|  |
| --- |
| **Multiple Choice** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1. Hydrogenation is a \_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | manufacturing process that adds hydrogen atoms to carbohydrates |
|   | b.  | natural process that adds hydrogen atoms to carbohydrates |
|   | c.  | manufacturing process that adds hydrogen atoms to oils |
|   | d.  | natural process that removes hydrogen atoms from fats |
|   | e.  | manufacturing process that removes hydrogen atoms from fats |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.1 A Big Fat Problem |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.01 - Application |
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| 2. The human body requires about \_\_\_\_ of fat each day to stay healthy.

|  |  |  |
| --- | --- | --- |
|   | a.  | one teaspoon |
|   | b.  | four teaspoons |
|   | c.  | one tablespoon |
|   | d.  | four tablespoons |
|   | e.  | one cup |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.1 A Big Fat Problem |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.01 - Application |
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| 3. The main source of *trans* fats in the American diet has been \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | red meat |
|   | b.  | dairy products |
|   | c.  | seafood |
|   | d.  | grains |
|   | e.  | vegetable oils |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.1 A Big Fat Problem |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.01 - Application |
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| 4. ​A typical fat molecule has \_\_\_\_ fatty acid tails.

|  |  |  |
| --- | --- | --- |
|   | a.  | one​ |
|   | b.  | ​two |
|   | c.  | ​three |
|   | d.  | ​four |
|   | e.  | ​five |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.1 A Big Fat Problem |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.01 - Application |
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| 5. Which invention led to *trans* fats being marketed as a solid cooking fat?​

|  |  |  |
| --- | --- | --- |
|   | a.  | the electric light​ |
|   | b.  | ​the telephone |
|   | c.  | ​the automobile |
|   | d.  | ​the microwave oven |
|   | e.  | ​the refrigerator |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.1 A Big Fat Problem |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.01 - Application |
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| 6. The atomic number is determined by the number of \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | protons​ |
|   | b.  | ​neutrons |
|   | c.  | ​electrons |
|   | d.  | protons plus neutrons​ |
|   | e.  | ​protons plus electrons |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 7. Carbon has an atomic number of 6. Carbon 14 has \_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | 6 neutrons and 6 protons |
|   | b.  | 6 neutrons and 8 protons |
|   | c.  | 8 neutrons and 6 protons |
|   | d.  | 14 neutrons and 6 protons |
|   | e.  | 14 protons and 6 neutrons |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 8. Tracers are used in what form of medical test?​

|  |  |  |
| --- | --- | --- |
|   | a.  | PET scans​ |
|   | b.  | ​CT scans |
|   | c.  | ​sonograms |
|   | d.  | ​x-rays |
|   | e.  | ​MRI |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.03 - Describe radioactive decay. |
| *DATE CREATED:* | 11/18/2019 2:48 PM |
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| 9. We can accurately determine the age of a rock or fossil by measuring its \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | proton concentration​ |
|   | b.  | ​electron concentration |
|   | c.  | ​neutron concentration |
|   | d.  | ​isotope concentration |
|   | e.  | ​ion concentration |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.03 - Describe radioactive decay. |
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| 10. Helium, neon, and argon are \_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | extremely stable because they have vacancies in their outer shells |
|   | b.  | extremely stable because they do not have any vacancies in their outer shells |
|   | c.  | extremely unstable because they have vacancies in their outer shells |
|   | d.  | extremely unstable because they do not have any vacancies in their outer shells |
|   | e.  | extremely unstable because they have vacancies in their inner shells |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.04 - Use the concept of vacancies to explain the chemical activity of atoms. |
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| 11. The nucleus of an atom contains \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​protons only |
|   | b.  | ​electrons only |
|   | c.  | ​neutrons only |
|   | d.  | ​protons and neutrons |
|   | e.  | protons and electrons​ |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 12. The negative subatomic particle is the \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | neutron |
|   | b.  | proton |
|   | c.  | electron |
|   | d.  | quark |
|   | e.  | Higg’s boson |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 13. The positive subatomic particle is the \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​neutron |
|   | b.  | ​proton |
|   | c.  | ​electron |
|   | d.  | ​positron |
|   | e.  | ​quark |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 14. Oxygen has an atomic number of 8. This means that oxygen has \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | eight electrons in its outer most shell |
|   | b.  | eight neutrons in its nucleus |
|   | c.  | four protons and four neutrons in its nucleus |
|   | d.  | eight protons in its nucleus |
|   | e.  | eight protons and eight neutrons in its nucleus |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom's: Apply |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 15. The neutral subatomic particle is the \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | neutron |
|   | b.  | proton |
|   | c.  | electron |
|   | d.  | quark |
|   | e.  | Higg’s boson |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 16. Carbon 14 radioisotopes decay into stable \_\_\_\_.​nitrogen 15 isotopes

|  |  |  |
| --- | --- | --- |
|   | a.  | carbon 13 isotopes​ |
|   | b.  | ​nitrogen atoms |
|   | c.  | carbon atoms​ |
|   | d.  | ​nitrogen 15 isotopes |
|   | e.  | ​sodium atoms |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.03 - Describe radioactive decay. |
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| 17. An atom that carries a charge is called a(n) \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ion​ |
|   | b.  | ​molecule |
|   | c.  | ​compound |
|   | d.  | ​element |
|   | e.  | ​microelement |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.04 - Use the concept of vacancies to explain the chemical activity of atoms. |
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| 18. A(n) \_\_\_\_ is a type of chemical bond in which a strong mutual attraction forms between ions of opposite charge.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​hydrogen bond |
|   | b.  | ​nonpolar bond |
|   | c.  | ​polar bond |
|   | d.  | ​covalent bond |
|   | e.  | ​ionic bond |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.01 - Describe a chemical bond. |
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| 19. The bond in table salt (NaCl) is \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | polar​ |
|   | b.  | ​ionic |
|   | c.  | ​covalent |
|   | d.  | double​ |
|   | e.  | ​nonpolar |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.01 - Describe a chemical bond. |
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| 20. In \_\_\_\_ bonds, atoms share electrons equally.​

|  |  |  |
| --- | --- | --- |
|   | a.  | double​ |
|   | b.  | ionic​ |
|   | c.  | ​polar covalent |
|   | d.  | ​nonpolar covalent |
|   | e.  | ​hydrogen |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.01 - Describe a chemical bond. |
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| 21. Which type of chemical bond is found within a water molecule?

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrogen |
|   | b.  | ionic |
|   | c.  | polar covalent |
|   | d.  | nonpolar covalent |
|   | e.  | triple |

|  |  |
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| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.02 - Explain polarity in terms of ionic bonds and covalent bonds. |
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| 22. The positively charged ion, potassium, and the negatively charged ion, fluoride, will form what kind of bond?​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​ionic |
|   | b.  | ​polar covalent |
|   | c.  | ​nonpolar covalent |
|   | d.  | ​hydrogen |
|   | e.  | ​isotonic |

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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.02 - Explain polarity in terms of ionic bonds and covalent bonds. |
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| 23. Which of the following molecules would be considered a covalent compound?

|  |  |  |
| --- | --- | --- |
|   | a.  | oxygen (O2) |
|   | b.  | sodium chloride (NaCl) |
|   | c.  | water (H2O) |
|   | d.  | a diamond (C) |
|   | e.  | ozone (O3) |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.01 - Describe a chemical bond. |
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| 24. The structural formula for molecular oxygen is depicted as O=O. What kind of bond holds molecular oxygen together?​

|  |  |  |
| --- | --- | --- |
|   | a.  | ionic​ |
|   | b.  | ​polar covalent |
|   | c.  | single covalent​ |
|   | d.  | ​double covalent |
|   | e.  | ​triple covalent |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.01 - Describe a chemical bond. |
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| 25. Which substance is hydrophobic?​

|  |  |  |
| --- | --- | --- |
|   | a.  | canola oil​ |
|   | b.  | ​sodium chloride |
|   | c.  | ​sugar |
|   | d.  | ​water |
|   | e.  | ​the potassium ion |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.03 - Describe the way an ionic substance dissolves in water. |
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| 26. Fats will dissolve in ethanol. Ethanol is an example of a \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | solute​ |
|   | b.  | ​solution |
|   | c.  | ​solvent |
|   | d.  | ​salt |
|   | e.  | ​ion |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.03 - Describe the way an ionic substance dissolves in water. |
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| 27. Which bond is weakest?​

|  |  |  |
| --- | --- | --- |
|   | a.  | ionic​ |
|   | b.  | ​double covalent |
|   | c.  | ​polar covalent |
|   | d.  | ​nonpolar covalent |
|   | e.  | ​hydrogen |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 28. Water molecules are attracted to one another because the \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | slightly positive charge of the hydrogen atom from one molecule of water attracts the slightly negative charge of the oxygen atom from another molecule |
|   | b.  | slightly negative charge of the hydrogen atom from one molecule of water attracts the slightly negative charge of the oxygen atom from another molecule |
|   | c.  | slightly positive charge of the hydrogen atom attracts the oxygen within the same molecule of water, which leads to an increase in its polarity |
|   | d.  | water molecules participate in nonpolar covalent bonds, which increase the attraction of the molecules to each other |
|   | e.  | water molecules bind to each other through their mutual attraction to ionic compounds |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.02 - Draw a hydrogen bond between two water molecules. |
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| 29. A solution is a uniform mixture in which a \_\_\_\_ is dissolved completely in a \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | salt; solute​ |
|   | b.  | ​solute; salt |
|   | c.  | ​solute; solvent |
|   | d.  | ​solvent; salt |
|   | e.  | ​solvent; solute |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.03 - Describe the way an ionic substance dissolves in water. |
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| 30. Surface tension is an example of \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​hydrophobicity |
|   | b.  | ​concentration |
|   | c.  | ​evaporation |
|   | d.  | cohesion​ |
|   | e.  | ​polarity |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 31. Sweating to keep cool in the summer is the result of \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrogen bonds breaking to release energy |
|   | b.  | hydrogen bonds forming, which requires energy |
|   | c.  | evaporation of water absorbing energy |
|   | d.  | cohesion of water molecules giving off energy |
|   | e.  | cohesion of water molecules requiring energy |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 32. Hydrogen bonding \_\_\_\_ the movement of molecules, therefore, substances that form a lot of hydrogen bonds, like water, will require \_\_\_\_ energy to increase their temperature by one degree Celsius.

|  |  |  |
| --- | --- | --- |
|   | a.  | decreases; less |
|   | b.  | decreases; more |
|   | c.  | does not affect; no additional |
|   | d.  | increases; less |
|   | e.  | increases; more |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Analyze |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 33. When water molecules form into ice, \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | the water molecules jiggle more​ |
|   | b.  | ​their structure becomes less rigid |
|   | c.  | ​the water molecules pack less densely |
|   | d.  | ​hydrogen bonds between water molecules readily break |
|   | e.  | ​evaporation of water molecules happens more readily |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 34. Hydrophobic molecules are \_\_\_\_ water.​

|  |  |  |
| --- | --- | --- |
|   | a.  | attracted by​ |
|   | b.  | ​absorbed by |
|   | c.  | ​repelled by |
|   | d.  | ​mixed with |
|   | e.  | ​polarized by |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 35. \_\_\_\_ is the tendency of water molecules to stay attached to one another.​

|  |  |  |
| --- | --- | --- |
|   | a.  | Adhesion​ |
|   | b.  | ​Cohesion |
|   | c.  | ​Fusion |
|   | d.  | ​Interaction |
|   | e.  | ​Junction |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 36. Which property of water molecules is responsible for movement of water from roots to leaves in a plant?​

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrophobicity​ |
|   | b.  | ​temperature stability |
|   | c.  | ​fusion |
|   | d.  | ​solvent polarity |
|   | e.  | ​cohesion |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Analyze |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 37. Glucose dissolves in water because it \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | ionizes |
|   | b.  | is a polysaccharide |
|   | c.  | is polar and forms many hydrogen bonds with water molecules |
|   | d.  | has a very reactive primary structure |
|   | e.  | is an isotope |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Analyze |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 38. A uniform mixture is called a \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​concentration |
|   | b.  | ​salt |
|   | c.  | ​solute |
|   | d.  | ​solution |
|   | e.  | ​solvent |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| 39. A solution at a pH of 10 contains how many times more hydrogen ions than a solution at a pH of 7?​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​2 |
|   | b.  | ​3 |
|   | c.  | ​10 |
|   | d.  | ​100 |
|   | e.  | ​1,000 |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.5 Acids and Bases |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.05.01 - Define pH. |
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| 40. Of these pH values, which has the highest concentration of hydrogen ions?

|  |  |  |
| --- | --- | --- |
|   | a.  | 1 |
|   | b.  | 3 |
|   | c.  | 5 |
|   | d.  | 7 |
|   | e.  | 9 |

|  |  |
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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.5 Acids and Bases |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.05.01 - Define pH. |
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| 41. Nearly all of life’s chemistry occurs near a pH range of \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | 1–2 |
|   | b.  | 3–4 |
|   | c.  | 5–6 |
|   | d.  | 7–8 |
|   | e.  | 9–10 |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.5 Acids and Bases |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.05.01 - Define pH. |
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| 42. What category of compounds helps our body fluids to stay within a consistent pH range?​

|  |  |  |
| --- | --- | --- |
|   | a.  | solvents​ |
|   | b.  | ​buffers |
|   | c.  | ​solutes |
|   | d.  | ​acids |
|   | e.  | ​bases |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.5 Acids and Bases |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.05.03 - Describe the way that buffers work. |
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| 43. \_\_\_\_ is one of the substances that maintains our blood pH between 7.35 and 7.45.​

|  |  |  |
| --- | --- | --- |
|   | a.  | Water​ |
|   | b.  | ​Carbonic acid |
|   | c.  | ​Hydrochloric acid |
|   | d.  | ​Hydrogen peroxide |
|   | e.  | ​Sodium hydroxide |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.5 Acids and Bases |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.05.03 - Describe the way that buffers work. |
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| 44. Which two atoms are found in all organic compounds?​

|  |  |  |
| --- | --- | --- |
|   | a.  | carbon and hydrogen​ |
|   | b.  | ​carbon and oxygen |
|   | c.  | ​oxygen and hydrogen |
|   | d.  | ​carbon and phosphorous |
|   | e.  | ​oxygen and sulfur |

|  |  |
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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule. |
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| 45. Which is an organic molecule?​

|  |  |  |
| --- | --- | --- |
|   | a.  | carbon dioxide (CO2)​ |
|   | b.  | ​water (H2O) |
|   | c.  | ​methane (CH4) |
|   | d.  | ​hydrochloric acid (HCl) |
|   | e.  | ​oxygen (O2) |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule. |
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| 46. Large polymers are formed from smaller subunits by which type of reaction?​

|  |  |  |
| --- | --- | --- |
|   | a.  | oxidation​ |
|   | b.  | ​reduction |
|   | c.  | ​condensation |
|   | d.  | ​hydrolysis |
|   | e.  | ​decarboxylation |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.03 - Explain how the molecules of life are polymers. |
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| 47. The breakdown of large molecules by enzymes and the addition of water is known as a \_\_\_\_ reaction.​

|  |  |  |
| --- | --- | --- |
|   | a.  | oxidation​ |
|   | b.  | ​reduction |
|   | c.  | ​condensation |
|   | d.  | ​hydrolysis |
|   | e.  | ​decarboxylation |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.04 - Give an example of a metabolic reaction. |
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| 48. The chemical reactions that cells use to acquire and use energy to live, grow, and reproduce are called \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrolysis |
|   | b.  | condensation |
|   | c.  | phosphorylation |
|   | d.  | metabolism |
|   | e.  | oxidation |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.04 - Give an example of a metabolic reaction. |
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| 49. ​How many carbons are present in this figure?

|  |  |  |
| --- | --- | --- |
|   | a.  | zero |
|   | b.  | four |
|   | c.  | five |
|   | d.  | six |
|   | e.  | seven |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule. |
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| 50. Which organic molecule is a carbohydrate monomer?

|  |  |  |
| --- | --- | --- |
|   | a.  | triglyceride |
|   | b.  | fatty acid |
|   | c.  | nucleotide |
|   | d.  | amino acid |
|   | e.  | monosaccharide |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.6 The Chemistry of Biology |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule. |
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| 51. Glucose monomers linked into a highly branched chain make up \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | glycogen​ |
|   | b.  | ​cellulose |
|   | c.  | ​fructose |
|   | d.  | ​starch |
|   | e.  | ​sucrose |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.01 - Describe the structure of carbohydrates and explain their roles in cells. |
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| 52. Sucrose is composed of \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | two molecules of fructose​ |
|   | b.  | ​two molecules of glucose |
|   | c.  | ​a molecule of fructose and a molecule of glucose |
|   | d.  | ​a molecule of fructose and a molecule of galactose |
|   | e.  | ​two molecules of galactose |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.01 - Describe the structure of carbohydrates and explain their roles in cells. |
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| 53. Plants store their excess carbohydrates in the form of \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | cellulose​ |
|   | b.  | ​starch |
|   | c.  | ​glycogen |
|   | d.  | sucrose​ |
|   | e.  | ​galactose |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function. |
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| 54. Glycogen is a polysaccharide used for energy storage by \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | plants​ |
|   | b.  | ​animals |
|   | c.  | ​protists |
|   | d.  | ​bacteria |
|   | e.  | ​archaea |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.03 - Name the function that glycogen serves in the human body. |
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| 55. Which type of bonding allows the long, straight chains of cellulose to lock together tightly?​

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrogen​ |
|   | b.  | ​polar covalent |
|   | c.  | ​ionic |
|   | d.  | ​nonpolar covalent |
|   | e.  | ​metallic |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function. |
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| 56. Cellulose is \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | the most complex of the organic compounds​ |
|   | b.  | ​a polymer of glucose and fructose |
|   | c.  | ​a polymer of glucose and galactose |
|   | d.  | ​a component of plasma membranes |
|   | e.  | ​a material found in plant cell walls |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function. |
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| 57. \_\_\_\_ is a monosaccharide.​

|  |  |  |
| --- | --- | --- |
|   | a.  | Cellulose​ |
|   | b.  | ​Fructose |
|   | c.  | ​Glycogen |
|   | d.  | ​Starch |
|   | e.  | ​Sucrose |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.01 - Describe the structure of carbohydrates and explain their roles in cells. |
| *DATE CREATED:* | 11/18/2019 2:48 PM |
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| 58. Humans do not contain the enzymes to break down \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | cellulose​ |
|   | b.  | ​fructose |
|   | c.  | ​glycogen |
|   | d.  | ​starch |
|   | e.  | ​sucrose |

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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function. |
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| 59. A triglyceride molecule is made up of \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | one glycerol and two fatty acids​ |
|   | b.  | ​two fatty acids and two glycerols |
|   | c.  | ​one fatty acid and three glycerols |
|   | d.  | ​one glycerol and three fatty acids |
|   | e.  | ​one glycerol and two fatty acids |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats. |
| *DATE CREATED:* | 11/18/2019 2:48 PM |
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| 60. In a cell membrane, the phospholipid heads are \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrophobic​ |
|   | b.  | ​nonpolar |
|   | c.  | ​dissolved in the cell’s watery interior |
|   | d.  | ​sandwiched between the phospholipid tails |
|   | e.  | ​formed by fatty acids |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.03 - Describe the lipid bilayer. |
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| 61. Unsaturated fats \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | are solid at room temperature​ |
|   | b.  | ​have at least one double bond in their fatty acid tail |
|   | c.  | ​are saturated with hydrogen atoms |
|   | d.  | ​mainly come from animals |
|   | e.  | ​consist of straight chain fatty acids |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats. |
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| 62. All steroids have \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | the same number of double bonds​ |
|   | b.  | ​double bonds in the same positions |
|   | c.  | ​four carbon rings |
|   | d.  | ​the same functional groups |
|   | e.  | ​the same number and positions of double bonds**​** |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.04 - Give one example of a molecule that is made from cholesterol. |
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| 63. Which food product would likely contain the largest amount of unsaturated fat?

|  |  |  |
| --- | --- | --- |
|   | a.  | butter |
|   | b.  | lard |
|   | c.  | cream |
|   | d.  | olives |
|   | e.  | cheese |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Analyze |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats. |
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| 64. Fats that contain \_\_\_\_ double bonds are liquids at room temperature, whereas fats that contain \_\_\_\_ double bonds are solids at room temperature.​

|  |  |  |
| --- | --- | --- |
|   | a.  | ​*trans*; *cis* |
|   | b.  | ​*cis*; *trans* |
|   | c.  | ​hydrogenated; partially hydrogenated |
|   | d.  | ​partially hydrogenated; hydrogenated |
|   | e.  | ​unsaturated; saturated |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Understand |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats. |
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| 65. ​​In the given figure, which fatty acid(s) is/are most likely to be solid at room temperature?

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

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats. |
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| 66. A(n) \_\_\_\_ is a protein monomer.​

|  |  |  |
| --- | --- | --- |
|   | a.  | nucleotide​ |
|   | b.  | ​monosaccharide |
|   | c.  | ​simple sugar |
|   | d.  | ​amino acid |
|   | e.  | ​ribose |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.01 - Draw the generalized structure of an amino acid. |
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| 67. Primary protein structure is dependent upon \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrophobic interactions​ |
|   | b.  | ​hydrogen bonds between two amino acids |
|   | c.  | ​covalent linkages between carbons and nitrogens of adjacent amino acids |
|   | d.  | ​covalent linkages between carbons and oxygens of adjacent amino acids |
|   | e.  | ​covalent linkages between the polypeptide and sugars or lipids |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure. |
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| 68. Which type of bond exists between two amino acids in a protein?​

|  |  |  |
| --- | --- | --- |
|   | a.  | peptide​ |
|   | b.  | ​ionic |
|   | c.  | ​hydrogen |
|   | d.  | ​amino |
|   | e.  | ​sulfhydryl |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure. |
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| 69. Two amino acids are bonded together to form a dipeptide by which type of reaction?

|  |  |  |
| --- | --- | --- |
|   | a.  | condensation |
|   | b.  | oxidation reduction |
|   | c.  | hydrolysis |
|   | d.  | decomposition |
|   | e.  | acid–base |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure. |
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| 70. Protein misfolding causes \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | Creutzfeldt–Jakob disease |
|   | b.  | arthritis |
|   | c.  | immunodepression |
|   | d.  | schizophrenia |
|   | e.  | tuberculosis |

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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.03 - Using an appropriate example, explain why changes in protein structure can be dangerous. |
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| 71. ​When a protein denatures, which type of bonding is affected?

|  |  |  |
| --- | --- | --- |
|   | a.  | covalent​ |
|   | b.  | ​peptide |
|   | c.  | ​ionic |
|   | d.  | ​hydrogen |
|   | e.  | ​metallic |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.03 - Using an appropriate example, explain why changes in protein structure can be dangerous. |
| *DATE CREATED:* | 11/18/2019 2:48 PM |
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| 72. A protein that is linked to a carbohydrate is known as a \_\_\_\_.​

|  |  |  |
| --- | --- | --- |
|   | a.  | glycoprotein​ |
|   | b.  | ​lipoprotein |
|   | c.  | ​fibrous proteins |
|   | d.  | ​denatured proteins |
|   | e.  | ​prions |

|  |  |
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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure. |
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| 73. ​Nucleotides are monomers of \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | ​complex lipids |
|   | b.  | proteins​ |
|   | c.  | ​polysaccharides |
|   | d.  | ​nucleic acids |
|   | e.  | ​cellulose |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.10 Nucleic Acids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid. |
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| 74. A nucleotide consists of \_\_\_\_.

|  |  |  |
| --- | --- | --- |
|   | a.  | a five-carbon sugar, a nitrogenous acid, and a phosphate group |
|   | b.  | a six-carbon sugar, a nitrogenous base, and a phosphate group |
|   | c.  | a five-carbon sugar, a nitrogenous base, and a phosphate group |
|   | d.  | a six-carbon sugar, a nitrogenous acid, and a phosphate group |
|   | e.  | a four-carbon sugar, a nitrogenous acid, and a phosphate group |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.10 Nucleic Acids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid. |
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| 75. In a polymer of nucleotides, how does one nucleotide attach to another?​

|  |  |  |
| --- | --- | --- |
|   | a.  | The base of one nucleotide is attached to the base of the next.​ |
|   | b.  | ​The base of one nucleotide it attached to the sugar of the next. |
|   | c.  | ​The sugar of one nucleotide is attached to the sugar of the next. |
|   | d.  | ​The phosphate group of one nucleotide is attached to the base of the next. |
|   | e.  | ​The phosphate group of one nucleotide is attached to the sugar of the next. |

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.10 Nucleic Acids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid. |
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| 76. Which type of bonds hold the two chains of DNA together in a DNA molecule?​

|  |  |  |
| --- | --- | --- |
|   | a.  | hydrogen​ |
|   | b.  | ​polar covalent |
|   | c.  | ​nonpolar covalent |
|   | d.  | ionic​ |
|   | e.  | ​peptide |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.10 Nucleic Acids |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid. |
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| **Matching** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ​***Match the following terms to the correct description.***

|  |  |
| --- | --- |
| a.  | ​mass number |
| b.  | ​atomic number |
| c.  | ​radioisotope |
| d.  | ​isotopes |
| e.  | ​ions |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.2 Atoms |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element. |
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| 77. ​forms of an element that differ in the number of neutrons their atoms carry

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| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |

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| 78. ​number of protons in the atomic nucleus

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |

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| 79. ​isotope with an unstable nucleus

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |

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| 80. ​total number of protons and neutrons in the nucleus of an atom

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 81. ​atoms with more or less electrons than protons

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Match the following terms to the correct description*.**

|  |  |
| --- | --- |
| a.  | acid |
| b.  | base |
| c.  | neutral |
| d.  | buffer |
| e.  | pH |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.5 Acids and Bases |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.05.02 - Differentiate between acids and bases. |
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| 82. solution that contains the same concentration of H+ ions as OH– ions

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| *ANSWER:* | c |
| *POINTS:* | 1 |

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| 83. measure of the relative concentration of hydrogen ions in a solution

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| *ANSWER:* | e |
| *POINTS:* | 1 |

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| 84. substance that releases hydrogen ions in solution

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| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |

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| 85. substance that accepts hydrogen ions in solution

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| *ANSWER:* | b |
| *POINTS:* | 1 |

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| 86. substance that can maintain the pH of a solution at a relatively constant level

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| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***The following are types of chemical bonds. Match these to the correct description. (The bonds may fit more than one description.)***

|  |  |
| --- | --- |
| a.  | hydrogen |
| b.  | ionic |
| c.  | covalent |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.3 Chemical Bonds |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.03.01 - Describe a chemical bond. |
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| 87. ​the bond between the atoms in an NaCl molecule

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| *ANSWER:* | b |
| *POINTS:* | 1 |

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| 88. ​the bond between the hydrogen atoms of molecular hydrogen

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| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |

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| 89. ​the bond that breaks when salts dissolve in water

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| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |

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| 90. ​the bond in which electrons are shared

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |

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| --- | --- | --- | --- | --- |
| 91. ​the bond that holds organic molecules together

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***The following are types of chemical bonds. Match these to the correct description.***

|  |  |
| --- | --- |
| a.  | hydrogen |
| b.  | cohesion |
| c.  | evaporation |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Remember |
| *REFERENCES:* | 2.4 Special Properties of Water |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life. |
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| --- | --- | --- | --- | --- |
| 92. the bond that gives water special properties

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |

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| 93. the property that allows certain insects to walk on water

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |

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|           ***Match the structures with the appropriate label in the given figure.***

|  |  |
| --- | --- |
| a.  | A |
| b.  | B |
| c.  | C |
| d.  | D |
| e.  | E |
| f.  | F |
| g.  | G |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.8 Lipids |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats. |
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| --- | --- | --- | --- | --- |
| 94. ​fatty acid

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 95. ​phospholipid

|  |  |
| --- | --- |
| *ANSWER:* | e |
| *POINTS:* | 1 |

 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 96. ​steroid

|  |  |
| --- | --- |
| *ANSWER:* | g |
| *POINTS:* | 1 |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Match the structures with the appropriate label in the given figure.***​

|  |  |  |  |
| --- | --- | --- | --- |
| a.  | A | b.  | B |
| c.  | C | d.  | D |
| e.  | E | f.  | F |
| g.  | G |  |  |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.9 Proteins |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure. |
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| --- | --- | --- | --- | --- |
| 97. ​amino acid

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Match the structures with the appropriate label in the given figure.***​

|  |  |  |  |
| --- | --- | --- | --- |
| a.  | A | b.  | B |
| c.  | C | d.  | D |
| e.  | E | f.  | F |
| g.  | G |  |  |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.7 Carbohydrates |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function. |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 98. ​cellulose

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 99. ​starch

|  |  |
| --- | --- |
| *ANSWER:* | f |
| *POINTS:* | 1 |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Match the structures with the appropriate label in the given figure.***​

|  |  |  |  |
| --- | --- | --- | --- |
| a.  | A | b.  | B |
| c.  | C | d.  | D |
| e.  | E | f.  | F |
| g.  | G |  |  |

|  |  |
| --- | --- |
| *DIFFICULTY:* | Bloom’s: Apply |
| *REFERENCES:* | 2.10 Nucleic Acids |
| *QUESTION TYPE:* | Matching |
| *HAS VARIABLES:* | False |
| *LEARNING OBJECTIVES:* | BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid. |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 100. ​nucleotide

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |

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