

Photosynthesis Prep Test 2

Multiple Choice

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

- _____ 1. Energy is released from ATP when
 - a. a phosphate group is added.
 - b. adenine bonds to ribose.
 - c. ATP is exposed to sunlight.
 - d. a phosphate group is removed.

- _____ 2. Organisms, such as plants, that make their own food are called
 - a. autotrophs.
 - b. heterotrophs.
 - c. thylakoids.
 - d. pigments.

- _____ 3. Organisms that cannot make their own food and must obtain energy from external sources are called
 - a. autotrophs.
 - b. heterotrophs.
 - c. thylakoids.
 - d. plants.

- _____ 4. What happens during photosynthesis?
 - a. Heterotrophs consume ATP.
 - b. Heterotrophs produce ATP.
 - c. Autotrophs consume carbohydrates.
 - d. Autotrophs produce carbohydrates.

- _____ 5. Plants gather energy with light-absorbing molecules called
 - a. pigments.
 - b. thylakoids.
 - c. chloroplasts.
 - d. glucose.

- _____ 6. Plants get the energy they need for photosynthesis by absorbing
 - a. high-energy sugars.
 - b. chlorophyll *a*.
 - c. chlorophyll *b*.
 - d. sunlight.

- _____ 7. 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.

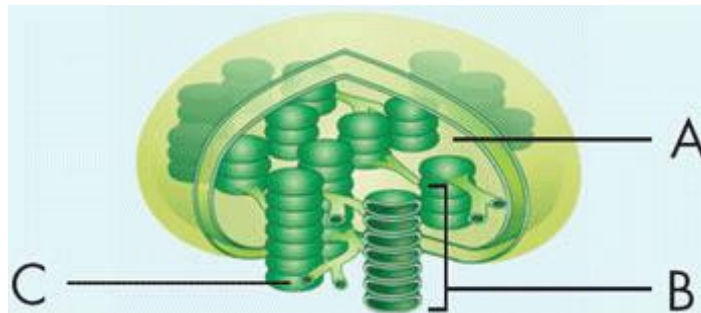


Figure 8-2

8. Which structure in Figure 8-2 represents a single thylakoid?
- structure A
 - structure B
 - structure C
 - structure D
9. A granum is a
- stack of chloroplasts.
 - stack of thylakoids.
 - membrane enclosing a thylakoid.
 - photosynthetic pigment molecule.
10. What happens when chlorophyll is struck by sunlight?
- The electrons in the chlorophyll molecule become energized.
 - The chlorophyll molecule is broken into two parts.
 - A chemical reaction turns chlorophyll into high energy carbohydrates.
 - Energy from fat molecules is released.

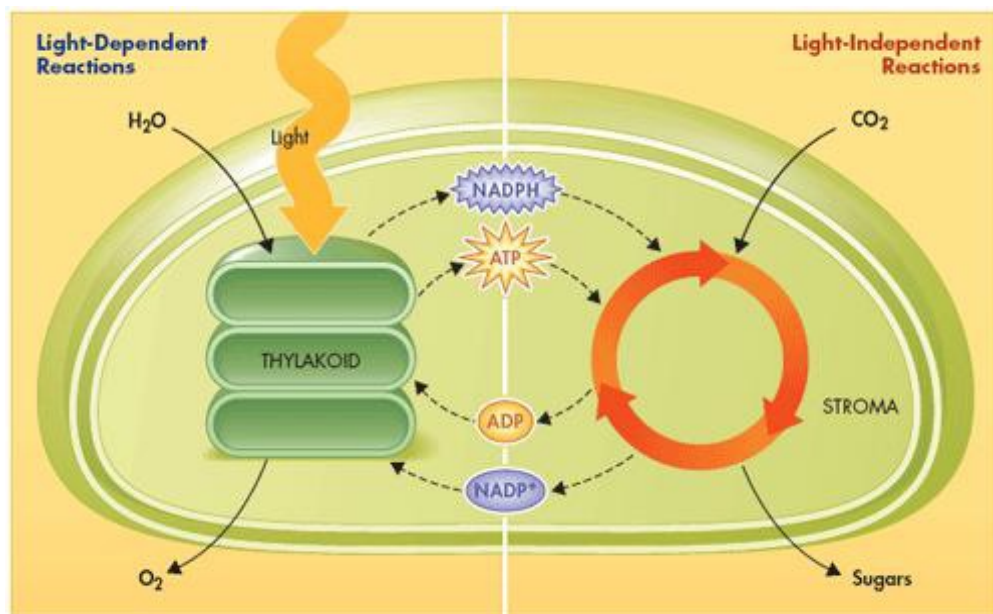


Figure 8-3

- ___ 11. Which chemical shown in Figure 8–3 is an electron carrier molecule?
- H₂O
 - carbon dioxide
 - NADP⁺
 - oxygen
- ___ 12. A student is collecting the gas given off from a plant in bright sunlight at a temperature of 27°C. The gas being collected is probably
- oxygen.
 - carbon dioxide.
 - ATP.
 - glucose.
- ___ 13. 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.
- ___ 14. Which of the following is NOT found in the overall reaction for photosynthesis?
- carbon dioxide
 - water
 - light
 - nitrogen

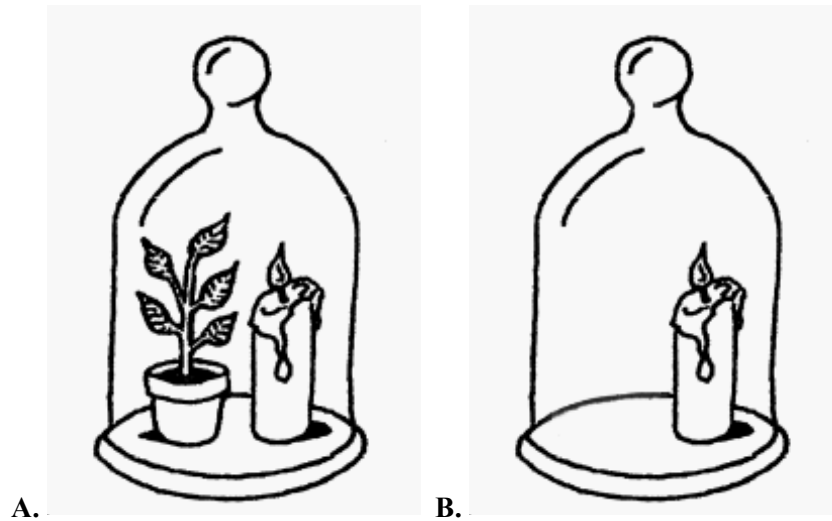


Figure 8–4

- ___ 15. In Figure 8–4, why might the candle in jar A burn longer than the candle in jar B?
- Carbon dioxide produced by the plant allows the candle to burn longer.
 - Chlorophyll produced by the plant allows the candle to burn longer.
 - Glucose produced by the plant allows the candle to burn longer.
 - Oxygen produced by the plant allows the candle to burn longer.

- _____ 16. 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
- _____ 17. 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
- _____ 18. 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.
- _____ 19. 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.
- _____ 20. The Calvin cycle is another name for the
- light-independent reactions.
 - light-dependent reactions.
 - photosynthesis reaction.
 - electron transport chain.
- _____ 21. What is a product of the Calvin cycle?
- oxygen gas
 - ATP
 - high-energy sugars
 - carbon dioxide gas

Modified True/False

Indicate whether the statement is true (a) or false (b).

- _____ 22. The six carbon atoms needed to make a molecule of glucose come from oxygen in the atmosphere.

- _____ 23. The light-dependent reactions supply the Calvin cycle with CO₂ and ATP. _____
- _____ 24. During the light-dependent reactions, plants use the energy in ATP and NADPH to build high-energy sugars.

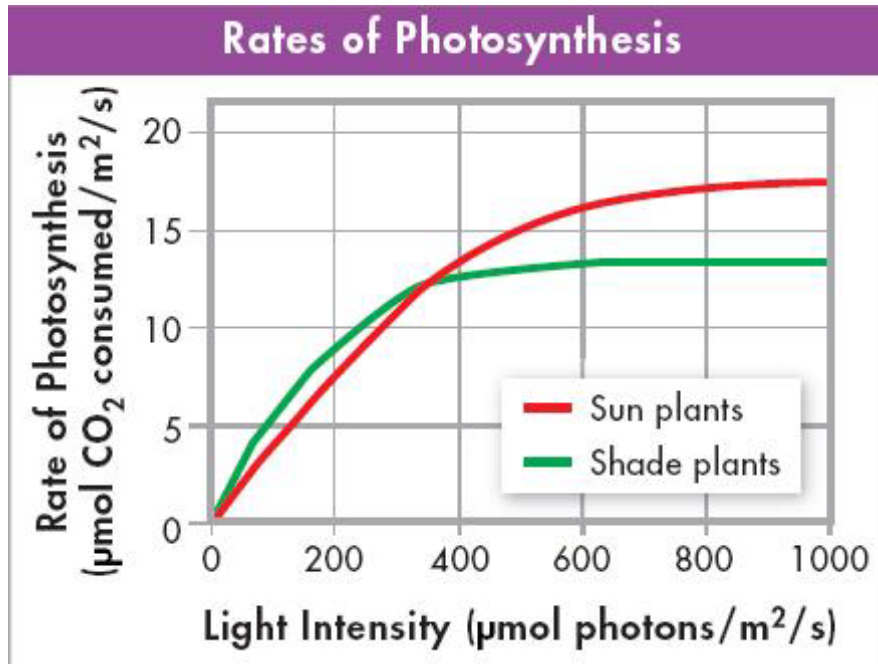


Figure 8–8

25. According to the graph in Figure 8–8, the rate of photosynthesis in shade and sun plants decreases and then levels off as light intensity increases. _____

