Biology 14th edition Mader Test Bank

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Biology 14th Edition by Mader CH01

ANSWERS ARE LOCATED IN THE SECOND PART OF THIS DOCUMENT

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) The classification system most commonly used by biologists today contains five domains.

1) _____

- ◎ true
- ◎ false

Question Details
Section : 01.02
Topic : Evolution
Bloom's : 1. Remember
Learning Outcome : 01.02.02 Distinguish among the three domains of life.
Accessibility : Keyboard Navigation
Gradable : automatic

2) Climate change is primarily due to an imbalance in the chemical cycling of the element carbon.

2) _____

- ◎ true
- ◎ false

Question Details
Section : 01.04
Bloom's : 1. Remember
Learning Outcome : 01.04.02 Summarize the major challenges facing science and society.
Topic : Challenges Facing Science
Accessibility : Keyboard Navigation
Gradable : automatic

3) The control group in an experiment receives all the same treatments as the experimental group(s), except for the one variable being tested.

3) _____

- ◎ true
- ◎ false

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Question Details
Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

4) The selective agents for natural selection can be either abiotic or biotic.

4) _____

◎ true
◎ false

Question Details
Section : 01.02
Topic : Evolution
Bloom's : 2. Understand
Accessibility : Keyboard Navigation
Gradable : automatic

CHECK ALL THE APPLY. Choose all options that best completes the statement or answers the question.

5) Due to human activities, more carbon dioxide is being released into the atmosphere than is being removed. What happens to this extra carbon dioxide? Select all that apply.

5) _____

A) Some of the carbon dioxide stays in the atmosphere which causes surface temperature to rise.

B) Approximately half of the extraneous carbon dioxide is being expelled into deep space.

C) Much of the extraneous carbon dioxide is dissolved into the oceans where it is causing acidification.

D) Trees and other plants have increased their rates of photosynthesis and are effectively removing most of the extraneous carbon dioxide.

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Question Details
Section : 01.04
Bloom's : 1. Remember
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Topic : Challenges Facing Science
Accessibility : Keyboard Navigation
Gradable : automatic

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

6) A university biology department wishes to hire a scientist to work on the relationships among the wolves, moose, trees, and physical features on an island. If you were charged with writing the job description, you should title the position

6) _____

A) population geneticist.
B) molecular biologist.
C) ecosystem ecologist.
D) organismal physiologist.
E) islandzoologist.

Question Details
Topic : Ecology
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

7) Which of the following terms best describes a conceptual scheme in science that is strongly supported, has not yet been found incorrect, and is based on the results of many observations?

7) _____

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A) a scientific model
B) an experiment
C) descriptive research
D) a scientific theory or principle
E) experimental results

Question Details
Section : 01.03
Bloom's : 2. Understand
Learning Outcome : 01.03.02 Distinguish between a theory and a hypothesis.
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

8) Choose the correct order of classification from most inclusive to most exclusive.

8) _____

A) Domain-Kingdom-Phylum-Class-Order-Family-Genus-Species
B) Kingdom-Domain-Class-Phylum-Order-Family-Genus-Species
C) Kingdom-Domain-Class-Phylum-Order-Genus-Species-Family
D) Kingdom-Class-Phylum-Domain-Genus-Order-Family-Species

Question Details
Section : 01.02
Topic : Evolution
Bloom's : 1. Remember
Learning Outcome : 01.02.02 Distinguish among the three domains of life.
Accessibility : Keyboard Navigation
Gradable : automatic

9) Which listing correctly indicates a sequence of increasing biological organization?

9) _____

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A) molecule, cell, organelle, atom
B) organelle, tissue, cell, molecule
C) organ, tissue, atom, molecule
D) atom, molecule, organelle, cell

Question Details
Topic : General
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

10) Single-celled prokaryotes

10) _____

A) lack a membrane-bounded nucleus.
B) are classified in the domains Bacteria and Archaea.
C) are found in almost all habitats.
D) All of the choices are correct.

Question Details
Section : 01.02
Topic : Evolution
Bloom's : 2. Understand
Learning Outcome : 01.02.02 Distinguish among the three domains of life.
Accessibility : Keyboard Navigation
Gradable : automatic

11) In the scientific method, what precedes the formation of the hypothesis?

11) _____

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A) a prediction
B) experimentation
C) analysis of results
D) observation

Question Details
Section : 01.03
Bloom's : 1. Remember
Learning Outcome : 01.03.02 Distinguish between a theory and a hypothesis.
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

12) Living organisms are characterized by

12) _____

A) adapting to the environment.
B) evolving over time.
C) displaying homeostatic controls.
D) All of the choices pertain to living organisms.

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

13) Which of the following domains contains prokaryotes that are known for living in extreme environments?

13) _____

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A) Archaea
B) Bacteria
C) Plantae
D) Fungi
E) Eukarya

Question Details
Topic : General
Section : 01.02
Bloom's : 2. Understand
Learning Outcome : 01.02.02 Distinguish among the three domains of life.
Accessibility : Keyboard Navigation
Gradable : automatic

14) Which of the following concepts is NOT one of the basic theories of biology?

14) _____

A) All organisms are composed of cells.
B) Life may arise through spontaneous generation.
C) New cells only come from preexisting cells.
D) The internal environment of an organism stays relatively constant.
E) All living thingshave a common ancestor and are adapted to a particular way of life.

Question Details
Topic : General
Section : 01.03
Bloom's : 1. Remember
Learning Outcome : 01.03.02 Distinguish between a theory and a hypothesis.
Accessibility : Keyboard Navigation
Gradable : automatic

15) All of the following are examples of maintaining homeostasis except:

15) _____

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A) A sensor detects CO_2 levels in the blood and triggers an increase or decrease in the rate of breathing.

B) A drop in body temperature triggers shivering which generates heat; an increase in body temperature triggers sweating which releases heat.

C) Feelings of hunger and then fullness affect the length of time between meals and quantity of food you eat, keeping your weight near a "set point."

D) A cancerous tumor continues to grow larger and then metastasizes, spreading to new areas of the body.

E) By opening and closing pores in their leaves, plants continuously exchange oxygen and carbon dioxide with the atmosphere.

Question Details
Topic : General
Section : 01.01
Bloom's : 3. Apply
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

16) The expected outcome of an experiment is known as

16) _____

A) a scientific model.
B) an experiment.
C) a prediction.
D) a scientific theory or principle.
E) experimental results.

Question Details
Section : 01.03
Bloom's : 1. Remember
Learning Outcome : 01.03.01 Identify the components of the scientific method.
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

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17) Which of the following organisms are ultimately dependent on the sun as a source of energy?

17) _____

A) A night-blooming flower that is pollinated by night-flying bats.
B) An underground earthworm that avoids the sun.
C) A cave fish that feeds on plant debris.
D) All of the choices ARE ultimately dependent on the sun.
E) All of the choices are NOT ultimately dependent on the sun.

Question Details
Topic : General
Section : 01.01
Bloom's : 3. Apply
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

18) A researcher is interested in determining the average length and weight of loblolly pine tree needles in the southeast United States. Will the data be obtained through observation or experimentation?

18) _____

A) observation
B) experimentation
C) Neither observation nor experimentation.
D) Both observation and experimentation.

Question Details
Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.01 Identify the components of the scientific method.
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

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19) A doctor is testing the effectiveness of a new antibiotic. He gives the first group of patients a placebo, a second group receives antibiotic A, while the third group receives antibiotic B. Which of the groups is considered the control group?

19) _____

A) the group that received antibiotic A
B) the group that received the placebo
C) the group that received antibiotic B
D) both groups receiving antibiotic A and B

Question Details
Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.01 Identify the components of the scientific method.
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

20) An earlier classification system grouped organisms by whether they inhabited the air, land, or sea. More modern classification systems such as the three-domain system are divided into class-order-family-genus-species as described in this chapter. What advantages does the more modern classification system have over the older system?

20) _____

A) The modern classification system better represents the unity of life.
B) The modern classification system reflects the evolutionary relationships between organisms.
C) The modern classification system allows for the precise organization of a multitude of species.
D) The more modern classification system groups organisms based on similarities related to their structure and evolution.
E) All of the choices are correct.

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Question Details
Section : 01.02
Topic : Evolution
Bloom's : 5. Evaluate
Learning Outcome : 01.02.02 Distinguish among the three domains of life.
Accessibility : Keyboard Navigation
Gradable : automatic

21) A cell is to a tissue as an atom is to a

21) _____

A) molecule.
B) subatomic particle.
C) electron.
D) population.

Question Details
Topic : General
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

22) You are interested in the effect of increased carbon dioxide versus normal air on the growth of corn plants as well as the effect of green light versus full sunlight on the growth of corn plants. Your plan is to set up your experiment inside a greenhouse where you can control the environment. Which of the following is an aspect of the experiment that should be considered and controlled?

22) _____

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A) An increase in carbon dioxide should not result in a substantial decrease of other necessary gases.

B) All seedlings come from one uniform strain.

C) The intensity or brightness of the green light equals the intensity of the full sunlight.

D) All temperatures and available water remain the same for all plants.

E) All of the choices are important considerations.

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

23) Tropical rain forests have many species that are found in great abundance. A study in the Brazilian rain forest found 487 tree species growing on a single hectare (2.5 acres). In the U.S. and Canada together, there are only 700 species of trees on millions of acres. In one park in a Peruvian rain forest, scientists have identified over 1,300 species of butterflies, while in all of Europe there are approximately 320 butterfly species. These findings suggest that

23) _____

A) rain forests are biologically less diverse than other ecosystems on Earth.

B) the number of tree species and butterfly species are about the same throughout the ecosystems of the world.

C) rain forests are biologically more diverse than other ecosystems.

D) as many as 400 species a day are lost due to human activity.

E) rain forests do not have any type of value to humans.

Question Details
Topic : Ecology
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Accessibility : Keyboard Navigation
Gradable : automatic

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24) Biodiversity in a particular ecosystem

24) _____

A) is the total number of species in that ecosystem.
B) includes the variability of the individual genes.
C) impacts the function of the ecosystem in which the species live.
D) All of the choices are correct.

Question Details
Topic : Ecology
Section : 01.04
Bloom's : 2. Understand
Learning Outcome : 01.04.02 Summarize the major challenges facing science and society.
Accessibility : Keyboard Navigation
Gradable : automatic

25) Some members of Daphnia, a water flea, have a genetic mutation that causes them to prefer warmer environments. These members reproduce and pass these genetic changes to their offspring. The next generation will occupy warmer environments not previously occupied by this species. This is an example of

25) _____

A) adaptation.
B) homeostasis.
C) irritability.
D) All of the choices are correct.

Question Details
Topic : General
Section : 01.01
Bloom's : 3. Apply
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

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26) Some biologists study the complex interactions of animals and plants in forests or prairies. Such ecology field research often produces slightly different results for different researchers. In contrast, ecology experiments that are run indoors with one organism in a terrarium usually produce results that are repeatable. What is the most likely explanation?

26) _____

A) The scientific method is only useful in laboratory settings.
B) It is not possible to establish a control group outside of a laboratory.
C) It is easier to hold all but one variable constant in a laboratory.
D) Field research is only descriptive, and descriptive research is not strictly "science."
E) Fieldwork is inductive; lab work is deductive.

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

27) For five years, you wake up before the alarm is set to ring each morning. This leads you to conclude that all people have a built-in "alarm clock" capable of waking them up. From a science viewpoint, this conclusion

27) _____

A) is science because it is based on real observations.
B) is science because it is predictive of what will happen tomorrow morning.
C) is scientifically valid because 5 years × 365 days is a large number of trials.
D) may not be valid because it generalizes about all people, and there may have been other variables that could awaken you without a built-in clock.
E) cannot be scientifically tested because it involves human behavior.

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Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

28) The manner in which a scientist intends to conduct an experiment is called

28) _____

A) inductive reasoning.
B) the experimental design.
C) data collection and analysis.
D) the conclusion.

Question Details
Section : 01.03
Bloom's : 1. Remember
Learning Outcome : 01.03.01 Identify the components of the scientific method.
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

29) Arrange in order, the levels of ecological study from most inclusive to most exclusive:

29) _____

A) biosphere, ecosystem, community, population, individual organism
B) ecosystem, biosphere, population, community, individual organism
C) individual organism, community, population, ecosystem, biosphere
D) individual organism, population, community, ecosystem, biosphere

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Question Details
Topic : Ecology
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

30) Which definition best describes a population?

30) _____

A) the members of aspecies in a given area
B) the interactionbetween the organisms and their environment
C) the region of Earththat contains living organisms
D) the interactionbetween various groups of organisms in a given environment
E) all of the females of a given speciesin a particular area

Question Details
Topic : Ecology
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

31) Which of the following features are present at the ecosystem level?

31) _____

A) chemical cyclingthrough the food chain
B) energy flow thatbegins at the producer level
C) input of solarenergy
D) complexinteractions between a variety of populations
E) All are features of an ecosystem.

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Question Details
Topic : Ecology
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

32) Organisms belonging to the same _____ would be the most closely related.

32) _____

A) kingdom
B) phylum
C) family
D) class
E) order

Question Details
Section : 01.02
Topic : Evolution
Bloom's : 1. Remember
Learning Outcome : 01.02.02 Distinguish among the three domains of life.
Accessibility : Keyboard Navigation
Gradable : automatic

33) What type of information does science provide for society?

33) _____

A) information about the natural world
B) information about the supernatural world
C) information about religious beliefs
D) information about religious beliefs and the natural world

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Question Details
Topic : General
Section : 01.04
Bloom's : 1. Remember
Learning Outcome : 01.04.01 Distinguish between science and technology.
Accessibility : Keyboard Navigation
Gradable : automatic

34) What is the best description of technology?

34) _____

A) Technology is the application of scientific knowledge to the interests of humans.
B) Technology is the development of new tools.
C) Technology is the use of power to make human life easier.
D) Technology is the advancement of the functionality of computers.

Question Details
Topic : General
Section : 01.04
Bloom's : 1. Remember
Learning Outcome : 01.04.01 Distinguish between science and technology.
Accessibility : Keyboard Navigation
Gradable : automatic

SECTION BREAK. Answer all the part questions.

35) Living organisms on Earth share many common characteristics. Which statements are TRUE and which are FALSE about nearly all living things?

Question Details
Accessibility : Keyboard Navigation

35.1) All living organisms are made up of cells.

35.1) _____

◎ true
◎ false

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Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

35.2) Living things must have an outside source of nutrients and energy.

35.2) _____

◎ true
◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

35.3) In multicellular organisms, tissues are comprised of many different types of cells.

35.3) _____

◎ true
◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

35.4) Only multicellular organisms need to maintain homeostasis.

35.4) _____

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◎ true
◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

35.5) The ultimate source of energy for nearly all forms of life on Earth is water.

35.5) _____

◎ true
◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

36) Living and nonliving entities share some characteristics. Which statements are TRUE and which are FALSE about the living and nonliving components of an ecosystem?

Question Details
Accessibility : Keyboard Navigation

36.1) All living things and nonliving materials are made of cells.

36.1) _____

◎ true
◎ false

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Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

36.2) All living things and nonliving materials exhibit homeostatic controls.

36.2) _____

◎ true
◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

36.3) All matter, whether alive or not, is comprised of atoms.

36.3) _____

◎ true
◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 2. Understand
Learning Outcome : 01.01.01 Distinguish among the levels of biological organization.
Accessibility : Keyboard Navigation
Gradable : automatic

36.4) Both living and nonliving entities adapt to the environment.

36.4) _____

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- ◎ true
- ◎ false

Question Details
Topic : General
Section : 01.01
Bloom's : 1. Remember
Learning Outcome : 01.01.02 Identify the basic characteristics of life.
Accessibility : Keyboard Navigation
Gradable : automatic

37) Dr. James isolated *Staphylococcus aureus,* a type of bacteria , from the leg wound of a ten-year-old boy. He suspected these bacteria would grow better at body temperature than room temperature (72°F), but thought that he should collect data to support his thinking. Dr. James introduced the same number of Staphylococcus bacteria into each of six test tubes containing the same type and amount of nutrient broth. Three test tubes were incubated at 98.6°F (Group 1), while three test tubes (Group 2) sat at 72°F. After 24 hours, Dr. James compared the turbidity (indicative of growth) of all six tubes and rated each on a scale of 0 - 4. 0 indicates no turbidity (no growth), while 4 indicates high turbidity (high growth). The following data were collected:

Test Tube	Temperature °F	Turbidity
Group 1:		
1	98.6	+4
2	98.6	+4
3	98.6	+3
Group 2:		
4	72	0
5	72	+1
6	72	0

Question Details
Topic : General
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Accessibility : Keyboard Navigation

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37.1) After reading the scenario, write the hypothesis that was being tested in Dr. James's experiment.

Question Details
Section : 01.03
Bloom's : 6. Create
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : manual

37.2) Would you consider this to be a controlled experiment?

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : manual

37.3) Evaluate the data presented here to reach a conclusion. Would you reject or accept the null hypothesis?

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : manual

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37.4) The dependent (responding) variable in this experiment is

37.4) _____

A) the temperature.
B) growth of bacteria, as indicated by the turbidity in the test tubes.
C) the time that the test tubes were allowed to sit.
D) amount of initial inoculum, or number of bacteria introduced into each test tube.

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

37.5) The independent (experimental) variable is

37.5) _____

A) temperature.
B) growth of bacteria.
C) incubation period.
D) amount of initial inoculum.

Question Details
Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

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37.6) To ensure a controlled experiment, all of the following conditions (variables) should be identical in Group 1 and Group 2:

37.6) _____

A) type of bacteria, temperature, and incubation period
B) temperature and amount of initial inoculum (bacteria used)
C) type of bacteria, incubation period, amount of bacteria used
D) degree of turbidity, incubation period, and amount of bacteria

Question Details
Section : 01.03
Bloom's : 4. Analyze
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

37.7) Choose which of the the following statements is a hypothesis for an experiment.

37.7) _____

A) Based on the datacollected during an experiment, *S. aureus* growsbetter at body temperature than room temperature.
B) Based on observation, it is predicted that *S. aureus* will grow better at body temperature than at room temperature.
C) *S. aureus* grew equally well at room temperature and atbody temperature.
D) Based on the data collected during the experiment, it is confirmed that *S. aureus* grew better at room temperature.

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

Biology 14th edition Mader Test Bank

37.8) Dr. James performed another experiment. Instead of inoculating the test tubes with Staphylococcus, he used the bacterium, Streptococcus. He found that Streptococcus grew better at body temperature than at room temperature. This is a replicate of the first experiment.

37.8) _____

A) True
B) False

Question Details
Section : 01.03
Bloom's : 3. Apply
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : automatic

37.9) Dr. James considers the bacteria grown at body temperature to be the control group and room temperature the experimental group. Do you agree with this reasoning?

Question Details
Section : 01.03
Bloom's : 5. Evaluate
Learning Outcome : 01.03.03 Analyze a scientific experiment and identify the hypothesis, experiment,
Topic : Process of Science
Accessibility : Keyboard Navigation
Gradable : manual

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Biology 14th Edition by Mader CH01

Answer Key

Test name: CH01

1) FALSE
The classification most commonly used by biologists today contains three domains: Bacteria, Archaea, Eukarya.

2) TRUE
Climate change is primarily due to an imbalance in the chemical cycling of the element carbon. Normally, carbon is cycled within an ecosystem. However, due to human activities, more carbon dioxide is being released into the atmosphere than is being removed.

3) TRUE
The control group in an experiment receives all the same treatments as the experimental group(s), except for the one variable being tested.

4) TRUE
Both abiotic agents (ex. temperature, precipitation) and biotic agents (ex. competition, predation) can act as selective agents.

5) [A, C]
The additional carbon dioxide that is released into the atmosphere either stays in the atmosphere and acts as a greenhouse gas or it is dissolved into the oceans where is causes acidification and coral bleaching.

6) C
An ecosystem ecologist studies the interactions and relationships that occur among groups of species and their physical environment.

7) D

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A scientific theory or principle is a conceptual scheme in science that is strongly supported, has not yet been found incorrect, and is based on the results of many observations.

8) A

The correct order of classification from most inclusive to most exclusive is: Domain-Kingdom-Phylum-Class-Order-Family-Genus-Species.

9) D

The correct sequence of increasing biological organization is: atom, molecule, organelle, cell.

10) D

Single-celled prokaryotes lack a membrane-bounded nucleus, are classified in the domains Bacteria and Archaea, and are found in almost all habitats. All of the choices are correct.

11) D

A hypothesis is not a guess, it is a tentative explanation based on observation. Therefore, observation must precede the hypothesis. Once a hypothesis is made, it is tested by experimentation.

12) D

Living organisms are characterized by adaptation to the environment, evolving over time, and displaying homeostatic controls. All of the choices are correct.

13) A

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Incorrect Answers:
B. Organisms in domain Archaea are primitive prokaryotes that live in extreme environments.
C. Organisms in kingdom Plantae are composed of eukaryotic cells. Archaea are primitive prokaryotes that live in extreme environments.
D. Organisms in kingdom Fungi are composed of eukaryotic cells. Archaea are primitive prokaryotes that live in extreme environments.
E. Organisms in domain Eukarya are composed of eukaryotic cells. Archaea are primitive prokaryotes that live in extreme environments.

14) B
15) D
16) C
A prediction is the expected outcome of an experiment based upon the knowledge of the factors in the experiment.
17) D
All of the choices ARE ultimately dependent on the sun. Plants, regardless of the kind of animal that pollinates them, rely on the sun for photosynthesis. All animals eat plants or they eat other animals that eat plants. Therefore, they are all dependent on the sun.

18) A
Since the researcher is not testing the contribution of a specific variable in relation to the length and weight of the pine needles, the data is a result of observation.

19) B
The control group is not exposed to the experimental variable. In this case, the control group does not receive either of the antibiotics.

20) E

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All of the choices are correct. The later classification systems better represent the unity and diversity of life, allow for better organization of ever-increasing numbers of species, and group organisms based on similarities related to their structure and evolution.

21) A

Tissues are made of cells and molecules are made of atoms.

22) E

All of the choices are important to conduct a valid, controlled experiment.

23) C

24) D

All of the choices are correct. Biodiversity involves the total number of species and the variability of individual genes, and it impacts the function of the ecosystem in which the species live.

25) A

This situation describes adaptation to the environment.

26) C

It is easier to hold all but one variable constant in a laboratory.

27) D

From a science viewpoint, this conclusion may not be valid because it generalizes about all people, and there may have been other variables that could awaken you without a built-in clock.

28) B

The manner in which a scientist intends to conduct an experiment is called the experimental design.

29) A

The levels of ecological study from most inclusive to most exclusive are: biosphere, ecosystem, community, population, individual organism.

30) A

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A population consists of all of the individuals of a given species in a particular region.

31) E
All are features of an ecosystem.

32) C
Organisms belonging to the same family would be the most closely related.

33) A
Science is a systematic way of acquiring information about the natural world.

34) A
Technology is the application of scientific knowledge to the interests of humans.

35) Section Break

35.1) TRUE
The cell theory states that living organisms are made of cells. This is a true statement.

35.2) TRUE
Living organisms cannot maintain their organization or carry on life's activities without an outside source of nutrients and energy.

35.3) FALSE
In multicellular organisms, tissues are comprised of similar cells.

35.4) FALSE
All living organisms must maintain homeostasis, which is a state of internal balance.

35.5) FALSE

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The ultimate source of energy for nearly all life on Earth is the sun. While water is crucial for living organisms, it is not the ultimate source of energy.

36) Section Break

36.1) FALSE

Life is organized at the cellular level. Nonliving materials like rocks are not composed of cells.

36.2) FALSE

Only living entities exhibit homeostatic controls in order to maintain a stable internal environment.

36.3) TRUE

All matter on Earth, whether alive or not is composed of chemical elements.

36.4) FALSE

Adaptation to the environment is a characteristic of living organisms.

37) Section Break

37.1) The null hypothesis is:

Ho: There is no difference in the growth of Staphylococcus at 98.6°F and 72°F.

The alternate hypothesis may be written as follows:

H_A: Staphylococcus will grow better at 98.6°F than at 72°F in a 24 hour period.

37.2) Yes, this may be considered a controlled experiment. Where possible, extraneous variables, such as the type and amount of nutrient broth, same number of bacteria in the inoculums, same incubation time, etc., are held constant.

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37.3) After analysis of the data, one should reject the null hypothesis. The growth of Staphylococcus at 98.6°F was greater than at 72°F.

37.4) B
The dependent, or responding variable, is the variable that may or may not change, depending on the treatment introduced by the researcher.
37.5) A
The temperature is the experimental, or independent variable, which is directly manipulated by the researcher.
37.6) C
The controlled variables should include the type of bacteria, incubation period, and the amount of bacteria introduced into each test tube.
37.7) B
37.8) B
This is not a replicate of the first experiment. Dr. James used Streptococcus instead of Staphylococcus.

37.9) One knows what to expect concerning the dependent variable in a control group. Since body temperature is 98.6°F and the bacteria were isolated from a wound on a leg, one would surmise that the bacteria would grow well at body temperature.

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