Success Point Institute

Practice Paper

Photosynthesis

1. What is the primary pigment responsible for capturing light energy in photosynthesis?
    a) Chlorophyll a
    b) Chlorophyll b
    c) Carotenoids
    d) d)Xanthophylls

2. During which stage of photosynthesis is oxygen produced?
    a) Light-dependent reactions
    b) Calvin cycle
    c) Glycolysis
    d) Krebs cycle

3. In which cellular organelle does photosynthesis occur in higher plants?
    a) Mitochondria
    b) Nucleus
    c) Chloroplasts
    d) Endoplasmic reticulum
4. What is the primary product of the light-dependent reactions in photosynthesis?
    a) Glucose
    b) Oxygen
    c) Carbon dioxide
    d) Water
5. During the Calvin cycle, carbon dioxide is converted into which molecule?
        a) ATP
        b) NADPH
        c) Glucose
        d) RuBP

6. Which part of the chloroplast is responsible for the absorption of light energy?

    a) Stroma
    b) Thylakoid membrane
    c) Grana
    d) Peroxisome

7. What is the primary function of the light-dependent reactions in photosynthesis?

a) Synthesizing glucose
b) Converting carbon dioxide to oxygen
c) Producing ATP and NADPH
d) Fixing carbon dioxide

8. In photosynthesis, what molecule serves as the ultimate source of electrons for the photosystems?

a) Water
b) Carbon dioxide
c) Oxygen
d) Glucose

9. Which of the following is **NOT** a product of the Calvin cycle?

a) ATP
b) NADPH
c) Glucose
d) Oxygen

10. What is the purpose of the stomata in leaves during photosynthesis?

a) Absorb sunlight
b) Release oxygen
c) Exchange gases (carbon dioxide and oxygen)
d) Synthesize glucose

11. During which phase of photosynthesis is carbon dioxide fixed into organic molecules?

a) Light-dependent reactions
b) Photorespiration
c) Calvin cycle
d) Glycolysis

12. What is the primary function of the enzyme Rubisco in photosynthesis?

a) Breakdown of glucose

b) Conversion of light energy
c) Fixing carbon dioxide
d) Synthesizing oxygen

13. Which of the following factors can limit the rate of photosynthesis in plants?

a) High light intensity
b) Low carbon dioxide concentration
c) Warm temperatures
d) Abundant water supply

14. In C4 plants, what is the initial fixation of carbon dioxide carried out by?

a) Rubisco
b) PEP carboxylase
c) ATP synthase
d) Stomata

15. What is the final product of the Calvin cycle that can be used for plant growth and energy?

a) Oxygen
b) ATP
c) Glucose
d) NADPH

16. In photosynthesis, the oxygen released as a byproduct comes from the _____.

a) Carbon dioxide
b) Water
c) Glucose
d) Light energy

17. Which pigment is responsible for the red and blue colors of leaves during photosynthesis?

a) Chlorophyll a
b) Chlorophyll b
c) Carotenoids
d) Xanthophylls

18. What is the main purpose of the light-harvesting complexes in photosynthesis?

a) To synthesize glucose
b) To protect the chlorophyll molecules from damage
c) To release oxygen
d) To convert carbon dioxide into organic compounds

19. During the light-dependent reactions, where is the energy from sunlight converted into chemical energy?

a) Stroma
b) Thylakoid membrane
c) Grana
d) Cytoplasm

20. Which molecule acts as an electron carrier in the electron transport chain of the light-dependent reactions?

a) NADH
b) FADH2
c) NADPH
d) ATP

21. What is the primary function of the ATP and NADPH molecules produced during the light-dependent reactions?

a) Synthesizing glucose in the Calvin cycle
b) Releasing oxygen
c) Absorbing light energy
d) Breaking down water molecules

22. In the Calvin cycle, how many carbon dioxide molecules are required to produce one molecule of glucose?

a) 1
b) 3
c) 6
d) 12

23. Which gas is exchanged through the stomata during photosynthesis?

a) Carbon dioxide
b) Oxygen
c) Nitrogen
d) Hydrogen

24. What is the primary purpose of the light-independent reactions (Calvin cycle) in photosynthesis?

a) To produce ATP and NADPH
b) To release oxygen
c) To fix carbon dioxide and produce glucose
d) To absorb light energy

25. What role does the enzyme phosphoenolpyruvate carboxylase (PEP carboxylase) play in C4 plants?

a) It fixes carbon dioxide during the Calvin cycle.
b) It converts glucose into pyruvate.
c) It is involved in the light-dependent reactions.
d) It is essential for opening and closing stomata.