

 **Question Details**Bloom's : 1. Remember
Section : 01.02
Learning Outcome : 01.02.01 Compare and contrast the three branches of life.
Topic : Levels of Biological Organization
Topic : Characteristics of Life
Accessibility : Keyboard Navigation

**36)** The scientific method cannot be used to answer questions about immaterial and philosophical issues.

 ⊚ true
 ⊚ false

 **Question Details**Bloom's : 1. Remember
Section : 01.03
Learning Outcome : 01.03.03 Explain the limitations of the scientific method.
Topic : Scientific Method
Accessibility : Keyboard Navigation

**Answer Key**Test name: Chapter 01 Test Bank

1) A

All living things, no matter how different, are made of cells, with multicellular organisms made up of many cells. Please see section 1.1 for more information.

2) D

Organisms interact with one another and with nonliving things at a variety of levels, from populations to the entire worldwide biosphere. Please see section 1.1 for more information.

3) B

Living things must include at least one cell, as in bacteria, and can be multicellular, as in the case of a human being. Please see section 1.1 for more information.

4) E

Producers are the first, and usually most populous level in an ecosystem's passing of energy and resources from organism to organism. Please see section 1.1 for more information.

5) C

Consumers eat other consumers or producers to obtain energy and reduced carbon compounds. Please see section 1.1 for more information.

6) B

Nonliving things can sometimes move, and living things, like barnacles past the larval stage, sometimes do not move, at least not in some sense. Please see section 1.1 for more information.

7) C

The eukaryotes include plants, fungi, animals, and the very diverse group of organisms known as the protists. Please see section 1.2for more information.

8) B

The name "eukaryote" means "true nucleus." Please see section 1.2 for more information.

9) D

The scientific method can be applied to a wide range of problems, including those of daily life. Please see section 1.3 for more information.

10) A

Hypotheses can be shown to be false by experimentation, a normal part of the scientific method. Please see section 1.3 for more information.

11) D

The independent variable is altered, and then the experimental result is seen in the changes in the dependent variable. Please see section 1.3 for more information.

12) B

While the experimenter alters the independent variable, the dependent variable is what results and is measured. Please see section 1.3 for more information.

13) D

Controls are parts of the experiment which are used as a kind of baseline. Please see section 1.3 for more information.

14) E

Theories are of greater certainty, backed by many different experiments, than mere hypotheses. Please see section 1.3 for more information.

15) A

Organs are one level of organization higher than tissues. Please see section 1.1 for more information.

16) B

Ecosystems include many parts but are much smaller than the worldwide biosphere. Please see section 1.1 for more information.

17) D

Asexual reproduction produces genetic clones of the parent organism since only the one parent's DNA is present in the offspring. Please see section 1.1 for more information.

18) E

Please see section 1.1 for more information.

19) B

Smaller sample sizes make for weaker, less certain experimental results. Please see section 1.3 for more information.

20) E

Bacteria belong in their own domain, separate from the other prokaryotes which fall into the Archaea. Please see section 1.2 for more information.

21) C

Bacteria lack a nucleus. Please see section 1.2 for more information.

22) C

Human beings, *Homo sapiens*, are eukaryotes, with a nucleus in each cell. Please see section 1.2 for more information.

23) A

An orchid with a long nectar spur would require a pollinator with a correspondingly long tongue to drink that nectar. Please see sections 1.3 and "Investigating Life" for more information.

24) E

Hypotheses, such as Darwin's about moth tongue length, are really predictions. Please see sections 1.3and "Investigating Life" for more information.

25) A

Whatever is actually measured at the end of an experiment is the dependent variable. Please see sections 1.3and "Investigating Life" for more information.

26) C

The orchid's long nectar tube evolved to allow a very specific relationship with its pollinator. Please see sections 1.3 and "Investigating Life" for more information.

27) E

Having such a long tongue, the moth gains exclusive access to food with no competitors able to reach that food. Please see sections 1.3and "Investigating Life" for more information.

28) A

Pollination involves the transfer of pollen from the male part of a flower to the female part of the same or another flower. Please see sections 1.3and "Investigating Life" for more information.

29) E

Scientific inquiry has its limitations. Please see section 1.3for more information.

30) A

Deep philosophical questions cannot be tested by the scientific method, while more immediate and material ones can. Please see section 1.3 for more information.

31) E

Living things grow and reproduce and manage their internal state for themselves, none of which computers can do. Please see section 1.1 for more information.

32) E

So much experimental evidence is behind our ideas about gravity that it rises to the level of a theory. Please see section 1.3 for more information.

33) Section Break

33.1) A

The independent variable is the variable which the experimenter varies to look for responses in the system, rather than what is measured. Please see section 1.3 for more information.

33.2) D

Dependent variables are what are measured in response to changing independent variable values. Please see section 1.3 for more information.

33.3) C

Since pot size is uniform, this is a standardized variable. Please see section 1.3 for more information.

33.4) B

Ammonium nitrate is a chemical salt used as a fertilizer. Please see section 1.3 for more information.

33.5) E

Plants take up nutrients to maintain internalconcentrations of these important chemicals. Please see section 1.3 for more information.

33.6) A

Organs are groups of tissues working for a common purpose, which is photosynthesis in the case of a leaf. Please see section 1.3 for more information.

34) FALSE

The nucleus in this organism would indicate that it was a eukaryote, and it would be classified as a member of Eukarya, not Archaea. Please see section 1.2 for more information.

35) FALSE

Kingdoms are large taxonomic groupings, but domains are even larger. Please see section 1.2 for more information.

36) TRUE

The scientific method can only deal with questions about the immediate physical world around us. Please see section 1.3 for more information.