Quiz 2 Key
BI-102-2, Fall '08, Dr. C. S. Tritt

Each problem graded on a 10 point scale with the final score divided by 0.80 to put it on a 100 point basis.

1. What makes carbon such a versatile atom?

    It has 4 valence electrons allowing it to form 4 single bonds, 2 double bonds and a triple bonds and combinations of these. Just saying they can form multiple bonds was −2.

2. With respect to proteins, what is meant by the term *primary structure*?

    The sequence of amino acids.

3. What is the defining characteristic of lipids?

    They are soluble in non-polar solvents. Not soluble in water was also accepted. Just saying they are hydrophobic was −2. Just naming a type of lipid (like triglycerides) was −5. Saying "energy storage," which is not always true, was −5.

4. Name or briefly describe two important features all cells have in common.

    Any 2 of the following: they have genetic material, they have cytoplasm (a.k.a. cytosol), they have ribosomes and they are enclosed in a lipid bilayer. Also accepted "have transmembrane proteins."

5. Describe an important way in which prokaryotic and eukaryotic cells differ.

    Either of the following: eukaryotic cells contain organelles while prokaryotic cells do not or eukaryotic DNA is linear while prokaryotic DNA occurs in loops. Saying cell walls is incorrect and was −7.

6. What is the major function of ribosomes?

    Protein synthesis

7. Explain what it means when a biological membrane is described as having selective permeability.

    Biological membranes only allow select materials to enter or leave cells.

8. Would you expect a cell with aquiporins to expand or shrink when placed in hypotonic solution?

    Expand.

9. Describe the fundamental feature of active transport.

    The use of energy – or something other than the transported substance's electrochemical gradient (half credit given for transport up a concentration gradient – which is generally, but not always true; −8 for "uses a transport protein" which is true for facilitated transport too or just describing transport in general). Just saying "ATP' was −2.