Spring 2008 Biology 111 In-Class Exam #3 – BioEnergetics

There is no time limit on this test, though I have tried to design one that you should be able to complete within 30 minutes. You are not allowed to use your notes, any electronic sources, nor are you allowed to look at someone else's test or discuss the test with anyone until all exams are turned in at 1:20 pm on Wednesday April 16. You will need at least 4 colors of ink/pencil. If you do not write your answers in the appropriate location, I may not find them.

-3 pts if you do not follow this direction.
Please do not write or type your name on any page other than this cover page.
Staple all your pages (INCLUDING THE TEST PAGES) together when finished with the exam.

Name (please print):

Write out the full pledge and sign:

How long did this exam take you to complete (excluding typing)?

Lab Question:

4 pts.

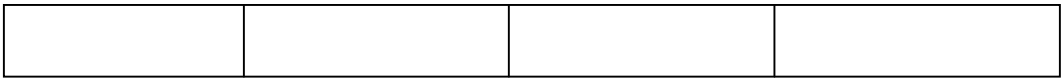
1) How does *Chlamydomonas* get energy to regrow its flagella even when it is kept in the dark? Support your explanation with data you (should have) *observed* in lab.

Lecture Questions:

4 pts.

2) Draw a spectrum of visible light using 4 colors (label the colors if you don't have them) with the highest energy of light being on the far right side of your spectrum.

low E high E



3 pts.

3) Tell me whether these reactions demonstrate oxidation or reduction

$FAD+ \rightarrow FADH_2$ this reaction is _____

$CO_2 \rightarrow$ glucose this reaction is _____

$H_2O \rightarrow O_2$ this reaction is _____

6 pts.

4) Give 3 reasons why an all meat diet is a dumb way to lose weight.

1.

2.

3.

3 pts.

5) In the presence of oxygen, eukaryotic yeast cells always ferment glucose into ethanol which they later metabolize aerobically to CO_2. Do these unicellular organisms extract more or less energy than bacterial cells do that only catabolize glucose via cellular respiration? Explain your answer in two sentences or less.

7 pts.

6) Draw a picture that tracks the movement of energy through the light reaction. Label all the important components.

7 pts.

7) Diagram the citric acid cycle starting with pyruvate. Draw boxes around all forms of energy produced. Include all the carbon and oxygen in your diagram.