**Free response questions for Biological Macromolecules**

Name and date submitted (3 pts):

Instructions: Using this as a template, create space and type or write your answers below. KEEP THE SAME NUMBERING. Turn in your completed work by the due date.

(5 questions, 100 points, 20 each)

This is to give you practice answering “free-response” questions. You need to be able to answer an essay-type question, and do it in an organized manner! Otherwise, an AP test-grader will pull their hair out trying to follow your reasoning. USE YOUR BOOK AND TAKE YOUR TIME. I don’t care how wordy your answers are – I’m looking for COMPLETENESS and ORGANIZATION. Do not copy-and-paste or I will give you an ‘F’ and place wanted posters of you all over town. Use your own words – this is how you learn how to write – choppy is okay at first! You don’t necessarily need complete sentences and perfect syntax with free-response answers; you are trying to get lots of information on a page quickly, and keep it organized.

1. Synthesis (building up) of the biological macromolecules: What is going on with ‘dehydration synthesis’ and ‘hydrolysis’ reactions? These are difficult for students to wrap their minds around. Describe the reactions, use the correct chemistry terms, explain the ‘importance’ of the reactions, and what they ‘do’. You can use bullets or paragraph-form, but be specific and complete!
   1. Dehydration synthesis
   2. Hydrolysis
2. Carbohydrates: Give me an overview of carbohydrates. Use bullets and short paragraphs. Explain their structure, the difference between mono-di-poly, and the purposes of starch, glycogen, cellulose, and chitin. Organize your response so I can follow it without going crazy!
3. Lipids: Same as above. Give me an overview of this class of molecules. Explain their basic structure, and their purpose(s) in living organisms. Be sure to cover phospholipids and steroids. You can use bullets and short paragraphs. Keep it organized!
4. Proteins: Same idea here. Give me an overview of amino acids, protein structure, and the hierarchy of protein folding. I want to get the sense that you know the material! If your answers are sloppy or incomplete, an AP grader is going to take off points!
5. Nucleic acids: Explain the structures of DNA and RNA. What are their purposes in living cells? Explain the 5 nucleotides. Explain the base pairing rules in DNA: give me a short sequence (8-10 letters) of bases on one strand, and the resulting sequence on the complementary strand (make one up).