Photosynthesis Study Material

Biology · Answer Key · 20 Questions

1. What is the primary purpose of photosynthesis?

A) To produce oxygen for animals.
B) To convert light energy into chemical energy.
C) To absorb water from the soil.
D) To release carbon dioxide into the atmosphere.

2. Which gas is absorbed from the atmosphere during photosynthesis?

A) Oxygen
B) Nitrogen
C) Carbon dioxide
D) Hydrogen

3. What is the main pigment responsible for capturing light energy in plants?

A) Carotenoid
B) Anthocyanin
C) Chlorophyll
D) Xanthophyll

4. Where does photosynthesis primarily take place within a plant cell?

A) Nucleus
B) Mitochondria
C) Ribosomes
D) Chloroplasts

5. What are the main products of photosynthesis?

A) Carbon dioxide and water
B) Glucose and oxygen
C) Light energy and chlorophyll
D) Nitrogen and water

6. Which of the following is a reactant in photosynthesis?

A) Glucose
B) Oxygen
C) Water
D) ATP

7. Photosynthesis is essential for most life on Earth because it produces:

A) Soil nutrients
B) Fossil fuels
C) Oxygen and food
D) Minerals

8. The light-dependent reactions of photosynthesis occur in the:

A) Stroma
B) Thylakoid membranes
C) Cytoplasm
D) Cell wall

9. The Calvin cycle (light-independent reactions) uses energy from the light-dependent reactions to convert carbon dioxide into:

A) Water
B) Oxygen
C) Glucose
D) Light

10. What is the chemical formula for glucose, a sugar produced during photosynthesis?

A) H_2O
B) CO_2
C) $C_6H_{12}O_6$
D) O_2

11. Plants release oxygen as a byproduct of photosynthesis. This oxygen is vital for:

A) Plant growth
B) Animal respiration
C) Soil formation
D) Water conservation

12. What is the role of stomata in photosynthesis?

A) To absorb sunlight
B) To release oxygen and absorb carbon dioxide
C) To transport water to the leaves
D) To provide structural support to the plant

13. The energy captured during the light-dependent reactions is stored in molecules of:

A) Glucose and starch
B) ATP and NADPH
C) Carbon dioxide and water
D) Oxygen and water

14. Photosynthesis converts light energy into what type of energy?

A) Thermal energy
B) Electrical energy
C) Chemical energy
D) Kinetic energy

15. Which part of the chloroplast is the site of the Calvin cycle?

A) Thylakoid
B) Granum
C) Stroma
D) Outer membrane

16. What is the source of electrons for the electron transport chain during photosynthesis?

A) Oxygen
B) Carbon dioxide
C) Water
D) Glucose

17. Which of the following is NOT a factor that affects the rate of photosynthesis?

A) Light intensity
B) Temperature
C) Wind speed
D) Carbon dioxide concentration

18. The process of splitting water molecules during photosynthesis is called:

A) Respiration
B) Transpiration
C) Photolysis
D) Fermentation

19. Besides plants, which other organisms can perform photosynthesis?

A) Fungi
B) Bacteria and algae
C) Animals
D) Viruses

20. What is the overall balanced chemical equation for photosynthesis?

A) $CO_2 + H_2O \rightarrow C_6H_{12}O_6 + O_2$
B) $C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O$
C) $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
D) $O_2 + H_2O \rightarrow CO_2 + C_6H_{12}O_6$