

Study Guide – Chapter 10 Photosynthesis

1. What is the role of stomata in photosynthesis?
2. Draw the structure of a chloroplast and outline the compartments involved in photosynthesis.
3. Contrast the absorbance spectrum of chlorophyll with the action spectrum of photosynthesis.
4. What are the four fates of the energy of a photon when it has been absorbed by a molecule and excited an electron? Which of these fates are important for photosynthesis?
5. What are the two roles of carotenoids in plant cells?
6. Describe the structure of a photosystem and the role of its various components.
7. Contrast the products of the Z scheme with cyclic electron flow.
8. Contrast chemiosmosis of photosynthesis with cellular respiration.
9. Outline the carboxylase and the oxygenase reactions of RUBISCO
10. Part of the Calvin cycle is described as “regeneration of ribulose bis phosphate”. Why is this part of Calvin cycle important to carbon fixation?
11. How do plants stay alive during dark periods (night) when they cannot capture energy from light?
12. How many ATP and NADPH does the Calvin cycle require to generate one glucose molecule?
13. Explain why C4 and CAM metabolisms are believed to be adaptations to photorespiration.
14. Why are C4 plants and CAM plants more common in hot dry environments?
15. How does it benefit the cell to have RUBISCO inhibited by conditions of pH 7.
16. Explain how the NADP/NADPH cycle functions during photosynthesis.

Complete the following concept check questions from chapter 10.

10.1 (1,2,3) 10.2 (1,2,3) 10.3 (1,2,3) 10.4 (1,2)

Complete the self quiz at the end of chapter 10, question 1-10.

Complete the activities quiz at the web site, questions 1-19.

Complete the web site end of chapter quiz, questions 1-35