Name:	Date:	/146	%

Unit 1: Biological Molecules

Directions:

Read Chapter 1 from page 1-5 and Chapter 2 from page 25 (from the "Chemistry of Water"). It is a good practice to read the chapter first before attempting to answer the questions in this worksheet. Be aware that not every possible test question is covered by this worksheet. Any material in the chapter may appear on a test. Answer each question as completely as you can.

Key Terms:

1. The following words can be found in **BOLD** throughout these. Write their definitions below. (1 mark each) 37

Atom

Molecule

Cell

Biosphere

Ecosystem

Community

Population

Organ system

Organ

Tissue

Energy

Metabolism

Photosynthesis

Genes

DNA

Mutations

Homeostasis

Adaptations

Natural selection

Evolution

Calorie

Solute

Solvent

Hydrophilic

Hydrophobic

Acid

Base

Buffer

Organic molecules

Dehydration reaction –

Hydrolysis reaction-

Carbohydrates

Lipids

Proteins

Enzymes

Peptide bond

Nucleic acid

Chapter 1 pages 1 -5

1. What six characteristics does all life generally share? (6 marks)

2. In a multicellular organism, what is the smallest structural functional unit? (1 mark)

3. Give an example of organs working together in the nervous system as an organ system. (2 marks)

4. What do living organisms need in order to carry on life's activities? (1 mark)

5. Briefly describe how plants and humans differ in their ways of making food. (2 marks)

6. What do nearly all organisms on Earth need as their source of energy? (1 mark)

7. Why are not all members of the human species exactly the same? (2 marks)

8. Behavior of a plant or an animal is usually in _____ to minimizing _____, obtaining _____, and _____. (4 marks)

9. Animals are usually not conscious of some behaviors such as regulation of internal temperatures because _____ is usually controlled by the _____ system. (2 marks)

Introduction to Water

Watch the Ted-Ed lesson titled "*What would happen if you didn't drink water?*" by Mia Nacamulli,

https://www.youtube.com/watch?time_continue=282&v=9iMGFqMmUFs

and answer the six related questions below.

1. According to the Ted-Ed video above, what four factors does the percentage of water in our bodies depend upon? (4 marks)

2. List three major functions that water serves in our bodies. (3 marks)

3. If you don't drink enough water, what physical effect could this have on your body? What about if you drank too much? (2 marks)

4. What does the recommended intake of water depend upon? (2 marks)

5. What is the recommended intake range of water for men and women? (2 marks)

6. Other than water, list other sources of water that could supplement our daily water intake. (3 marks)

Chapter 2 pages 25 - 42

1. Explain the importance of hydrogen bonding when we think of water. (2 marks)

2. List five main properties of water. (5 marks)

3. What do we use to indicate acidity or alkalinity of solutions? (1 mark)

4. On a pH scale ranging from 0 to 14, where are acids and bases represented? (2 marks)

5. How do buffers resist pH changes? (1 mark)

6. Buffers are the most important mechanism our body has to maintain appropriate pH levels of our blood. If the pH rises to 7.8,_____results. Normally, the pH of our blood is_____which is slightly_____. (3 marks)

7. What mixture does blood always contain? (2 marks)

8. Carbohydrates are made up of _____ molecules and are necessary to living organisms because of the _____ they provide. (2 marks)

9. Monosaccharides or _____are soluble in water because they contain a large number of _____ (-OH) groups. (2 marks

10. _____, or table sugar, is a _____ that is formed when two monosaccharides, glucose and fructose join. To be lactose intolerant means that your body can't break down the disaccharide _____ that is found in _____. (4 marks)

11. Polysaccharides, or _____ carbohydrates, are sometimes called _____ carbohydrates. List three examples of polysaccharides: (5 marks)

12. Give two ways that starch and glycogen are different.(2 marks)

13. Why is the cellulose found in plants not a source of glucose for humans? (1 mark)

14. Complete the table to show differences between fats, phospholipids and steroids. (10 marks)

	Function	**Structure**
Fats	(3 marks)	(2 marks)
Phospholipids	(1 marks)	(1 marks)
Steroids	(2 marks – include an example)	(1 marks)

15. Proteins are polymers, or long-chains, of amino acids. An amino acid is composed of a central _____ atom bonded to a _____ atom and three functional groups: an _____ group, an acidic group, and an _____-group. The _____-group determines the type of amino acid. (5 marks)

16. Name and describe each of the four levels of protein structure. (8 marks)

17. List four ways that proteins can differ. (4 marks)

18. What does being denatured mean for a protein? (2 marks)

19. Compare the structure and an example of a function of DNA and RNA. (10 marks)

20. What is the role of ATP in the cell? (1 mark)