Exploring Biology in the Laboratory Core Concepts 2nd edition Pendarvis Test Bank

SKU: 9781617319006-TEST-BANK

Difficulty: Easy

5. Which of the following is a scientific concept?
a. DNA synthesis.
b. Observation.
c. Classification.
d. All of the above.

Difficulty: Easy

6. Determining the quantitative relationships among data involves which of the following scientific processes?
a. Classifying.
b. Inferring.
c. Measuring.
d. Using numbers.

Difficulty: Easy

7. The fundamental core of scientific content knowledge consists of _____.
a. concepts
b. generalizations
c. facts
d. all of the above

Difficulty: Easy

8. A useful hypothesis is _____.
a. an operational definition
b. an analysis of test results
c. a testable statement
d. an observation

Difficulty: Easy

9. A(n) _____ hypothesis states that there is no relationship between an independent and dependent variable.
a. unsupported
b. positive
c. alternate
d. null

Difficulty: Easy

10. The scientific method includes all of the following EXCEPT _____.

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a. theories
b. observation
c. predictions
d. hypotheses

Difficulty: Easy

11. In an experiment, which of the following variables is used as a baseline for comparison?
a. Control.
b. Dependent.
c. Independent.
d. Responding.

Difficulty: Easy

12. A theory is _____.
a. the same thing as a hypothesis
b. an idea unconfirmed by evidence
c. an idea on which experts in the field agree
d. nothing more than an educated guess

Difficulty: Easy

13. In conducting an experiment, a scientist follows a process of scientific inquiry that includes which of the following?
a. Communicating.
b. Inferring.
c. Predicting.
d. All of the above.

Difficulty: Easy

Medium (11)

14. The fact that we no longer believe the earth is flat attests to the fact that science is a(n) _____ process.
a. unpredictable
b. self-correcting
c. mystical
d. contradictory

Difficulty: Medium

15. Your study data show that teenage drivers cause 30% more car accidents than adults over the age of 25, so you _____ that high schools need better driver education programs.
a. infer

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b. predict
c. rationalize
d. hypothesize

Difficulty: Medium

16. When you say that the earth orbits the sun, you are _____.
a. refuting a long-held belief
b. explaining a scientific concept
c. making a generalization
d. stating a scientific fact

Difficulty: Medium

17. What steps do investigators take before forming a hypothesis?
a. Collect information.
b. Use prior knowledge.
c. Draw conclusions.
d. All of the above.
e. A and B only.

Difficulty: Medium

18. Which of the following is an example of technology?
a. Conducting a laboratory experiment.
b. Making a scientific discovery.
c. Observing the stars through a telescope.
d. Drilling for oil and gas.

Difficulty: Medium

19. Which of the following is a scientific process, rather than a concept?
a. Observation.
b. Photosynthesis.
c. Camouflage.
d. DNA.

Difficulty: Medium

20. After completing a controlled experiment, a scientist changes the dosage of an antibiotic and repeats the experiment. The change in dosage is the _____.
a. independent variable
b. dependent variable
c. constant
d. control

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Difficulty: Medium

21. The function of a hypothesis is to _____.
a. identify the dependent variable
b. provide direction for interpreting data
c. provide direction for gathering data
d. predict the likely outcome of an experiment

Difficulty: Medium

22. Termites are social insects; therefore, communication is essential to their well-being. How do they communicate?
a. Use chemicals known as pheromones.
b. Use visual signals.
c. Use chemicals similar to ants.
d. A and B.

Difficulty: Medium

23. The correct hypothesis for a study to measure the effectiveness of a pesticide in eradicating a specific mold infecting a crop is that if the pesticide is administered, then the mold will _____.
a. be eradicated.
b. not be eradicated.
c. get worse.
d. kill the crops.

Difficulty: Medium

24. Results of a clinical trial demonstrated that an antibiotic eradicated the infection in 98% of the study subjects. Therefore, you _____.
a. construct another hypothesis
b. collect additional data
c. conclude that the antibiotic is highly effective
d. re-evaluate your results

Difficulty: Medium

Hard (6)

25. Which of the following is NOT involved in the process of interpreting data?
a. Classifying.
b. Communicating.
c. Predicting.
d. Inferring.

Difficulty: Hard

26. Which of the following statements is a scientific generalization?
a. Antibodies are produced when a virus invades the body.
b. Red blood cells carry oxygen in the blood.
c. Many birds migrate south for the winter.
d. The sun rises in the east and sets in the west.

Difficulty: Hard

27. You design a clinical trial with human subjects to evaluate the efficacy of an antibiotic in eradicating a bacterial infection. Which of the following would be used as the control in this study?
a. Two different dosages.
b. A placebo (inactive substance).
c. No treatment.
d. All of the above.
e. B and C only.

Difficulty: Hard

28. In a clinical study to measure the effectiveness of an antibiotic, which of the following is the independent variable?
a. The number of patients enrolled in the study.
b. The antibiotic being tested.
c. The control.
d. The infection.

Difficulty: Hard

29. If a study fails to produce the expected results, you would _____.
a. collect additional data
b. conclude that your hypothesis is not supported
c. continue observing and asking questions
d. conduct the study with other patients

Difficulty: Hard

30. You are a public health researcher who wants to conduct a study of the prevalence of a disease in a rural village in India. To define this study operationally, you would specify the _____.
a. study population
b. drugs available to treat the disease
c. cause of the disease
d. number of people who have died from the disease

Difficulty: Hard

Chapter 2 For Good Measure: Scientific Notation and the Metric System

Easy (22)

1. Scientific notation is a way of expressing _____.
a. extremely small numbers
b. extremely large numbers
c. numbers that have many zeros
d. all of the above

Difficulty: Easy

2. For the number 4.5×10^6, which represents the base?
a. 4.5
b. 10
c. 6
d. 4.5×10

Difficulty: Easy

3. For the number 6.8×10^7, the 7 is called the _____.
a. exponent
b. coefficient
c. multiplier
d. product

Difficulty: Easy

4. When multiplying numbers written in scientific notation, you should _____ the exponents.
a. multiply
b. divide
c. add
d. subtract

Difficulty: Easy

5. When adding and subtracting numbers written in scientific notation, all the numbers should be converted to the same _____ value.
a. exponent
b. base
c. coefficient
d. weighted

Difficulty: Easy

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6. The metric prefix “kilo” means _____.
a. ten
b. hundred
c. thousand
d. million

Difficulty: Easy

7. Which of the following metric units is used to express luminous intensity?
a. Meter.
b. Candela.
c. Kelvin.
d. Mole.

Difficulty: Easy

8. The cubic centimeter is a unit used to express _____.
a. mass
b. length
c. volume
d. temperature

Difficulty: Easy

9. What is the symbol for centimeter?
a. cm
b. mc
c. km
d. mL

Difficulty: Easy

10. Which country commonly uses the English system rather than the metric system?
a. Canada.
b. United States.
c. France.
d. England.

Difficulty: Easy

11. The earth is 93 million miles from the sun. What is this number in scientific notation?
a. 0.93×10^8
b. 9.3×10^7
c. 93×10^6
d. 930×10^5

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Difficulty: Easy

12. What is the number 4.85×10^5 in standard notation?
a. 485
b. 4,850
c. 48,500
d. 485,000

Difficulty: Easy

13. How many millimeters are in 1 centimeter?
a. 10
b. 100
c. 1,000
d. 10,000

Difficulty: Easy

14. Converting between metric units is easier than converting between English units because you only need to _____.
a. add
b. move the decimal point
c. subtract
d. use scientific notation

Difficulty: Easy

15. When reading a graduated cylinder, you should read the meniscus, which is the _____ of the curve.
a. bottom
b. top
c. side
d. middle

Difficulty: Easy

16. Which of the following instruments is used in the laboratory to distribute and extract precise amounts of liquid?
a. Vacuum pump.
b. Syringe with needle.
c. Syphon.
d. Pipette.

Difficulty: Easy

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17. In the metric system, the basic unit of linear measurement is the _____.
a. kilometer
b. mile
c. meter
d. milliliter

Difficulty: Easy

18. Which of the following is the most accurate for measuring volumes?
a. Beaker.
b. Flask.
c. Graduated cylinder.
d. Test tube.

Difficulty: Easy

19. Which of the following units is commonly used to measure microscopic objects?
a. Centimeter.
b. Millimeter.
c. Kilometer.
d. Nanometer.

Difficulty: Easy

20. Water freezes at 32 degrees Fahrenheit. Convert this value to degrees Celsius.
a. 0
b. 57.6
c. 77
d. 89.6

Difficulty: Easy

21. What is the basic unit of volume in the metric system?
a. Microliter.
b. Nanometer.
c. Liter.
d. Cubic centimeter.

Difficulty: Easy

22. To convert 1.0 micrometers to millimeters, you would move the decimal point _____.
a. three spaces to the right
b. three spaces to the left
c. two spaces to the right
d. two spaces to the left

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