

# [Bioportal study guide](https://assignbuster.com/bioportal-study-guide/)

[Environment](https://assignbuster.com/essay-subjects/environment/), [Nature](https://assignbuster.com/essay-subjects/environment/nature/)

1. Polar molecules

* A. have bonds with an unequal distribution of electric charge.
* B. must form ions in water solution.
* C. have bonds with an equal distribution of electrical charge.
* D. have bonds with an overall negative charge.
* E. have bonds with an overall positive charge. Correct See Section

2. How Do Atoms Bond to Form Molecules? Points Earned.

Correct Answer:

Your Response: A.

2. Hydrocarbons are \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_, whereas salts are \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_.

* A. nonpolar; hydrophobic; polar; hydrophilic
* B. nonpolar; hydrophilic; polar; hydrophobic
* C. polar; hydrophilic; nonpolar; hydrophobic
* D. polar; hydrophobic; nonpolar; hydrophilic
* E. None of the above Correct See Section

3. The pH of coffee is close to 5 and that of pure water is 7. This means that:

* A. coffee is more basic than water.
* B. water is more acidic than coffee.
* C. the H+ concentration of coffee is seven-fifths that of water.
* D. the H+ concentration of water is one-one hundredth that of coffee.
* E. the H+ concentration of water is one-hundred times that of coffee. Correct See Section

3. 1 What Makes Water So Important for Life?

Correct Answer: D

4. Which of the following statements best describes the difference between an element and a molecule?

* A. An element is composed of atoms; a molecule is not.
* B. An element is composed of only one kind of atom; molecules can be composed of more than one kind of atom.
* C. An element is unstable; molecules are stable.
* D. Elements always have lower atomic weights than molecules.
* E. Elements exist in nature only as parts of molecules.

Correct Answer: B

Your Response: B

5. Solid salt, NaCl, is neutral. When dissolved in water, NaCl

* A. remains as NaCl (does not dissociate).
* B. dissociates to form Na– and Cl+.
* C. dissociates to form Na+ and Cl– ions that do not interact with water molecules.
* D. dissociates to form Na+ and Cl– ions that interact with water molecules.
* E. does not dissociate but interacts with water molecules.

Correct Answer: D

Your Response: D

6. Why is the pH of a 0. 1 M solution of acetic acid in water higher than that of a 0. 1 M solution of HCl in the water?

* A. HCl is a weaker acid than acetic acid.
* B. The acetic acid does not fully ionize in water, but HCl does.
* C. HCl does not fully ionize in water, but acetic acid does.
* D. Acetic acid is a better buffer than HCl.
* E. Acetate (ionized acetic acid) is a strong base.

Correct Answer: B

Your Response: B

7. The reactivity of an atom arises from the

* A. energy difference between the s and p orbitals.
* B. potential energy of the outermost shell.
* C. average distance of the outermost shell from the nucleus.
* D. um of the potential energies of all-electron shells.
* E. existence of unpaired electrons in the outermost shell.

Correct Answer: E

Your Response: E

8. The covalent bond formation depends on the ability of atoms to

* A. share electrons with other atoms.
* B. donate electrons to other atoms.
* C. receives electrons from other atoms.
* D. Both a and b
* E. All of the above

Correct Answer: A

Your Response: A

9. Which of the following structures molecules is incorrect?

* A. CH3—NH3
* B. CH2= CH2
* C. CH3—NH2
* D. CH3—NH3+ E. CH3—CH3

Correct Answer: A

Your Response: A

10. What property of water contributes most to the ability of fish in lakes to survive very cold winters?

* A. Water is cohesive.
* B. Water has a high heat capacity.
* C. Frozen water is denser than liquid water.
* D. Frozen water is less dense than liquid water.
* E. Water forms hydrogen bonds.

Correct Answer: D

Your Response: D

11. Water is essential to life. Which of the following physical properties of water effect (s) life in some beneficial way?

* A. Cohesiveness
* B. High heat capacity
* C. The high heat of vaporization
* D. Ice is less dense than liquid water
* E. All of the above Correct See Section
* Answer: E
* Response: E

12. Which of the following interactions between atoms is the strongest?

* A. Hydrophobic
* B. Ionic
* C. Covalent
* D. van der Waals
* E. Hydrogen bonds Correct See Section

Correct Answer: C

Your Response: C

13. Given that Avagadro's number is 6. 02? 1023, how many molecules of KCl would there be in 10–13 liter of a 1 M KCl solution?

* A. 6. 02? 1036
* B. 6. 02? 1010
* C. 6. 02? 10–10
* D. 6. 02? 103
* E. 6. 02? 1013

Answer: B

Your Response: B

14. For a covalent bond to be polar, the two atoms that form the bond must have

* A. differing atomic weights.
* B. differing numbers of neutrons.
* C. differing melting points.
* D. differing electronegativities.
* E. similar electronegativities.

Answer: D

Your Response: D

15. Which of the following statements about chemical reactions is false?

* A. They occur when atoms combine or change their bonding partners.
* B. Energy may be created or destroyed in a chemical reaction.
* C. Reactions may go to completion.
* D. Changes in forms of energy may accompany chemical reactions.
* E. The products of a chemical reaction are formed from the reactants. Correct See Section

Correct Answer: B

Your Response: B

16. Propane (CH3—CH2—CH3), is considered a nonpolar molecule because

* A. it does not contain oxygen.
* B. carbon and hydrogen have similar electronegativities.
* C. it is a gas.
* D. it is flammable.
* E. it forms hydrogen bonds.

Answer: B

Your Response: B

17. Isotopes of an element

* A. is always unstable and radioactive.
* B. have different numbers of protons.
* C. have the same atomic weight.
* D. have different numbers of neutrons.
* E. have different numbers of electrons.

Correct Answer: D

Your Response: D

18. An element that contains ten protons and ten electrons are likely to

* A. form covalent bonds with another element.
* B. form ionic bonds with another element.
* C. be chemically inert (stable).
* D. be radioactive.
* E. be toxic.

Answer: C

Your Response: C

19. Rank the elements carbon (C), hydrogen (H), oxygen (O), and phosphorus (P) in decreasing order of the number of covalent bonds they usually form.

A. C ; P; N; O; H B. P; O; C; N; H C. P; C; N; O; H D. P; C; O; N; H E. P; C; O; H; N

Correct Answer: C

Your Response: C

20. The molecular weight of acetic acid is 60. How many grams of acetic acid would be required to prepare 10 ml of a 0. 001 M (1. 0 mM) solution?

* A. 6. 0
* B. 0. 6
* C. 0. 0006
* D. 0. 06 E. 0. 006 Correct See Section

Correct Answer: C

Your Response: C