Name: _____ Date: _____ Period: _____

Organic Molecules & Water Unit Review Worksheet

Directions: Answer the following questions the BEST you can without any help. After you have finished, notice what you don't know and make note of this by highlighting the question. Now use notes, etc to finish.

Water

1. Match the terms with their appropriate definition:

_____ An atom that has lost/gained electron(s)

_____A solution with a low [H^+] concentration

_____ A substance made up of one type of atom (can't be broken down by simple chemical means).

_____A solution with a high [H^+] concentration

_____ A molecule composed of 2 or more diff elements.

_____ Two or more atoms held together by covalent bonds.

_____ Havingslightly positive and slightly negative regions

_____ An equal concentration of [H^+] and [OH^-] ions

a. Element
b. Molecule
c. Neutral
d. Compound
e. Ion
f. Acid
g. Base
h. Polar

2. Draw **5** water molecules and show how they properly bond with each other:

   a. Circle the correct answer: The above is an example of cohesion / adhesion

3. You are making lemonade at home, where the ingredients are: ½ cup powdered lemon juice concentrate, 1 cup sugar, and 6 cups water.
   a. What is/are the solvent? _____
   b. What is/are the solute? _____

4. List the properties of water below.
   - _____
   - _____
   - _____

Carbon Based Molecules

5. In terms of science, what does the term "organic" mean? _____

6. What is it about Carbon's atomic structure that makes it "the building block of life"?

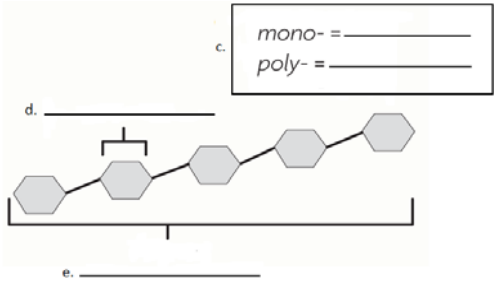
   _____

7. **Draw** the electron configuration of a carbon atom that supports your answer in #2:

8. Name the 4 different types of organic moleculesand their monomer and polymer in the table below:

Organic Molecule	Monomer	Polymer

9. **Define** the following and **label** the following parts (c, d, and e) in the figure:
   a. Monomer: _____
   b. Polymer: _____



Carbohydrates

10. List the 3 elements that make up carbohydrates:
    a. _____
    b. _____
    c. _____

11. What is the ratio of these elements to one another? _____ : _____ : _____

12. If a carbohydrate has 12 carbon atoms, how many hydrogen & oxygen atoms would this carbohydrate contain?
    a. Hydrogen: _____
    b. Oxygen: _____

13. What is the monomer of a carbohydrate called? _____

14. What is the polymer of a carbohydrate called? _____

15. Fill in the table for **the three major** polysaccharides and **one** monosaccharide used in biology:

Type of Carb	Monomer or Polymer?	Where found?	Characteristics/Function
Starch			
Cellulose			
Glucose			
Glycogen			

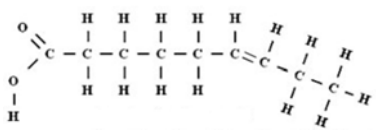
Lipids

16. List the 5 types of lipids we covered in class:
_____

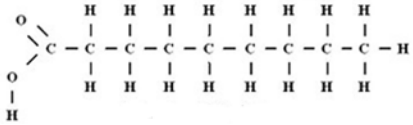
17. What are the main functions of lipids?
    a. _____
    b. _____
    c. _____

18. Which lipid gives cells their flexibility? _____

19. Label as either SATURATED or UNSATURATED for a - d:



a._____



b. _____

Have fatty acids in which all carbon-carbon bonds are single bonds.

Have fatty acids with at least one carbon-carbon double bond.

c. _____

d. _____

20. Fill in the table below using the choices/questions in the "characteristics box":

Saturated Fats	Characteristics	Unsaturated Fats
	State (solid/liquid/gas) at room temperature	
	Commonly found in which type of organisms	
	Types of bonds connecting carbon atoms	

21. Draw 6 phospholipids and for ONE phospholipid label all its components plus the polar, non-polar, hydrophilic, and hydrophobic regions.

22. What do phospholipids help to create? _____

23. How is a phospholipiddifferent from a triglyceride? _____
_____

Nucleic Acids

24. Fill in the table for nucleic acids (there are 2 polymers for this monomer):

Monomer	Polymers	Functions

25. Fill in the blank: A section of DNA is called a _____, and the arrangement of the nucleotides within this section of DNA determines the _____ created.

26. Name the three parts of a DNA nucleotide

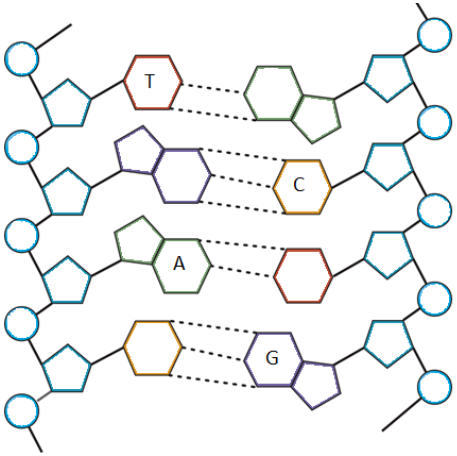
a. _____

b. _____

c. _____

27. Fill in the DNA molecule using the following letters:

P (phosphate)	G (guanine)
S (sugar)	T (thymine)
A (adenine)	C (cytosine)



28. **Circle** an entire nucleotide on the DNA segment above.

29. How many nucleotides are shown in the DNAsegment pictured? _____

30. What type of bond forms between nucleotides? _____

31. For the following strand of DNA bases: A C G C G T A T C, how would the attached DNA strand read?

32. For the following strand of DNA bases: A C G C G T A T C, how would the attached RNA strand read?

Proteins & Enzymes

33. Fill in the table for proteins:

Monomer	Polymer	Function

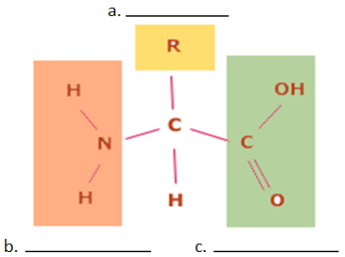
34. How many different amino acids are used to build proteins in organisms? _____

35. Fill in the blanks: The _____of amino acids determines the type of protein made. Even one incorrect amino acid placement can change a protein's _____ & _____.

36. What is the molecule pictured below? _____

37. Label the molecule's parts (a – c).

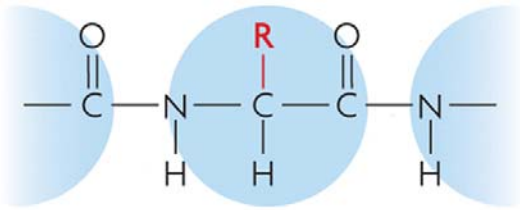
38. **Circle** the group on the structure below that is different for each one of these molecules.



39. What is another term for protein? _____

40. What specific type of bonds form between amino acids? _____

41. On the molecules pictured below, **CIRCLE** one complete amino acid and **DRAW 2** arrows showing where the bonds between amino acids would form:



Don't forget the back →

42. Define enzyme:

_____

43. What is another term for an enzyme? _____

44. Why are enzymes important?

a. _____

_____

_____

b. Give two examples to support your answer:

i. _____

ii. _____

45. What are the 4 MAIN characteristics of enzymes?

Characteristics of Enzymes	**Explanation/Example**