

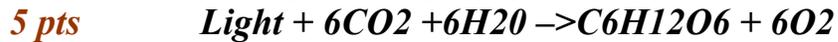
Photosynthesis Quiz #1

27 pts

KEY

1. Photosynthesis basics.

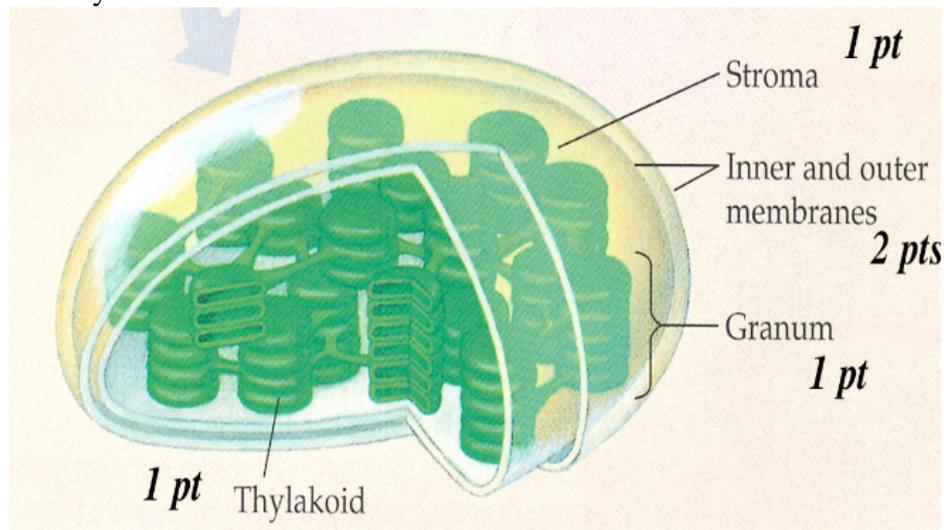
a. Write the overall equation for photosynthesis.



b. What is the overall purpose of photosynthesis?

1 pt ***To convert energy from light to a chemical form.***

2. Diagram the crosssection of a chloroplast and label all the structures (stroma, thylakoid, granum, thylakoid space, membranes, etc.). You might want to include a brief description of each structure in case your drawing is not good or the structures are hard to identify.



3. Light Reaction

a. Where in the chloroplast does the light reaction occur?

1 pt ***Thylakoid Membrane or thylakoid***

b. What two chemicals are produced as an immediate result of the light reaction (that are later used to drive the dark reaction)?

2 pts ***ATP and NADPH***

c. Where do the electrons that are used in Photosystem II come from?

1 pt ***H₂O***

4. Where in the chloroplast does the dark reaction occur?

1 pt ***Stroma***

5. What is another name for the dark reaction?

1 pt *Calvin Cycle*

6. Oxygen is produced in photosynthesis.

a. What molecule does it come from?

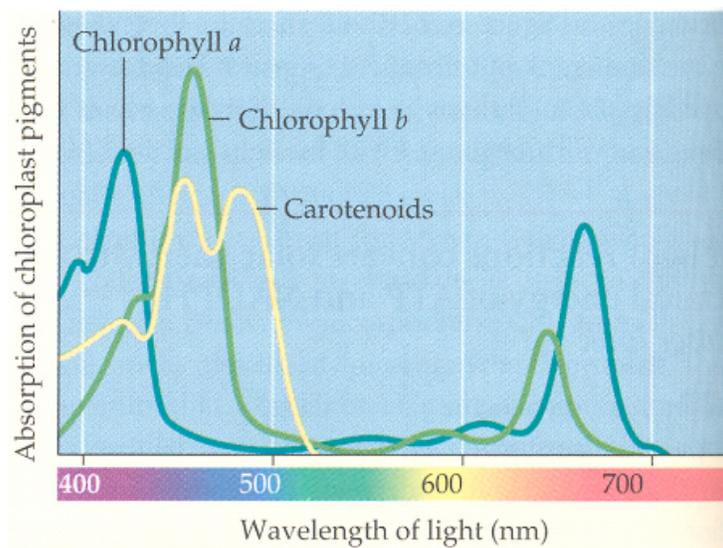
1 pt *H₂O*

b. How are we certain what molecule oxygen comes from? Describe the experiment (briefly).

1 pt *Using Radioactive isotopes*

7. Diagram an absorption spectra for one of the chlorophyll molecules.

3 pts



Explain how this absorption spectra explains the color of plants.

1 pt *Green is not absorbed, so it is reflected.
We only see light that is reflected, hence
we see plants as green.*

8. During the **Light Reaction**, in non-cyclic photophosphorylation, what happens between photosystem II and photosystem I?

1 pt *Electrons are shuttled through the
electron transport chain
and ATP is generated, or
Photophosphorylation*

9. What is the final electron acceptor at the end of photosystem I?

1 pt

NADP+

10. The **Light Reaction** can produce its energy rich molecules in two different ways: non-cyclic photophosphorylation and cyclic photophosphorylation. Describe two fundamental things that make cyclic photophosphorylation unique from non-cyclic photophosphorylation.

2 pts

Any two of these:

No release of oxygen

No production of NADPH

Only produces ATP

Only Uses Photosystem I