Name _____ Class _____ Date _____

SECTION 6-1 REVIEW

CAPTURING THE ENERGY IN LIGHT

VOCABULARY REVIEW Explain the relationship between the terms in each of the following pairs of terms.

1. granum, stroma _____

2. chlorophyll *a*, accessory pigment _____

3. chemiosmosis, ATP synthase _____

MULTIPLE CHOICE Write the correct letter in the blank.

_____ **1.** Chlorophyll *a*

a. absorbs mostly orange-red and blue-violet light.
b. absorbs mostly green light.
c. is an accessory pigment.
d. is responsible for the red color of many autumn leaves.

_____ **2.** The photosystems and electron transport chains are located in the

a. outer chloroplast membrane.
b. inner chloroplast membrane.
c. thylakoid membrane.
d. stroma.

_____ **3.** Both photosystem I and photosystem II

a. receive electrons from other photosystems.
b. donate electrons to a transport chain that generates NADPH.
c. donate protons to each other.
d. contain chlorophyll *a* molecules.

_____ **4.** Water participates directly in the light reactions of photosynthesis by

a. donating electrons to NADPH.
b. donating electrons to photosystem II.
c. accepting electrons from the electron transport chains.
d. accepting electrons from ADP.

_____ **5.** The energy that is used to establish the proton gradient across the thylakoid membrane comes from the

a. synthesis of ATP.
b. synthesis of NADPH.
c. passage of electrons along the electron transport chain of photosystem II.
d. splitting of water.

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SHORT ANSWER Answer the questions in the space provided.

1. Why is photosynthesis referred to as a biochemical pathway? _____

2. How does the structure of a chloroplast enable it to build up a concentration gradient of protons?

3. What are the energy-carrying end products of the light harvesting reactions? _____

4. Explain the function of accessory pigments. _____

5. **Critical Thinking** Which photosystem—I or II—most likely evolved first? Explain your reasoning.

STRUCTURES AND FUNCTIONS Label the substances represented by the letters *a–d* below.

The diagram below summarizes the light reactions of photosynthesis.