

# Photosynthesis Prep Test

## Multiple Choice

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. What are the three parts of an ATP molecule?
- a. adenine, thylakoid, and a phosphate group
  - b. stroma, grana, and chlorophyll
  - c. adenine, ribose, and three phosphate groups
  - d. NADH, NADPH, and FADH<sub>2</sub>

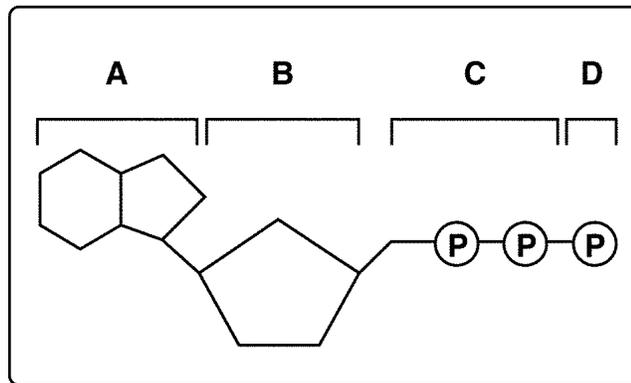
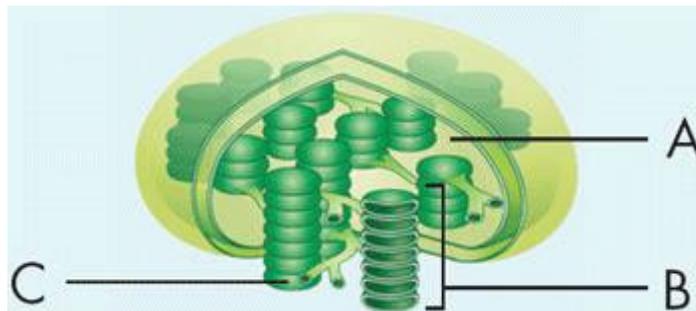


Figure 8-1

- \_\_\_\_\_ 2. Look at Figure 8-1. All of the following are parts of an ADP molecule EXCEPT
- a. structure A.
  - b. structure B.
  - c. structure C.
  - d. structure D.
- \_\_\_\_\_ 3. Which structures shown in Figure 8-1 make up an ATP molecule?
- a. A and B
  - b. A, B, and C
  - c. A, B, C, and D
  - d. C and D
- \_\_\_\_\_ 4. Organisms, such as plants, that make their own food are called
- a. autotrophs.
  - b. heterotrophs.
  - c. thylakoids.
  - d. pigments.
- \_\_\_\_\_ 5. Organisms that cannot make their own food and must obtain energy from external sources are called
- a. autotrophs.
  - b. heterotrophs.
  - c. thylakoids.
  - d. plants.

- \_\_\_ 6. Plants gather energy with light-absorbing molecules called
  - a. pigments.
  - b. thylakoids.
  - c. chloroplasts.
  - d. glucose.
  
- \_\_\_ 7. Plants get the energy they need for photosynthesis by absorbing
  - a. high-energy sugars.
  - b. chlorophyll *a*.
  - c. chlorophyll *b*.
  - d. sunlight.
  
- \_\_\_ 8. Most plants appear green because chlorophyll
  - a. absorbs green light.
  - b. absorbs violet light.
  - c. does not absorb green light.
  - d. does not absorb violet light.



**Figure 8-2**

- \_\_\_ 9. Which structure in Figure 8-2 represents a single thylakoid?
  - a. structure A
  - b. structure B
  - c. structure C
  - d. structure D
  
- \_\_\_ 10. A granum is a
  - a. stack of chloroplasts.
  - b. stack of thylakoids.
  - c. membrane enclosing a thylakoid.
  - d. photosynthetic pigment molecule.
  
- \_\_\_ 11. The stroma is the region outside the
  - a. thylakoids.
  - b. chloroplasts.
  - c. plant cells.
  - d. mitochondria

- \_\_\_ 12. Where in the chloroplast is chlorophyll found?
- in the ATP
  - in the stroma
  - in the thylakoid membrane
  - in the thylakoid space
- \_\_\_ 13. What is the role of  $\text{NADP}^+$  in photosynthesis?
- electron carrier
  - high-energy sugar
  - photosystem
  - pigment

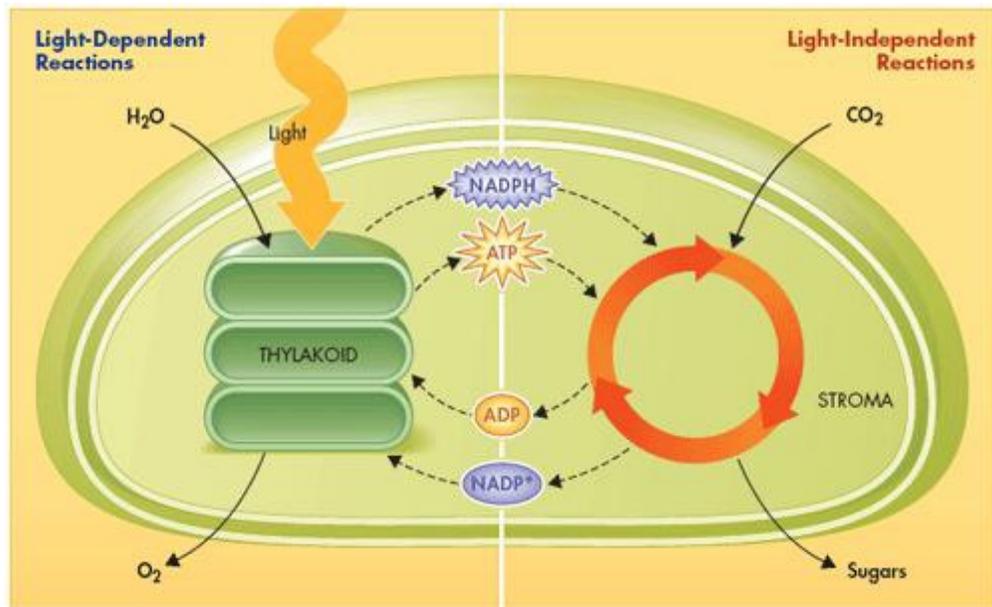
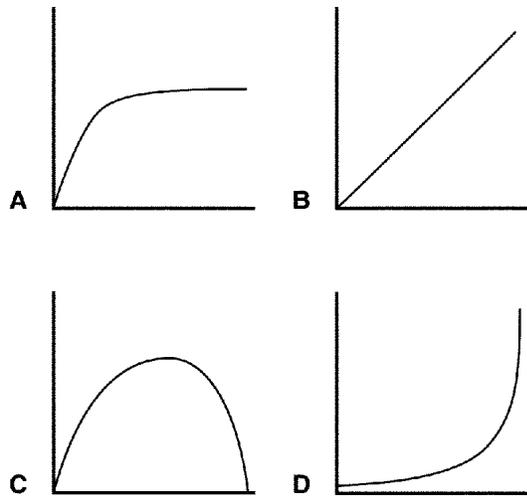


Figure 8-3

- \_\_\_ 14. Which chemical shown in Figure 8-3 is an electron carrier molecule?
- $\text{H}_2\text{O}$
  - carbon dioxide
  - $\text{NADP}^+$
  - oxygen
- \_\_\_ 15. A student is collecting the gas given off from a plant in bright sunlight at a temperature of  $27^\circ\text{C}$ . The gas being collected is probably
- oxygen.
  - carbon dioxide.
  - ATP.
  - glucose.
- \_\_\_ 16. Photosynthesis uses sunlight to convert water and carbon dioxide into
- oxygen and carbon.
  - high-energy sugars and proteins.
  - ATP and oxygen.
  - oxygen and high-energy sugars.

- \_\_\_\_\_ 17. In the overall equation for photosynthesis, six molecules of carbon dioxide and six molecules of water result in a molecule of sugar and six molecules of
- glucose.
  - water.
  - oxygen.
  - ATP.
- \_\_\_\_\_ 18. Where do the light-dependent reactions take place?
- in the stroma of the chloroplast
  - within the mitochondria membranes
  - within the thylakoid membranes
  - in the outer membrane of the chloroplasts
- \_\_\_\_\_ 19. What are the products of the light-dependent reactions?
- oxygen gas and glucose
  - ATP, NADPH, and oxygen gas
  - ATP, carbon dioxide gas, and NADPH
  - carbon dioxide gas, oxygen gas, and NADPH
- \_\_\_\_\_ 20. Which of the following is NOT a step in the light-dependent reactions?
- High-energy electrons move through the electron transport chain.
  - Pigments in photosystem II absorb light.
  - ATP synthase allows  $H^+$  ions to pass through the thylakoid membrane.
  - ATP and NADPH are used to produce high-energy sugars.
- \_\_\_\_\_ 21. Which of the following activities happens within the stroma?
- Photosystem I absorbs light.
  - ATP synthase produces ATP.
  - The Calvin cycle produces sugars.
  - Electrons move through the electron transport chain.
- \_\_\_\_\_ 22. The Calvin cycle is another name for the
- light-independent reactions.
  - light-dependent reactions.
  - photosynthesis reaction.
  - electron transport chain.
- \_\_\_\_\_ 23. If you continue to increase the intensity of light that a plant receives, what happens?
- The rate of photosynthesis increases indefinitely with light intensity.
  - The rate of photosynthesis decreases indefinitely with light intensity.
  - The rate of photosynthesis increases and then levels off.
  - The rate of photosynthesis does not change.



**Figure 8-6**

- \_\_\_ 24. Imagine that  $y$ -axis of each graph in Figure 8-6 describes the rate of photosynthesis. Which of the graphs represents the effect of temperature on the rate of photosynthesis?
- A
  - B
  - C
  - D
- \_\_\_ 25. Imagine that  $y$ -axis of each graph in Figure 8-6 describes the rate of photosynthesis. Which of the graphs represents the effect of light intensity on the rate of photosynthesis?
- A
  - B
  - C
  - D

