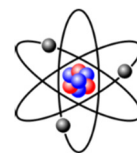


Read pages 125 - 141.

Assignment #1

Write the answers on your own paper, not on this sheet.

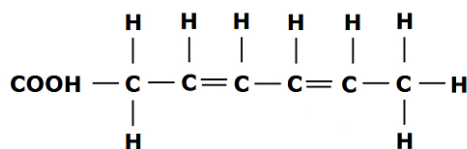
1. What is matter?
2. Indicate where each particle can be found in an atom (in nucleus or orbiting nucleus):
 - a. proton
 - b. neutron
 - c. electron
3. What is an atomic number?
4. Carbon-14 is an isotope of carbon. What does the 14 stand for?
5. A calcium atom has 20 protons.
 - a. How many neutrons does Calcium-38 have?
 - b. How many electrons does Calcium-38 have?
6. The atomic number of iron is 26. List the number of protons, neutrons, and electrons in an Iron-53 atom.
7. List the number of atoms that are in one molecule of each substance.
 - a. C_3H_8O
 - b. $NaCHO_3$
8. What is the difference between a physical change and a chemical change?
9. Indicate whether each change is a physical change or a chemical change:
 - a. Baking a cake
 - b. Boiling water
 - c. Melting ice cream
 - d. Burning sugar
 - e. Dissolving salt in water
10. Name the phase change:
 - a. Liquid to gas
 - b. Solid to liquid
 - c. Liquid to solid
 - d. Gas to liquid
11. When diffusion takes place:
 - a. Do the solute molecules move or do the solvent molecules move?
 - b. Do the molecules move from high to low concentration or low to high?
 - c. Is the barrier permeable or semi-permeable?
12. When osmosis takes place:
 - a. Do the solute molecules move or do the solvent molecules move?
 - b. Do the molecules move from high to low concentration or low to high?
 - c. Is the barrier permeable or semi-permeable?
13. For the chemical reaction, $NaOH + HF \rightarrow H_2O + NaF$:
 - a. Which two chemicals are the reactants?
 - b. Which two chemicals are the products?
14. Write the balanced chemical equation for photosynthesis.
15. What is the name of the substance with the formula $C_6H_{12}O_6$?
16. What is a catalyst?
17. What catalyst do plants use in photosynthesis?

Read pages 142 - 156.

Assignment #2

Write the answers on your own paper, not on this sheet.

1. What is an organic molecule?
2. Indicate whether each molecule is organic or inorganic:
 - a. H_2O
 - b. CO_2
 - c. NH_3
 - d. $\text{C}_6\text{H}_{12}\text{O}_6$
3. What is biosynthesis?
4. What is an isomer? List two carbohydrates that are isomers.
5. What kind of reaction combines molecules by removing a water molecule?
6. What kind of reaction breaks down molecules by adding water?
7. What are polysaccharides made up of?
8. Indicate whether each solution is acidic, alkaline, or neutral:
 - a. Solution A: $\text{pH} = 4$
 - b. Solution B: $\text{pH} = 7$
 - c. Solution C: $\text{pH} = 1$
 - d. Solution D: $\text{pH} = 10$
9. What are two molecules are lipids made of?
10. Lipids are hydrophobic. What does that mean?
11. Animals store excess food as lipids, not carbohydrates. Why are lipids a better way to store excess food?
12. Draw the unsaturated fat molecule on your paper. Circle the double carbon bonds.



13. What are the basic building blocks of proteins called? What type of bond hold them together?
14. What are enzymes?
15. Explain the “lock and key” theory of enzyme action.
16. What does the abbreviation “DNA” stand for?
17. What are the three components that make up a DNA chain?
18. List the four nucleotide bases.
19. What type of bonds hold the two halves of a DNA chain together? Are these bonds strong or weak?
20. On one half of a strand of DNA is the following order of bases. List the bases on the other half of the DNA strand that would connect with these bases.

adenine, guanine, cytosine, adenine, thymine, guanine

