

***Introduction to Biology 1st edition
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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. multicellularity

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