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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. A hypothesis is a \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | well-tested unifying principle that explains a body of facts |
|   | b.  | set of experiments designed to test a theory |
|   | c.  | tentative explanation or predication based upon experimental observations |
|   | d.  | set of quantitative data |
|   | e.  | concise statement of behavior that is always the same under the same conditions |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.1 Chemistry and Its Methods |
| *NOTES:* | Dynamic Question |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. All of the following statements concerning green chemistry are correct EXCEPT

|  |  |  |
| --- | --- | --- |
|   | a.  | it is better to prevent waste than to treat or clean up waste after it is formed. |
|   | b.  | synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health or the environment. |
|   | c.  | substances used in a chemical process should be chosen to minimize the potential for chemical accidents. |
|   | d.  | raw materials should be renewable whenever technically and economically practical. |
|   | e.  | chemical syntheses should be done at high enough temperatures to ensure harmful bacteria are destroyed. |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.2 Sustainability and Green Chemistry |

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| 3. One of the following is not a description of gases. Which one is it?

|  |  |  |
| --- | --- | --- |
|   | a.  | particles far apart |
|   | b.  | relatively high densities |
|   | c.  | expands infinitely on heating |
|   | d.  | fills any container completely |
|   | e.  | easily compressed |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.3 Classifying Matter |
| *NOTES:* | Dynamic Question |

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| 4. Which of the following statements concerning the kinetic-molecular theory of matter is/are CORRECT?

|  |  |  |
| --- | --- | --- |
|   | 1. | Particles in a liquid vibrate back and forth about an average position. |
|   | 2. | Particles in a solid are packed closely together, but are not confined to specific positions. |
|   | 3. | Particles in a gas fly about randomly, colliding with themselves and the walls of their container. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.3 Classifying Matter |

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| 5. Which of the following statements concerning the kinetic-molecular theory of matter is/are CORRECT?

|  |  |  |
| --- | --- | --- |
|   | 1. | Particles in a gas move faster as the temperature increases. |
|   | 2. | Particles in a liquid are packed closely together, but are not confined to specific positions. |
|   | 3. | Particles in a gas vibrate back and forth about an average position. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.3 Classifying Matter |

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| --- |
| Instructions: Use the pictures below to answer question 6:A) B) C)D) E)  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. Which of the above figures represents a liquid compound?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | Figure A | b.  | Figure B | c.  | Figure C | d.  | Figure D | e.  | Figure E |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.3 Classifying Matter1.4 Elements1.5 Compounds |
| *NOTES:* | OWL | Dynamic Question |

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|  |
| --- |
| Instructions: Use the figures below to answer questions 7:**A)B)** **C)****D)** **E)** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 7. Which of the above figures represents a gaseous element?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | Figure A | b.  | Figure B | c.  | Figure C | d.  | Figure D |
|   | e.  | Figure E |  |  |  |  |  |  |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.3 Classifying Matter1.4 Elements1.5 Compounds |
| *NOTES:* | OWL | Dynamic Question |

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| --- |
| Instructions: Use the pictures below to answer question 8:A) B) C)D) E)  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. Which of the above figure represents a mixture of two elements?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | Figure A | b.  | Figure B | c.  | Figure C | d.  | Figure D | e.  | Figure E |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.3 Classifying Matter1.4 Elements1.5 Compounds |
| *NOTES:* | OWL |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. Which one of the following statements is correct?

|  |  |  |
| --- | --- | --- |
|   | a.  | A pure substance may be separated by filtration or distillation into two or more components. |
|   | b.  | A heterogeneous mixture is also known as a solution. |
|   | c.  | A heterogeneous mixture is composed of two or more substances in the same phase. |
|   | d.  | The composition is uniform throughout a homogeneous mixture. |
|   | e.  | The combination of a liquid and a solid always results in a heterogeneous mixture. |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.3 Classifying Matter |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. Which of the following is not a mixture?

|  |  |  |
| --- | --- | --- |
|   | a.  | soda |
|   | b.  | skim milk |
|   | c.  | wine |
|   | d.  | cow manure |
|   | e.  | graphite |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.3 Classifying Matter |
| *NOTES:* | Dynamic Question |

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| 11. Which of the following are likely to form a homogeneous mixture?

|  |  |  |
| --- | --- | --- |
|   | 1. | milk and ice cream blended together with chocolate syrup |
|   | 2. | an egg combined with milk and mixed with a whisk |
|   | 3. | 1 gram table salt combined with 250 mL of water |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.3 Classifying Matter |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. Which one of the following is most likely to be a homogeneous mixture?

|  |  |  |
| --- | --- | --- |
|   | a.  | plain yogurt |
|   | b.  | blood |
|   | c.  | gasoline |
|   | d.  | campfire smoke |
|   | e.  | mortar (a mixture of calcium carbonate and sand) |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.3 Classifying Matter |
| *NOTES:* | Dynamic Question |

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| 13. Which one of the following is most likely to be a heterogeneous mixture?

|  |  |  |
| --- | --- | --- |
|   | a.  | antifreeze (a mixture of water and ethylene glycol) |
|   | b.  | campfire smoke |
|   | c.  | sugar water |
|   | d.  | table salt dissolved in water |
|   | e.  | gasoline |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.3 Classifying Matter |
| *NOTES:* | Dynamic Question |

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| 14. Which of the following statements is/are CORRECT?

|  |  |  |
| --- | --- | --- |
|   | 1. | Atoms are the smallest particles of an element that retain the element's chemical properties. |
|   | 2. | Substances composed of only one type of atom are classified as elements. |
|   | 3. | Of the 118 known elements, only 48 occur naturally. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. A number of the heaviest elements on the periodic table are named for famous scientists. Element number 99 was most likely named for which famous scientist?

|  |  |  |
| --- | --- | --- |
|   | a.  | Glen Seaborg |
|   | b.  | Marie Curie |
|   | c.  | Alfred Nobel |
|   | d.  | Albert Einstein |
|   | e.  | Lise Meitner |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.4 ElementsA Closer Look |
| *NOTES:* | Dynamic Question |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. What is the symbol for the element sulfur?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | S | b.  | Po | c.  | Po | d.  | Po | e.  | Po |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.4 Elements |
| *NOTES:* | Dynamic Question |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. What is the correct symbol for potassium?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | P | b.  | Pm | c.  | K | d.  | Pt | e.  | Po |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. What is the correct symbol for silver?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | S | b.  | Si | c.  | Ag | d.  | Sr | e.  | Au |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. The element whose symbol is S is

|  |  |  |
| --- | --- | --- |
|   | a.  | sulfur. |
|   | b.  | cobalt. |
|   | c.  | cobalt. |
|   | d.  | cobalt. |
|   | e.  | none of these. |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.4 Elements |
| *NOTES:* | Dynamic Question |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. What is the name of the element with the symbol B?

|  |  |  |
| --- | --- | --- |
|   | a.  | barium |
|   | b.  | beryllium |
|   | c.  | bismuth |
|   | d.  | boron |
|   | e.  | bromine |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. What is the name of the element with the symbol Cr?

|  |  |  |
| --- | --- | --- |
|   | a.  | cerium |
|   | b.  | carbon |
|   | c.  | chromium |
|   | d.  | cadmium |
|   | e.  | chlorine |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. Which one of the following substances is classified as an element?

|  |  |  |
| --- | --- | --- |
|   | a.  | I2 |
|   | b.  | NO |
|   | c.  | KCl |
|   | d.  | C6H12O6 |
|   | e.  | CO |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. Which of the following is not a correct name–symbol combination?

|  |  |  |
| --- | --- | --- |
|   | a.  | scandium, Sc |
|   | b.  | iron, Fe |
|   | c.  | chlorine, Cl |
|   | d.  | silicon, Si |
|   | e.  | bromine, V |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.4 Elements |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. An electrically charged atom or group of atoms is a(n) \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | element |
|   | b.  | ion |
|   | c.  | molecule |
|   | d.  | heterogeneous mixture |
|   | e.  | solution |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.5 Compounds |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. A pure substance composed of two or more different elements is a(n) \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | ion |
|   | b.  | heterogeneous mixture |
|   | c.  | chemical compound |
|   | d.  | solid |
|   | e.  | solution |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.5 Compounds |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. A(n) \_\_\_\_\_\_\_\_ is a pure substance that is composed of only one type of atom.

|  |  |  |
| --- | --- | --- |
|   | a.  | ion |
|   | b.  | solution |
|   | c.  | element |
|   | d.  | molecule |
|   | e.  | gas |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.5 Compounds |

 |

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| 27. Which one of the following substances is classified as a chemical compound?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | Mo | b.  | Nb | c.  | Na | d.  | NO | e.  | Co |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.5 Compounds |
| *NOTES:* | Dynamic Question |

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| 28. Which term best describes methane, CH4?

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| --- | --- | --- |
|   | a.  | homogeneous mixture |
|   | b.  | ion |
|   | c.  | element |
|   | d.  | chemical compound |
|   | e.  | atom |

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| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.5 Compounds |
| *NOTES:* | Dynamic Question |

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| 29. Which of the following statements concerning water (H2O) is/are CORRECT?

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| --- | --- | --- |
|   | 1. | H2O is a chemical compound. |
|   | 2. | Water is a homogeneous mixture. |
|   | 3. | Liquid water is a mixture of elemental hydrogen and oxygen. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.5 Compounds |

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| 30. Which one of the following statements is not a comparison of physical properties?

|  |  |  |
| --- | --- | --- |
|   | a.  | Potassium reacts with water more quickly than calcium reacts with water. |
|   | b.  | The electrical conductivity of aluminum is greater than copper. |
|   | c.  | The density of copper is less than the density of lead. |
|   | d.  | The solubility of NaCl in hot water is greater than the solubility in cold water. |
|   | e.  | The boiling point of water is greater than the boiling point of ethanol. |

|  |  |
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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 31. Which of the following statements is/are CORRECT?

|  |  |  |
| --- | --- | --- |
|   | 1. | The conduction of electricity through copper wire is a chemical change. |
|   | 2. | The rusting of iron is a chemical change. |
|   | 3. | The evaporation of ammonia at -33.3 °C is a chemical change. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 2 and 3 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 32. Which one of the following statements is not a comparison of physical properties?

|  |  |  |
| --- | --- | --- |
|   | a.  | Mercury and gallium are both liquids at 50 °C. |
|   | b.  | Oxygen is more soluble in water than helium. |
|   | c.  | Silver and gold are malleable metals. |
|   | d.  | Oxygen and nitrogen are both liquids at -200 °C. |
|   | e.  | Calcium dissolves more quickly than iron in acids. |

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| *ANSWER:* | e |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 33. An intensive property of a substance is

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| --- | --- | --- |
|   | a.  | independent of the amount present. |
|   | b.  | dependent on its volume, but not its mass. |
|   | c.  | not affected by its temperature. |
|   | d.  | dependent only on its temperature. |
|   | e.  | dependent only on its mass and volume. |

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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 34. Which of the following are extensive properties: mass, volume, and/or density?

|  |  |  |
| --- | --- | --- |
|   | a.  | mass only |
|   | b.  | volume only |
|   | c.  | density only |
|   | d.  | mass and volume |
|   | e.  | volume and density |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 35. All of the following are examples of intensive properties of matter EXCEPT \_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | ductility |
|   | b.  | color |
|   | c.  | the state of matter |
|   | d.  | volume |
|   | e.  | boiling point |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.6 Physical Properties |
| *NOTES:* | Dynamic Question |

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| 36. Which of following would be classified as a chemical change?

|  |  |  |
| --- | --- | --- |
|   | a.  | the evaporation of water |
|   | b.  | the condensation of nitrogen gas |
|   | c.  | the melting of gold |
|   | d.  | the rusting of iron |
|   | e.  | the freezing of diesel fuel |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.7 Physical and Chemical Change |
| *NOTES:* | Dynamic Question |

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| 37. What kind of change is depicted below?

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| --- | --- | --- |
|  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | physical change | b.  | chemical change |
|   | c.  | both chemical and physical change | d.  | no change |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 1.7 Physical and Chemical Change |
| *NOTES:* | OWL | Dynamic Question |

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| 38. Which of the following observations is/are examples of chemical change?

|  |  |  |
| --- | --- | --- |
|   | 1. | Iron (Fe) rusts, forming Fe2O3. |
|   | 2. | The density of water increases when it changes from a solid to a liquid. |
|   | 3. | Sodium chloride melts at 801 °C. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 2 and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.7 Physical and Chemical Change |

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| 39. Which of the following observations is/are examples of physical change?

|  |  |  |
| --- | --- | --- |
|   | 1. | The density of water decreases when it solidifies. |
|   | 2. | Aluminum melts when heated above 660 °C. |
|   | 3. | Hydrogen peroxide (H2O2) decomposes to water and oxygen. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 1 and 2 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.7 Physical and Chemical Change |

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| 40. A battery-operated power tool, such as a cordless drill, converts

|  |  |  |
| --- | --- | --- |
|   | a.  | electrostatic energy to chemical potential energy. |
|   | b.  | mechanical energy to electrostatic energy. |
|   | c.  | thermal energy to mechanical energy. |
|   | d.  | thermal energy to gravitational energy. |
|   | e.  | chemical potential energy to mechanical energy. |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 5.1 Energy: Some Basic Principles |

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| 41. Which of the following lists contains only forms of kinetic energy?

|  |  |  |
| --- | --- | --- |
|   | a.  | electrostatic, gravitational, and mechanical energy |
|   | b.  | gravitational, mechanical, and electrical energy |
|   | c.  | thermal, acoustic, and mechanical energy |
|   | d.  | chemical, thermal, and acoustic energy |
|   | e.  | gravitational, chemical, and electrostatic energy |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 5.1 Energy: Some Basic Principles |

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| 42. Of the following types of energy, which is/are classified as potential energy?

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| --- | --- | --- |
|   | 1. | electrical |
|   | 2. | graviatational |
|   | 3. | chemical |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | a.  | 1 only | b.  | 2 only | c.  | 3 only | d.  | 2 and 3 | e.  | 1, 2, and 3 |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | True |
| *TOPICS:* | 5.1 Energy: Some Basic Principles |
| *NOTES:* | Dynamic Question |

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| 43. Substances like hydrogen (H2) and oxygen (O2) that are composed of only one type of atom are classified as \_\_\_\_\_\_\_\_.

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| --- | --- |
| *ANSWER:* | elements |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| 44. Properties, such as color and density, which can be observed or measured without changing the composition of a substance are called \_\_\_\_\_\_\_\_ properties.

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| *ANSWER:* | physical |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 45. A mass of 10 g of table salt dissolves in water to form a(n) \_\_\_\_\_\_\_\_ mixture (i.e., a mixture that is uniform throughout).

|  |  |
| --- | --- |
| *ANSWER:* | homogeneous |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.3 Classifying Matter |

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| 46. A(n) \_\_\_\_\_\_\_\_ is the smallest particle of an element that retains the characteristic chemical properties of that element.

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| *ANSWER:* | atom |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.4 Elements |

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| 47. The \_\_\_\_\_\_\_\_ of a substance is defined as its mass per unit volume.

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| --- | --- |
| *ANSWER:* | density |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 48. Density is an example of a(n) \_\_\_\_\_\_\_\_ property, which is one that does not depend on the amount of a substance.

|  |  |
| --- | --- |
| *ANSWER:* | intensive |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.6 Physical Properties |

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| 49. \_\_\_\_\_\_\_\_ energy is the energy associated with the separation of two electrical charges.

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| *ANSWER:* | Electrostatic |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 5.1 Energy: Some Basic Principles |

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| 50. Potential energy possessed by water at the top of a waterfall is known as \_\_\_\_\_\_\_\_ energy.

|  |  |
| --- | --- |
| *ANSWER:* | gravitational |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 5.1 Energy: Some Basic Principles |

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| 51. The law of \_\_\_\_\_\_\_\_ states that the total energy of the universe is constant.

|  |  |
| --- | --- |
| *ANSWER:* | conservation of energy |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 5.1 Energy: Some Basic Principles |

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| 52. Many regulators, environmentalists, and citizens around the world believe that \_\_\_\_\_\_\_\_ *development* is required to meet today’s economic and environmental needs while preserving the options for future generations to meet theirs.

|  |  |
| --- | --- |
| *ANSWER:* | sustainable |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.2 Sustainability and Green Chemistry |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 53. To ensure integrity in science, experimental results should be \_\_\_\_\_\_\_\_ and reported in sufficient detail that the experiment can be repeated by others.

|  |  |
| --- | --- |
| *ANSWER:* | reproducible |
| *POINTS:* | 1 |
| *HAS VARIABLES:* | False |
| *TOPICS:* | 1.1 Chemistry and Its Methods |

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