Name KEY _____/15

# *PHOTOSYNTHESIS QUIZ*

**Directions**—Choose the most appropriate lettered response and record in the blank before the number of the item (one point each).

D 1. Oxygen produced in photosynthesis originates from which of the following molecules

a. $CO_2$
b. Chlorophyll
c. NADPH
d. $H_2O$

A 2. Sugars are the ultimate product of photosynthesis. The origin of the carbon used to build sugars is:

a. $CO_2$
b. Chlorophyll
c. NADPH
d. $H_2O$

C 3. Which part of the chloroplast is the site of the light dependent reactions

a. stroma
b. thylakoid compartment
c. thylakoid membrane
d. inner compartment

A 4. The light independent reactions occur in which part of the chloroplast

a. stroma
b. thylakoid compartment
c. thylakoid membrane
d. inner compartment

D 5. Which of the following are required in order for the light reactions to occur

a. $CO_2$
b. NADPH
c. $C_6H_{12}O_6$
d. $H_2O$

A 6. Which of the following are <u>directly</u> required in order for the light independent reactions to occur

a. $CO_2$
b. NADP+
c. $C_6H_{12}O_6$
d. $H_2O$

B 7. Which of the following can be considered an electron carrier in photosynthesis

a. $CO_2$
b. NADPH
c. $C_6H_{12}O_6$
d. $H_2O$

B 8. Stacks of thylakoid membranes in a chloroplast are called
   a. thylakoid stacks
   b. grana
   c. stroma
   d. chlorophyll

A 9. The concept that concentration differences in H+ and electric gradients across a membrane are responsible for ATP formation is known as
   a. chemiosmosis
   b. photosystem mechanism
   c. photolysis
   d. electron transfer system

D 10. The electrons that are passed to NADP+ during the light reactions were obtained from
   a. chlorophyll
   b. CO2
   c. water
   d. two of these options

B 11. All but which condition must be present for light-independent reactions to occur?
   a. CO2 is present
   b. The plant is exposed to light
   c. Rubisco is present
   d. ATP and NADPH are present
   e. Required enzymes are present

B or A 12. In which of the following frequencies of light would you expect to see the highest rate of photosynthesis?
   a. red light
   b. blue light
   c. white light
   d. green light

B 13. Which of the following chemicals has **five** carbon atoms?
   a. phosphoglycerate (PGA)
   b. ribulose biphosphate (RuBP)
   c. glucose
   d. phosphoglyceraldehyde (PGAL)

**Short Answer**—Use the space provided to answer the following short answer question. (two points)

14. Two separate processes contribute to the build up of hydrogen ions within the thylakoid space that, in turn, provides the energy required to form ATP in chemiosmosis. Describe these two processes.

Photolysis of $H_2O$
Active Transport of $H^+$