

Photosynthesis Study Material

Biology · Answer Key · 29 Questions

1. What is the primary purpose of photosynthesis for plants?

- A) To produce energy for growth and reproduction**
- B) To release oxygen into the atmosphere
- C) To absorb water from the soil
- D) To create carbon dioxide

2. Which organelle is the main site of photosynthesis in plant cells?

- A) Mitochondria
- B) Nucleus
- C) Chloroplast**
- D) Ribosome

3. What gas do plants absorb from the atmosphere for photosynthesis?

- A) Oxygen
- B) Nitrogen
- C) Carbon Dioxide**
- D) Hydrogen

4. What is the main pigment that absorbs light energy during photosynthesis?

- A) Carotene
- B) Xanthophyll
- C) Chlorophyll**
- D) Anthocyanin

5. What are the main products of photosynthesis?

- A) Carbon dioxide and water
- B) Glucose and oxygen**
- C) Light and heat
- D) Nitrogen and minerals

6. What is the chemical formula for glucose?

- A) CO₂
- B) H₂O
- C) C₆H₁₂O₆**
- D) O₂

7. In which part of the chloroplast does the light-dependent reaction of photosynthesis occur?

- A) Stroma
- B) Thylakoid membranes**
- C) Outer membrane
- D) Inner membrane

8. What is the role of sunlight in photosynthesis?

- A) To break down water molecules
- B) To convert carbon dioxide into sugars
- C) To provide the energy to drive the process**
- D) To release oxygen

9. What is the process by which plants convert light energy into chemical energy?

- A) Respiration
- B) Transpiration
- C) Photosynthesis**
- D) Fermentation

10. Where does the Calvin cycle (light-independent reactions) take place within the chloroplast?

- A) Thylakoid lumen
- B) Intermembrane space
- C) Stroma**
- D) Granum

11. What is a byproduct of photosynthesis that is essential for most animal life?

- A) Glucose
- B) Water
- C) Carbon Dioxide
- D) Oxygen**

12. What are the reactants needed for photosynthesis?

- A) Glucose and oxygen
- B) Carbon dioxide and water**
- C) Light and heat
- D) Nitrogen and minerals

13. Which of the following is NOT a requirement for photosynthesis?

- A) Sunlight
- B) Water
- C) Oxygen**
- D) Carbon Dioxide

14. What is the term for the sugar produced during photosynthesis?

- A) Fructose
- B) Sucrose
- C) Glucose**
- D) Lactose

15. What are the two main stages of photosynthesis?

- A) Glycolysis and Krebs Cycle
- B) Light-dependent reactions and Light-independent reactions**
- C) Fermentation and Aerobic Respiration
- D) Absorption and Translocation

16. What molecule is split during the light-dependent reactions to release electrons and oxygen?

- A) CO₂
- B) Glucose
- C) H₂O**
- D) ATP

17. What is the primary energy-carrying molecule produced during the light-dependent reactions?

- A) ADP
- B) NADPH
- C) ATP**
- D) G3P

18. What is the main function of NADPH in photosynthesis?

- A) To store light energy
- B) To carry electrons and hydrogen ions**
- C) To release oxygen
- D) To produce glucose

19. What is the process called when plants release water vapor into the atmosphere?

- A) Photosynthesis
- B) Respiration
- C) Absorption
- D) Transpiration**

20. What type of organisms perform photosynthesis?

- A) Animals
- B) Fungi
- C) Plants and some algae**
- D) Bacteria

21. What color of light is least absorbed by chlorophyll?

- A) Red
- B) Blue
- C) Green**
- D) Yellow

22. What is the source of carbon for glucose synthesis in photosynthesis?

- A) Water
- B) Oxygen
- C) Atmospheric carbon dioxide**
- D) Sunlight

23. How is energy transferred from the light-dependent reactions to the light-independent reactions?

- A) Through the movement of water
- B) Via ATP and NADPH**
- C) By releasing oxygen
- D) Through the absorption of CO₂

24. What is the overall equation for photosynthesis?

- A) $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Light Energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$**
- B) $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Energy}$
- C) $6\text{O}_2 + 6\text{H}_2\text{O} + \text{Light Energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{CO}_2$
- D) $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O} + \text{Light Energy} \rightarrow 6\text{CO}_2 + 6\text{O}_2$

25. What are the two types of chlorophyll found in plants?

- A) Alpha and Beta
- B) Chlorophyll a and Chlorophyll b**
- C) Red and Blue
- D) Primary and Secondary

26. What is the function of the stroma in the chloroplast?

- A) To absorb light energy
- B) To conduct the light-dependent reactions
- C) To house the enzymes for the Calvin cycle**
- D) To store water

27. What is the primary role of accessory pigments in photosynthesis?

- A) To produce oxygen
- B) To absorb light energy that chlorophyll cannot**
- C) To transport glucose
- D) To release carbon dioxide

28. What is the process of converting light energy into chemical energy called?

- A) Chemosynthesis
- B) Photolysis
- C) Photosynthesis**
- D) Respiration

29. Which of the following is a sugar that is a direct product of the Calvin cycle?

- A) Sucrose
- B) Starch
- C) Glyceraldehyde-3-phosphate (G3P)**
- D) Fructose