

Name: _____ Date: _____

Review for Quiz: Chemistry, Water, pH

1. Explain the difference between mass and weight.

mass - space matter takes up
weight - based on gravitational pull

Choose the correct subatomic particle for numbers 2-8. You may use more than one to answer one question.

- a. electrons b. protons c. neutrons

- B/C 2. Located in the nucleus of an atom
A 3. Located outside of the nucleus
B 4. Positively charged
A 5. Negatively charged
C 6. Neutral (no charge)
C 7. The number of this subatomic particle is different for isotopes
A 8. The number of this subatomic particle is different for ions.

9. What are the four most common elements that make up living things?

C, H, O, N

10. Label the following with the correct terms:

26	←	A
Fe	←	B
55.85	←	C

- A. atomic number
B. element symbol
C. atomic mass

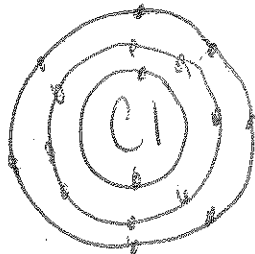
11. As you go across a row in the periodic table, elements get smaller in size but larger in mass.

12. Carbon-12, carbon-13, and carbon-14 are all examples of what? isotopes

13. A substance formed by bonding two or more elements in definite proportions is called a molecule

14. What is the composition of Na_2SO_4 ? 3 elements, 1 Na, 2 S, 8 O atoms

15. Draw a Bohr model of chlorine. Determine if it is stable or unstable.



16. Draw a Bohr model of NaCl. What kind of bond is formed?

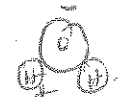
IONIC



17. A ion is a positively or negatively charged element.

18. Covalent bonds involve sharing of electrons.

19. Draw a water molecule. Be sure to label the charges.



20. What does it mean for water to be polar?

uneven distribution of electrons

21. What is the difference between adhesion and cohesion?

adhesion → water bonds with something else
cohesion → water bonds with water

22. Covalent bonds are within (between or within) water molecules and hydrogen bonds are between (between or within) water molecules.

23. Why is it possible for a water strider (bug) to walk on water?

surface tension → occurs because of the cohesive properties of water.

24. Ice is less (more or less) dense than water.

Match the term with the correct definition for numbers 25-27.

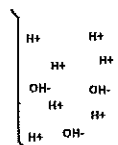
- a. solution b. solute c. solvent

C 25. The substance dissolved in the solution

A 26. Mixture in which one or more substances is distributed in another

B 27. The substance in which the solute is dissolved

28. Is this solution an acid or a base? Explain.



Acid because more H+ than OH- ions.

Key

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Review of Biochemistry

- An organic compound contains the element C.
- How many bonds must each of the following elements form:
 - Carbon 4
 - Hydrogen 1
 - Oxygen 2
 - Nitrogen 3

3. What is the difference between monomer and polymer?
monomer - 1 building block
polymer - made of monomers

For the following questions (4-18), match the correct macromolecule to the descriptions listed.

- a. Carbohydrate b. Protein c. Lipid d. Nucleic Acids

- The monomer is a monosaccharide A
- Contains a hydroxyl group A
- Contains the elements C, H, O, and N B
- The monomer is an amino acid B
- Types of this macromolecule include triglycerides C
- Functions to transmit information from parent to child D
- Contains the elements C, H, O, N, and P D
- Folding is a critical part of the formation of this molecule B
- Monomers are held together by peptide bonds B
- Function as a source of energy A
- Contains the elements C, H, and O A, C
- Include starch and glycogen A
- Contain a carboxyl group B, C
- Component of a cell membrane C
- Function as the structural component to living things B

19. Two molecules of glucose can bond together when water is removed. This process is known as dehydration synthesis. The bond between them can break by adding a molecule of water, which is known as hydrolysis.

20. Glucose, fructose, and galactose are all isomers of each other. They have the same Chemical (structural/chemical) formula but different structural (structural/chemical) formula.

21. What part of an amino acid makes it unique from other amino acids? Radical

22. What are the four steps required to go from an amino acid to a protein?

- Primary - chain of amino acids
- Secondary - twist in amino acids
- Tertiary - fold in amino acids
- Quaternary - multiple amino acids interacting

23. Proteins carry out reactions at very specific conditions. What types of conditions can cause a protein to be unable to function? What happens to the protein during these changes?

Denatured - stop working proteins
pH and temperature cause denature

24. Define enzyme and state what it does to a reaction.

(protein) enzyme - lowers activation energy
- allows reactions to occur

25. What is the difference between saturated and unsaturated fatty acids?

saturated - unhealthy, solid at room temp, all single bonds
unsaturated - healthy, liquid at room temp, double bonds

26. What are two types of nucleic acids? DNA, RNA

27. What two things are considered to be the building blocks of lipids?

fatty acid + glycerol

28. Explain why carbon is so special.

- make 4 bonds - single, double, triple
- make ring or chain structures