Chem 352, Fundamentals of Biochemistry
Lecture 9 - Photosynthesis
Supplemental Questions

---

1. Discuss the importance of photosynthesis to life on earth.

2. Describe the organelle in higher plants where photosynthesis takes place. Be able to compare this organelle to the mitochondria.

3. In words, be able to describe the structures of the light harvesting pigments found in plants.

4. Describe the electron donors for Photosystem II, the electron carrier from Photosystem II to cytochrome *bF*, the electron carrier from cytochrome *bF* to Photosystem I, and the electron acceptor for Photosystem I.

    a. Which of these are quinones?

    b. Which of these are proteins?

    c. Which of these are neither?

    d. Which of these are two-electron carriers and which are one-electron carriers?

5. Compare and contrast the light reactions of photosynthesis and photophosphorylation with the electron transport chain and oxidative phosphorylation.

    a. What are the products of the light reactions of photosynthesis.

6. Using structures, write the reaction in which inorganic carbon is fixed as organic molecule.

    a. What is the name of the enzyme that carries out this reaction?

    b. What are some note-worthy facts about this enzyme?

7. Compare and contrast the light-independent reaction of photosynthesis with those of the pentose phosphate pathway and gluconeogenesis.

    a. What is another name for the light-independent reactions of photosynthesis?

    b. Describe the three stages for the light-independent reactions of photosynthesis?

    c. Write a net balanced chemical equation for the light-independent reactions of photosynthesis.