



Name _____
10th grade-Biology

Date _____
Score: ____ /50 points

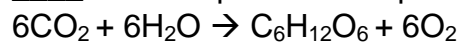
Special Assessment: Photosynthesis

Objective: After reading the presentations Photosynthesis Overview and Photosynthesis in Detail, students will answer this module and explain the process of photosynthesis.

Instructions: Answer all parts of this module after reading the presentations sent by the teacher. Hand in assignment when classes are resumed. This assignment is worth 50 points and substitutes half or your exam. If you have any questions, please email your teacher: nmercsoto@gmail.com

I. Multiple Choice: Read carefully each question and choose the correct answer. Write the letter in the left side column (20 points)

____ 1. Which process is represented by the following chemical equation?



- | | |
|-------------------|-------------------------|
| a. Photosynthesis | c. Cellular respiration |
| b. Glycolysis | d. Fermentation |

____ 2. The molecule that transfers energy from the breakdown of food molecules to cell processes is named

- | | |
|------------|--------|
| a. ADP | c. DNA |
| b. Glucose | d. ATP |

____ 3. Chlorophyll a

- | | |
|--------------------------------------|-------------------------------|
| a. absorbs mostly red and blue light | c. is an accessory pigment |
| b. absorbs mostly green light | d. responsible for red leaves |

____ 4. The photosystems and electron transport chains are located in the

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

____ 5. Water participates directly in the light reactions of photosynthesis by:

- | | |
|---|---------------------------------|
| a. donating electrons to NADPH | c. accepting electrons from ADP |
| b. donating electrons to photosystem II | d. accepting electrons from ATP |

____ 6. The energy that is used to establish the proton gradient across the thylakoid membrane comes from the

- | | |
|---|-----------------------|
| a. synthesis of ATP | c. synthesis of ADP |
| b. electrons moving through transport chain | d. splitting of water |

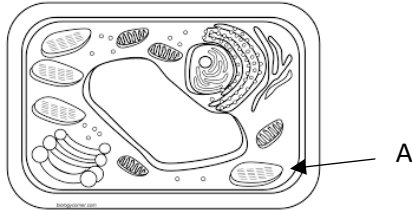


___ 7. What form of abiotic carbon do plants remove from the environment?

- a. glucose
- b. starch
- c. carbon dioxide
- d. ATP

___ 8. The chemical reactions of the Calvin cycle produce simple

- a. proteins
- b. sugars
- c. lipids
- d. nucleic acids



___ 9.

Which of the following best represent the final products of the chemical reactions that take place inside the organelle labeled A in this diagram?

- a. sugars, oxygen
- b. ATP, electrons
- c. ATP, sugars
- d. carbon dioxide, water

___ 10. The light independent reactions in photosynthesis are called together

- a. Krebs cycle
- b. Mitosis
- c. Calvin cycle
- d. fermentation

II. Questions: Read and answer each question in the space provided (30 points)

1. In the box below write the chemical equation for the overall process of photosynthesis, identify reactants and products. In the lines, explain what the equation means and the meaning of several arrows. (6 points)



2. In the following table, compare differences between light dependent reactions and light independent reactions. Write down 3 for each. (6 points)

Light dependent reactions	Light independent reactions

3. Why are some organisms called producers? (3 points)

4. Use the space below to sketch and label a chloroplast. Identify the thylakoids, grana, stroma, inner and outer membrane (8 points)

- III. Sequence of events: Read the following events and number from 1-7 according to the photosynthesis process.
- _____ Hydrogen ions diffuse through a protein channel.
 - _____ Energy is absorbed from sunlight (A)
 - _____ Hydrogen ions are transported across the thylakoid membrane.
 - _____ Energy is absorbed from sunlight (B)
 - _____ ADP is changed into ATP when hydrogen ions flow through ATP synthase
 - _____ Water molecules are broken down
 - _____ NADPH is produced when electrons are added to NADP+