**Chapter 01**

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| 1. Which of the following is used by all living things as the carrier of genetic information?

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| --- | --- | --- |
|   | a.  | Cell |
|   | b.  | DNA |
|   | c.  | Organ |
|   | d.  | Molecule |
|   | e.  | Population |

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| *ANSWER:* | b |

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| 2. The smallest unit of life that can exist as a separate entity is a(n) \_\_\_\_\_\_\_\_\_\_\_.

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|   | a.  | cell |
|   | b.  | molecule |
|   | c.  | organ |
|   | d.  | population |
|   | e.  | ecosystem |

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| *ANSWER:* | a |

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| 3. The most inclusive level of organization is exemplified by which of the following?

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|   | a.  | Heart |
|   | b.  | Carbon atom |
|   | c.  | DNA |
|   | d.  | Zebra |
|   | e.  | Red blood cell |

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| 4. What is the correct ordering in the hierarchal levels of the organization of life, from the least inclusive to the most inclusive?

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|   | a.  | Atoms, tissues, cells, organs, and organisms |
|   | b.  | Molecules, cells, organs, tissues, and organisms |
|   | c.  | Ecosystems, populations, tissues, cells, and organs |
|   | d.  | Cells, tissues, organs, communities, and populations |
|   | e.  | Cells, tissues, organs, organisms, and ecosystems |

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| *ANSWER:* | e |

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| Figure 1.3 |

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| 5. What is represented in frame 5 of Figure 1.3, illustrating the levels of life’s organization?

|  |  |  |
| --- | --- | --- |
|   | a.  | Atom |
|   | b.  | Tissue |
|   | c.  | Molecule |
|   | d.  | Organ |
|   | e.  | Cell |

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| *ANSWER:* | d |

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| Figure 1.3 |

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| 6. In Figure 1.3, illustrating the levels of life’s organization, what is represented in frame 3?

|  |  |  |
| --- | --- | --- |
|   | a.  | Atom |
|   | b.  | Tissue |
|   | c.  | Molecule |
|   | d.  | Organ |
|   | e.  | Cell |

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| *ANSWER:* | e |

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| 7. A community

|  |  |  |
| --- | --- | --- |
|   | a.  | includes all populations of all species in a given area. |
|   | b.  | features the living organisms interacting with the physical and chemical environment. |
|   | c.  | is the sum of all places in Earth's atmosphere, crust, and waters where organisms live. |
|   | d.  | includes members of only one species. |
|   | e.  | is at a higher level of organization than an ecosystem. |

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| 8. At what level of organization does life begin?

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|   | a.  | Reproductive organs |
|   | b.  | Cell |
|   | c.  | Molecule (water) |
|   | d.  | Molecule (DNA) |
|   | e.  | Population |

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| *ANSWER:* | b |

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| 9. Living organisms are members of all of the levels listed below. However, rocks are components of \_\_\_\_\_.

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|   | a.  | the community |
|   | b.  | the population |
|   | c.  | the ecosystem only |
|   | d.  | the biosphere only |
|   | e.  | both the ecosystem and the biosphere |

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| 10. A(n) \_\_\_\_ property is a characteristic of a system that does not appear in any of its component parts.

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|   | a.  | symbiotic |
|   | b.  | emergent |
|   | c.  | synergistic |
|   | d.  | energetic |
|   | e.  | living |

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| *ANSWER:* | b |

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| 11. Which feature is not characteristic of all living organisms?

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|   | a.  | All have requirements for energy. |
|   | b.  | All must participate in one or more nutrient cycles. |
|   | c.  | All have ultimate dependence upon the sun. |
|   | d.  | All interact with other forms of life. |
|   | e.  | All must reproduce inside of organisms of other species. |

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| 12. Four of the following are key characteristics for the survival of a species. Which one is the exception?

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| --- | --- | --- |
|   | a.  | Ability to acquire energy and nutrients |
|   | b.  | Response to environmental change |
|   | c.  | Reproduction |
|   | d.  | Inability to change |
|   | e.  | Ability to grow and adapt through changes in DNA |

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| *ANSWER:* | d |

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| 13. Four of the following characteristics are required for the life of an individual organism to continue. Which is the exception?

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|   | a.  | To maintain chemical uniqueness and organization |
|   | b.  | To respond to stimuli |
|   | c.  | To possess a genetic program to control cell processes |
|   | d.  | To reproduce |
|   | e.  | To evolve |

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| *ANSWER:* | e |

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| 14. The conversion of solar energy to chemical energy is known as \_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | metabolism |
|   | b.  | photosynthesis |
|   | c.  | chemosynthesis. |
|   | d.  | catabolism |
|   | e.  | anabolism |

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| *ANSWER:* | b |

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| 15. Which of the following is a substance that an organism needs for growth and survival but cannot make for itself?

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| --- | --- | --- |
|   | a.  | Sunlight |
|   | b.  | Water |
|   | c.  | Nutrient |
|   | d.  | Chlorophyll |
|   | e.  | ATP |

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| 16. Which of the following makes its own food using energy and simple raw materials it obtains from nonbiological sources?

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| --- | --- | --- |
|   | a.  | Producer |
|   | b.  | Nutrient |
|   | c.  | Consumer |
|   | d.  | Cell |
|   | e.  | Protist |

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| *ANSWER:* | a |

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| 17. Which group of organisms does not depend directly on sunlight for energy?I. Terrestrial producersII. Animal consumersIII. Decomposers

|  |  |  |
| --- | --- | --- |
|   | a.  | I only |
|   | b.  | II and III only |
|   | c.  | II only |
|   | d.  | III only |
|   | e.  | I and III |

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| *ANSWER:* | b |

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| Figure 1.4 |

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| 18. In Figure 1.4, "A" and "B" should be labeled, respectively, \_\_\_\_ and \_\_\_\_\_.

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| --- | --- | --- |
|   | a.  | consumers; producers |
|   | b.  | decomposers; producers |
|   | c.  | producers; redistributors |
|   | d.  | producers; consumers |
|   | e.  | consumers; decomposers |

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| *ANSWER:* | d |

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| 19. The process by which the first cell of a new individual gives rise to a multicell adult is called \_\_\_\_\_\_\_.

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| --- | --- | --- |
|   | a.  | reproduction |
|   | b.  | development |
|   | c.  | growth |
|   | d.  | inheritance |
|   | e.  | homeostasis |

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| *ANSWER:* | b |

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| 20. The flow of energy through living organisms is best characterized as \_\_\_.

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| --- | --- | --- |
|   | a.  | circular |
|   | b.  | increasing |
|   | c.  | a lattice |
|   | d.  | one way |
|   | e.  | lossless |

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| 21. Homeostasis provides what kind of internal environment?

|  |  |  |
| --- | --- | --- |
|   | a.  | Positive |
|   | b.  | Stable |
|   | c.  | Limiting |
|   | d.  | Changing |
|   | e.  | Chemical and physical |

|  |  |
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| *ANSWER:* | b |

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| 22. Each cell is able to maintain an internal environment within a range that favors survival. This condition is called \_\_\_\_\_\_\_\_\_\_\_.

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| --- | --- | --- |
|   | a.  | metabolism |
|   | b.  | homeostasis |
|   | c.  | physiology |
|   | d.  | adaptation |
|   | e.  | evolution |

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| *ANSWER:* | b |

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| 23. About twelve to twenty-four hours after the previous meal, a person's blood-sugar level normally varies from 60 to 90 milligrams per 100 milliliters of blood, though it may rise to 130 mg/100 ml after meals high in carbohydrates. That the blood-sugar level is maintained within a fairly narrow range despite uneven intake of sugar is due to the body's ability to carry out \_\_\_\_\_\_.

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| --- | --- | --- |
|   | a.  | adaptation |
|   | b.  | inheritance |
|   | c.  | metabolism |
|   | d.  | homeostasis |
|   | e.  | evolution |

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| *ANSWER:* | d |

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| 24. Which phrase would most likely be used in a discussion of homeostasis?

|  |  |  |
| --- | --- | --- |
|   | a.  | Respond to environmental stimuli |
|   | b.  | Limited range of variation |
|   | c.  | Rapid energy turnover |
|   | d.  | Both respond to environmental stimuli and limited range of variation |
|   | e.  | Both respond to environmental stimuli and rapid energy turnover |

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| *ANSWER:* | b |

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| 25. What characteristic is common to all living things?

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|   | a.  | All living things eat. |
|   | b.  | All living things are producers. |
|   | c.  | All living things sense and respond to change. |
|   | d.  | All living things have a nucleus. |
|   | e.  | All living things are consumers. |

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| *ANSWER:* | c |

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| 26. Energy sources are needed for which of the following processes?I. ReproductionII. GrowthIII. Development

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| --- | --- | --- |
|   | a.  | I and II only |
|   | b.  | I and III only |
|   | c.  | II only |
|   | d.  | II and III only |
|   | e.  | I, II, and III |

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| 27. Which cell lacks a nucleus?

|  |  |  |
| --- | --- | --- |
|   | a.  | Bacterial cell |
|   | b.  | Fungus cell |
|   | c.  | Animal cell |
|   | d.  | Protist cell |
|   | e.  | Plant cell |

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| *ANSWER:* | a |

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| 28. Members of which prokaryotic domain are most closely related to eukaryotes evolutionarily?

|  |  |  |
| --- | --- | --- |
|   | a.  | Animals |
|   | b.  | Protists |
|   | c.  | Fungi |
|   | d.  | Bacteria |
|   | e.  | Archaea |

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| 29. Which of the following is a domain of life?

|  |  |  |
| --- | --- | --- |
|   | a.  | Eukaryotes |
|   | b.  | Plants |
|   | c.  | Animals |
|   | d.  | Protists |
|   | e.  | Fungi |

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| *ANSWER:* | a |

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| 30. Members of what group are multicellular producers?

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| --- | --- | --- |
|   | a.  | Animals |
|   | b.  | Protists |
|   | c.  | Fungi |
|   | d.  | Plants |
|   | e.  | Bacteria |

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| 31. Which group is made up of almost exclusively decomposers?

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| --- | --- | --- |
|   | a.  | Plants |
|   | b.  | Fungi |
|   | c.  | Animals |
|   | d.  | Bacteria |
|   | e.  | Protists |

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| *ANSWER:* | b |

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| 32. Which organisms are NOT eukaryotes?

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| --- | --- | --- |
|   | a.  | Fungi |
|   | b.  | Bacteria |
|   | c.  | Mosses |
|   | d.  | Fish |
|   | e.  | Yeasts |

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| *ANSWER:* | b |

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| 33. A scientific name consists of which of the following?I. Family nameII. Genus nameIII. Species name

|  |  |  |
| --- | --- | --- |
|   | a.  | I only |
|   | b.  | II only |
|   | c.  | III only |
|   | d.  | I and II |
|   | e.  | II and III |

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| 34. The plural for genus is \_\_\_\_\_\_\_\_.

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| --- | --- | --- |
|   | a.  | genus |
|   | b.  | geni |
|   | c.  | genera. |
|   | d.  | gena |
|   | e.  | genae |

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| *ANSWER:* | c |

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| 35. Which is the least inclusive of the taxonomic categories listed below?

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| --- | --- | --- |
|   | a.  | Family |
|   | b.  | Phylum |
|   | c.  | Class |
|   | d.  | Order |
|   | e.  | Genus |

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| 36. Which group includes all of the other groups?

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| --- | --- | --- |
|   | a.  | Domain |
|   | b.  | Order |
|   | c.  | Family |
|   | d.  | Genus |
|   | e.  | Species |

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| *ANSWER:* | a |

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| 37. What is the process of transmission of DNA to offspring that occurs during reproduction?

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| --- | --- | --- |
|   | a.  | Inheritance |
|   | b.  | Development |
|   | c.  | Growth |
|   | d.  | Photosynthesis |
|   | e.  | Homeostasis |

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| *ANSWER:* | a |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 38. Which term refers to judging information before accepting it as fact?

|  |  |  |
| --- | --- | --- |
|   | a.  | Critical thinking |
|   | b.  | Law |
|   | c.  | Theory |
|   | d.  | Fact |
|   | e.  | Hypothesis |

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| *ANSWER:* | a |

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| 39. Which term refers to the first explanation of a problem (sometimes referred to an "educated guess")?

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| --- | --- | --- |
|   | a.  | Principle |
|   | b.  | Law |
|   | c.  | Theory |
|   | d.  | Fact |
|   | e.  | Hypothesis |

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| *ANSWER:* | e |

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| 40. What is a hypothesis?

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|   | a.  | A report of the findings of scientific experiments |
|   | b.  | A specific conclusion of an experiment in an "if … then" format |
|   | c.  | A way of using isolated facts to reach a general idea that may explain a phenomenon |
|   | d.  | The summary of the outcomes of scientific findings |
|   | e.  | A testable explanation of a natural phenomenon |

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| *ANSWER:* | e |

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| 41. Which concept represents the lowest degree of certainty?

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| --- | --- | --- |
|   | a.  | Hypothesis |
|   | b.  | Conclusion |
|   | c.  | Fact |
|   | d.  | Principle |
|   | e.  | Theory |

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| *ANSWER:* | a |

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| 42. Which concept represents the highest degree of certainty?

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| --- | --- | --- |
|   | a.  | Hypothesis |
|   | b.  | Deduction |
|   | c.  | Assumption |
|   | d.  | Theory |
|   | e.  | Prediction |

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| *ANSWER:* | d |

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| 43. The control in an experiment \_\_\_\_\_\_\_.

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|   | a.  | makes the experiment valid |
|   | b.  | is an additional replicate for statistical purposes |
|   | c.  | reduces the experimental errors |
|   | d.  | minimizes experimental inaccuracy |
|   | e.  | allows for comparisons to the experimental group |

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| *ANSWER:* | e |

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| 44. In an experiment, the control group is \_\_\_\_\_\_\_\_\_\_.

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| --- | --- | --- |
|   | a.  | not subjected to experimental error |
|   | b.  | exposed to experimental treatments |
|   | c.  | maintained under strict laboratory conditions |
|   | d.  | treated exactly the same as the experimental group, except for one variable |
|   | e.  | statistically the most important part of the experiment |

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| *ANSWER:* | d |

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| 45. The choice of whether a particular organism belongs to the experimental group or the control group should be based on \_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | age |
|   | b.  | size |
|   | c.  | chance |
|   | d.  | history |
|   | e.  | gender |

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| *ANSWER:* | c |

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| 46. Scientists are always thinking about ways to improve experimental design. In the text's potato chip experiment, which of these changes would produce the most effective design?

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|   | a.  | Show a different movie. |
|   | b.  | Exclude teenagers as group members. |
|   | c.  | Collect uneaten chip remains and weigh them for both groups. |
|   | d.  | Provide free drinks before the experiment. |
|   | e.  | Use a smaller theater. |

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| *ANSWER:* | c |

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| 47. Olestra chips did not cause cramps at a higher rate than normal chips. This is known as the \_\_\_\_ of this experiment.

|  |  |  |
| --- | --- | --- |
|   | a.  | Hypothesis |
|   | b.  | Prediction |
|   | c.  | Control |
|   | d.  | Conclusion |
|   | e.  | Data |

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| *ANSWER:* | d |

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| 48. In the experiment with peacock butterflies, the working hypothesis is that \_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | silence confuses both predator and prey |
|   | b.  | making sounds can provide a selective advantage to the prey |
|   | c.  | eye spots attract the attention of predators. |
|   | d.  | birds can find their prey by listening for their sounds |
|   | e.  | unpalatable species display distinctive wings |

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| *ANSWER:* | b |

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| 49. What is one of the independent variables in the peacock butterfly experiment?

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| --- | --- | --- |
|   | a.  | Presence of the wing spot |
|   | b.  | Range of migration |
|   | c.  | Species of bird predator |
|   | d.  | Experimental location |
|   | e.  | Percentage of survivors |

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| *ANSWER:* | a |

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| 50. Which group in the peacock butterfly experiment had the highest survival rates?

|  |  |  |
| --- | --- | --- |
|   | a.  | Those with more nocturnal habits |
|   | b.  | Those without spots and without hissing/clicking sounds |
|   | c.  | Those without spots but with hissing/clicking sounds |
|   | d.  | Those with spots and hissing/clicking sounds |
|   | e.  | Those with the same flower habitat as the birds |

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| *ANSWER:* | d |

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| 51. What was the dependent variable in the peacock butterfly experiments?

|  |  |  |
| --- | --- | --- |
|   | a.  | Changing predators |
|   | b.  | Changing habitats |
|   | c.  | Painting the wings |
|   | d.  | Clipping the hindwings |
|   | e.  | Getting eaten |

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| *ANSWER:* | e |

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| 52. Which of the following is NOT true about the peacock butterfly?

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| --- | --- | --- |
|   | a.  | The dark underside of their wings provides camouflage. |
|   | b.  | The spots on the wings may resemble owl eyes, which help deter predation. |
|   | c.  | The butterflies remain still when a predator is near so as not to draw attention. |
|   | d.  | The rapid movement of their wings produces a hissing sound. |
|   | e.  | A resting butterfly’s closed wing resembles a dead leaf. |

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| *ANSWER:* | c |

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| 53. Which of the following is common term for a eukaryote that is NOT a plant, animal, or fungus?

|  |  |  |
| --- | --- | --- |
|   | a.  | Specific epithet |
|   | b.  | Protist |
|   | c.  | Prokaryote |
|   | d.  | Taxonomy |
|   | e.  | Fungus |

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| *ANSWER:* | b |

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| 54. Randomly selecting samples of experimental units from an environment can result in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | sampling error |
|   | b.  | blind testing |
|   | c.  | evidence |
|   | d.  | experimental design |
|   | e.  | consensus |

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| --- | --- |
| *ANSWER:* | a |

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| 55. What is an acceptable probability of sampling error that may have skewed the results in most scientific studies?

|  |  |  |
| --- | --- | --- |
|   | a.  | 80% |
|   | b.  | 50% |
|   | c.  | 25% |
|   | d.  | 10% |
|   | e.  | 5% |

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| *ANSWER:* | e |

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| 56. Science is based on \_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | faith |
|   | b.  | authority |
|   | c.  | evidence |
|   | d.  | force |
|   | e.  | opinion |

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| *ANSWER:* | c |

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| 57. Which characteristic is least applicable to the development of science?

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| --- | --- | --- |
|   | a.  | Evaluation of data |
|   | b.  | Personal conviction |
|   | c.  | Prediction |
|   | d.  | Systematic observation |
|   | e.  | Sharing of ideas |

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| *ANSWER:* | b |

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| 58. Which characteristic will NOT strengthen the validity of a theory?

|  |  |  |
| --- | --- | --- |
|   | a.  | Repetitions of experiments |
|   | b.  | Increased observations |
|   | c.  | Time after the experiment |
|   | d.  | Faith in the experiment |
|   | e.  | Confirmation by many scientists |

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| *ANSWER:* | d |

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| 59. Scientific work involves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | the natural and supernatural world |
|   | b.  | retesting theories frequently for verification |
|   | c.  | proving theories with absolute certainty |
|   | d.  | testing hypotheses under every possible circumstance |
|   | e.  | coming up with the best objective descriptions of reality |

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| *ANSWER:* | e |

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| 60. Copernicus, Galileo, and Darwin found that \_\_\_\_ caused their science to be controversial.

|  |  |  |
| --- | --- | --- |
|   | a.  | prevailing belief |
|   | b.  | objective data |
|   | c.  | astronomical theories |
|   | d.  | supernatural influences |
|   | e.  | experimental design |

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| *ANSWER:* | a |

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| Match the following letters to the number with which they best correspond.

|  |  |
| --- | --- |
| a.  | Observation |
| b.  | Question |
| c.  | Hypothesis |
| d.  | Prediction |
| e.  | Law of nature |
| f.  | Scientific theory |
| g.  | Assessment |
| h.  | Report |

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| 61. This is a generalization that describes a consistent natural phenomenon for which there is incomplete scientific explanation.

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| *ANSWER:* | e |

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| 62. People who regularly consume sugary drinks with their meals will have a higher likelihood of being obese than people who do not.

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| *ANSWER:* | d |

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| 63. Submit the results and the conclusions to the scientific community.

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| *ANSWER:* | h |

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| 64. Hypothesis that has not been disproven after many years of rigorous testing.

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| *ANSWER:* | f |

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| 65. Compile test results and draw conclusions from them.

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| *ANSWER:* | g |

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| 66. Drinking sugary drinks leads to obesity.

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| *ANSWER:* | c |

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| 67. What are some causes of obesity?

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| *ANSWER:* | b |

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| 68. Obesity rates are increasing.

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| *ANSWER:* | a |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Classification. Match the following descriptions to the most appropriate function, process, or trait listed below.

|  |  |
| --- | --- |
| a.  | Inheritance |
| b.  | Reproduction |
| c.  | Photosynthesis |
| d.  | Growth |
| e.  | Homeostasis |

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| --- | --- | --- |
| 69. A process found only in plants, some bacteria, and some protists

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| *ANSWER:* | c |

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| 70. A characteristic most organisms exhibit that tends to keep their internal environment within a range that favors survival

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| *ANSWER:* | e |

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| 71. The transmission of DNA from parent to offspring

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| --- | --- |
| *ANSWER:* | a |

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| 72. Process by which individuals produce offspring

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| --- | --- |
| *ANSWER:* | b |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Classification. Match the following descriptions with the most appropriate group listed below.

|  |  |
| --- | --- |
| a.  | Bacteria |
| b.  | Protists |
| c.  | Plants |
| d.  | Fungi |
| e.  | Animals |

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| --- | --- | --- |
| 73. Multicellular producers

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| --- | --- |
| *ANSWER:* | c |

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| --- | --- | --- |
| 74. Prokaryotic

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| --- | --- |
| *ANSWER:* | a |

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|  |  |  |
| --- | --- | --- |
| 75. Unicellular organisms of considerable internal complexity

|  |  |
| --- | --- |
| *ANSWER:* | b |

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| --- | --- | --- |
| 76. Multicelled mobile consumers

|  |  |
| --- | --- |
| *ANSWER:* | e |

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| 77. Based on fossils, oldest, still living organisms

|  |  |
| --- | --- |
| *ANSWER:* | a |

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|  |  |  |
| --- | --- | --- |
| 78. Unicellular eukaryotic producers

|  |  |
| --- | --- |
| *ANSWER:* | b |

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|  |  |  |
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| 79. Most common multicellular decomposers

|  |  |
| --- | --- |
| *ANSWER:* | d |

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