

## Unit 2, Part 2 Advanced Biology Test Review

Name: Answer Key Date: \_\_\_\_\_ Hr: \_\_\_\_\_ Test #: \_\_\_\_\_

1. What is an organic compound? Carbon containing compounds, manufactured by living things
2. What are the four macromolecules? Carbohydrates, Lipids, Proteins, Nucleic Acids
3. Provide the definition of each macromolecule.
  - a. Carbohydrate - organic compounds made of Carbon, Hydrogen, & Oxygen, H and O in a 2:1 ratio
  - b. Lipid - large, nonpolar organic molecules that store high amounts of energy
  - c. Protein - organic compound composed mainly of Carbon, Hydrogen, Oxygen, and Nitrogen
  - d. Nucleic Acid - complex biological compounds made of chains of nucleotides, serve as instructions for protein synthesis
4. Name a function for each macromolecule.
  - a. Carbohydrate - energy source
  - b. Lipid - energy storage, make-up cell membrane
  - c. Protein - structural, defensive, catalysts
  - d. Nucleic Acid - genetic info
5. What are some examples of each macromolecule?
  - a. Carbohydrate - glucose, fructose, starch
  - b. Lipid - oils, saturated fats, earwax
  - c. Protein - enzymes
  - d. Nucleic Acid - DNA, RNA, ATP
6. What are the three types of carbohydrates? Monosaccharide, Disaccharide, Polysaccharide
7. What is the ratio of Hydrogens to Oxygen in carbohydrates? 2:1
8. What is the ratio of Carbons to Hydrogen to Oxygen in monosaccharides? 1:2:1
9. What are the monomers for each of the 4 macromolecules?
  - a. Carbohydrate: Monosaccharide
  - b. Lipids: Glycerol & Fatty Acids
  - c. Proteins: Amino Acids
  - d. Nucleic Acids: Nucleotide

10. What are the four functional groups? Know their formulas.

- Hydroxyl - OH
- Carboxyl -  $\text{-COOH}$
- Amino -  $\text{NH}_2$
- Phosphate -  $\text{O}-\overset{\text{O}}{\underset{\text{OH}}{\text{P}}}-\text{OH}$

11. What is an enzyme? Why are they important?

- Enzyme - proteins that act as catalysts in living organisms (digestive enzymes, without enzymes the chemical reactions would occur too slowly)

12. Proteins are built from chains of amino acids called polypeptides (Hint: think "many" and name of the bond used in proteins)

13. Why are lipids good energy-storage molecules? Because they have many carbon-hydrogen bonds

14. What are the three classes of lipids? Triglyceride, Phospholipids, waxes

15. How can proteins be denatured? change in  $T^\circ$ , pH, introduce inhibitor

16. Be able to recognize the structural formulas of a carbohydrate, lipid, nucleic acid, and protein.

17. Describe the difference between dehydration synthesis and hydrolysis. Dehydration

Synthesis: taking 2 small molecules and removing a water to form a large molecule. Hydrolysis: breakdown of a large molecule into small molecules by adding a water

Additional Resources:

- Study Bellringers  $\rightarrow$  [www.henryclayspoonamore.weebly.com](http://www.henryclayspoonamore.weebly.com)
- Notes have been uploaded to the website (Everything on your notes is fair game for a test question)
- Text me with questions
- 30 Multiple Choice Questions