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SKU: 9780357123898-TEST-BANK

Introduction to Biology Module #1

1. Where does the scientific process start?

*a. with an observation
b. testing a hypothesis
c. proposing a hypothesis
d. reporting results

2. A suggested and testable explanation for an event is called a _____.

*a. hypothesis
b. variable
c. theory
d. control

3. Which of these is a shared characteristic of all life?

*a. adaptation
b. digestion
c. phototaxis
d. multicellularism

4. Phylogenetic trees show which type of relationships between organisms?

*a. evolutionary
b. chronological
c. heterotrophic
d. etymological

5. What is the difference between a theory and a hypothesis?

a. A hypothesis is broader than a theory and explains a wide variety of phenomena.
b. A theory is only an opinion.
*c. A theory is tested and confirmed.
d. A theory is not supported by the data.

6. The field of biology has many branches or subdisciplines. Which of the following is a subdiscipline of biology?

a. astronomy
b. geology
*c. zoology
d. chemistry

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7. Predicting the outcome of a specific event based on a general principle is what kind of reasoning?

a. inductive
b. abstract
*c. deductive
d. strategic

8. Which example below lists the steps of the scientific method in the proper order?

a. question, experiment, hypothesize, question, analyze, predict, report
b. hypothesize, question, predict, experiment, observe, analyze, report
*c. observe, question, hypothesize, predict, experiment, analyze, report
d. analyze, predict, hypothesize, experiment, question, observe, report

9. From the following statements, select the one that could be best described as a hypothesis.

a. When you age, you lose the ability to express joy.
b. Waiting until the last minute to study for exams is morally wrong.
*c. Drinking 60 or more ounces of soda daily results in weight gain.
d. All criminals experience pessimism.

10. Applied science solves real-world problems. Basic science is oriented toward which of the following?

a. finding cures for diseases
b. developing products or services that improve human life
*c. expanding knowledge regardless of the short-term application of that knowledge
d. genetic testing

11. How is serendipity related to the methodologies of scientific inquiry?

a. Often, biologists coincidentally arrive at symposiums at the same time.
b. Scientists are luckier than the general public.
*c. Science history reveals many examples of accidental discoveries, such as penicillin.
d. Making your own luck in the laboratory is a sound and accepted protocol.

12. Which of the following is a characteristic of all living organisms?

a. contain one or more complex organs
b. reproduce sexually
*c. consist of one or more cells
d. display bilateral symmetry

13. Why are viruses not considered living organisms?

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a. Viruses do not exhibit phototaxis.
b. Viruses possess a nucleus.
*c. Viruses are not cells and lack metabolism.
d. Viruses cannot survive outside of a host.

14. Of these four, which is the smallest?

a. tissue
b. organ
*c. organelle
d. cell

15. Which of the following states a difference between prokaryotes and eukaryotes?

a. Prokaryotes are single-celled organisms.
b. Prokaryotes derive energy from chloroplasts.
*c. Prokaryotes lack membrane-bound nuclei.
d. Prokaryotes are protected by cell walls.

16. Which of the following is the term for all the groups of organisms living in a specific area?

a. ecosystem
b. population
*c. community
d. biosphere

17. What is the mechanism that accounts for the diversity of life on Earth?

a. plagiarism
b. homeostasis
*c. evolution
d. chemotaxis

18. The phylogenetic tree of life indicates which domain developed most recently?

a. Bacteria
b. Archaea
*c. Eukarya
d. Prokarya

19. Which of the following is the best example of a hypothesis?
a. Evidence of moral failure is increasing in the world.
b. Copying someone else's homework will result in failing the class.
*c. Incidence of teen pregnancy has increased since 1999 in the United States.
d. Eating too many hamburgers will make you fat.

20. When performing an experiment, what is another word used to describe the treatment?

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a. hypothesis
b. control
*c. variable
d. data

21. You have arrived home and you flip on a light switch. The light does not come on. You immediately wonder why. Which step of the scientific method is this?
a. Form a hypothesis.
b. Make a prediction.
*c. Make an observation.
d. Analyze the results.

22. Testing a cancer chemotherapy drug for safety before it is approved for marketing is an example of what general type of science?
a. basic
b. expedited
*c. applied
d. conclusive

23. Why is the process of peer review critical to scientific inquiry?
a. It protects scientists from being sued.
b. It gives scientists a patent for their ideas and methods.
*c. It helps ensure that the research in a scientific paper is original, significant, logical, and thorough.
d. It provides a venue where scientists can publish their materials and protocols for use by other scientists who want to do the same research.

24. A slimy film discovered on medical equipment turns out to be a colony of complex, previously unknown, single-celled organisms that reproduce asexually and produce energy via organelles resembling chloroplasts. These cells are most likely to be classified as _____.
a. bacteria
b. prokaryotes
*c. eukaryotes
d. vertebrates

25. The ability of organisms to maintain consistent internal conditions within a narrow range is called _____.
a. chemotaxis
b. heterotrophism
*c. homeostasis
d. regulation

26. Which of these is listed in order from smallest to largest?
a. molecule, macromolecule, atom, cell
b. cell, atom, molecule, macromolecule
*c. atom, molecule, macromolecule, cell

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d. atom, cell, molecule, macromolecule

27. Branches of a phylogenetic tree are organized by which principle?
a. morphology
b. geographic proximity
*c. genetic relationships
d. sapidity

28. Which of the following is one of the properties of life?
a. membrane-bound organelles
b. serendipity
*c. growth and development
d. movement

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