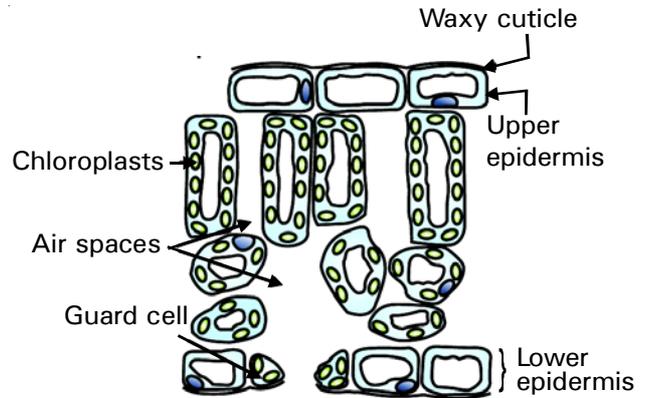


Nutrition in Plants

Very short answer type Question

1. Write complete reaction of photosynthesis.
2. Name the cellular organelle where photosynthesis process occurs.
3. Name two inorganic substances required by autotrophs to carry on photosynthesis.
4. What is chlorophyll?
5. What are thylakoids?
6. Name the two stages of photosynthesis.
7. What is granum?
8. Name the gas used in photosynthesis.
9. Name the gas produced in photosynthesis.

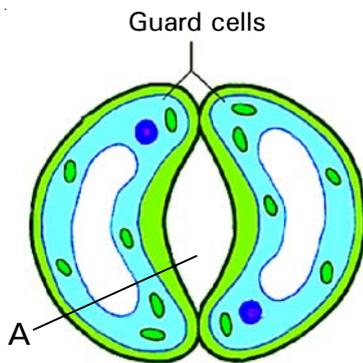


Short answer type Question

1. How guard cells control opening and closing of stomata?
2. Why chlorophyll has to be removed from the leaf before testing for starch?
3. Describe photochemical phase of photosynthesis.
4. How the plants get rid off waste materials like resins and gums?
5. Draw a labelled diagram of chloroplast.

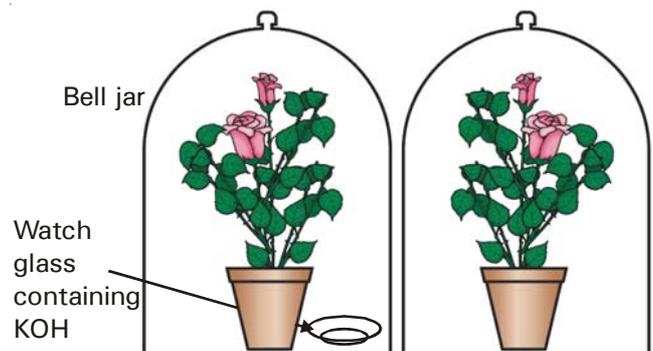
Long answer type questions

1.



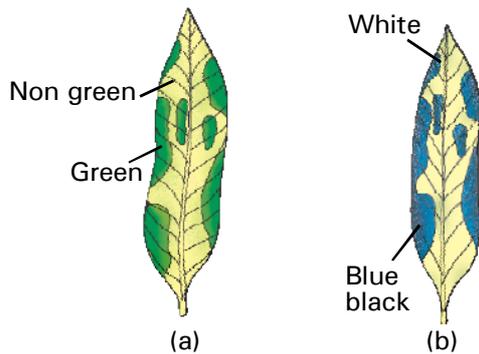
- In the above figure identify A and explain its role in plants?
2. In the given figure showing a section of leaf as seen under microscope, what is the role of waxy layer on upper epidermis ?

3. Look at the figure. Answer the following questions



- (a) What is the need to use potassium hydroxide
 - (b) Why do we need two plants ?
 - (c) Why do we cover both plants with polythene sheets or bell jars ?
 - (d) What observation do you expect at the end of experiment and why ?
 - (e) What is the aim of activity ?
4. If a plant is kept covered with a polythene sheet, we notice some water drops on the inner side of the sheet after some time. What are they due to? Name and define the process. What is the significance of this process in plants and nature? How does transpiration help in upward movement of water from roots to leaves ?

5. In a laboratory, an activity was performed to show that the chlorophyll is necessary for the process of photosynthesis. Answer the following questions



- In the above activity, what kind of leaf has been used?
- How can a plant be destarched?
- Why is the leaf heated in alcohol?
- What precautions should be taken while heating the alcohol and why?
- State reason for observation in figure (b).

Objective type questions

- Oxygen released during photosynthesis comes from
 - H₂O
 - Carbondioxide
 - Glucose
 - Chlorophyll
- The process of photosynthesis takes place in
 - green leaves of plant
 - young stem
 - both (1) and (2)
 - all parts of the plant
- First step in photosynthesis is
 - conversion of light energy into chemical energy
 - absorption of sunlight by chlorophyll
 - splitting of water
 - formation of glucose
- Which of the following is not required for photosynthesis?
 - water
 - chlorophyll
 - light
 - oxygen
- The food prepared by green leaves of a plant is in the form of simple sugar called
 - sucrose
 - glucose
 - starch
 - any carbohydrate
- Which of the following statement is incorrect for photosynthesis?
 - chlorophyll can be extracted from the green leaves
 - chlorophyll is present in small organelles called chloroplast
 - desert plant take up carbon dioxide at night
 - carbon dioxide gets oxidised
- The plants take up nitrogen from the soil in the form of
 - nitrate
 - nitrite
 - both (1) and (2)
 - nitric acid
- Green plants
 - are autotrophic
 - convert organic compounds into inorganic substances
 - carry out photosynthesis
 - both a and c
- The green pigment present in plants is located in which organelle?
 - chloroplasts
 - mitochondria
 - cytoplasm
 - vacuole
- Identify the correctly written equation of photosynthesis
 - $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow[\text{chlorophyll}]{\text{light}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$
 - $12\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow[\text{chlorophyll}]{\text{light}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$
 - $6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{chlorophyll}]{\text{light}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$
 - $6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{chlorophyll}]{\text{light}} \text{C}_6\text{H}_{12}\text{O}_6 + 12\text{O}_2 + 6\text{H}_2\text{O}$
- Plants require i and ii to carry out photosynthesis in the presence of iii
 - i-CO₂, ii-H₂O, iii-sunlight
 - i-O₂, ii-H₂O, iii-sunlight
 - i-CO₂, ii-H₂O, iii-O₂
 - i-CO₂, ii-O₂, iii-sunlight
- Leaf is made up of
 - Only Palisade cells
 - Mesophyll cells
 - Guard cells
 - Parenchyma cells
- Carbohydrates produced during photosynthesis, if not immediately used are stored as
 - glucose
 - starch
 - glycogen
 - sucrose
- Which of the following parts of the leaf is devoid of chloroplasts?
 - Palisade mesophyll
 - Spongy mesophyll
 - Epidermis
 - All of these

15. Experiments on photosynthesis depend on the fact that
 (1) green leaves contain glucose as stored food
 (2) starch is the storage product of photosynthesis
 (3) starch gives blue-black colour with iodine
 (4) both (2) and (3)
16. To remove chlorophyll from the leaves
 (1) Leaves are boiled in pure water
 (2) Leaves are boiled in alcohol directly
 (3) Leaves are kept in alcohol in a beaker which is further kept in a boiling water bath
 (4) Leaves are treated with some chemical substance
17. Chlorophyll in a leaf is required for
 (1) breakdown of glucose
 (2) absorption of light energy
 (3) storing starch in leaves
 (4) emitting green light
18. Identify the correct statement
 (1) all plants are categorised as consumers
 (2) desert plants take up carbon dioxide at night
 (3) oxygen given out in photosynthesis comes from atmosphere
 (4) chloroplast and chlorophyll are responsible for respiration
19. The ultimate source of energy for photosynthesis is
 (1) sun
 (2) chlorophyll
 (3) grana
 (4) water
20. Plants obtain carbon dioxide and water respectively from
 (1) soil and soil (2) air and soil
 (3) air and air (4) from food
21. Each stomata is guarded by
 (1) Guard cells (2) Palisade cells
 (3) Mesophyll cells (4) Parenchyma cells
22. Each guard cell contains
 (1) Leucoplasts
 (2) Chloroplasts
 (3) Starch
 (4) Oil and protein granules
23. Grana are present inside
 (1) Mitochondria (2) Golgi bodies
 (3) Chloroplast (4) Ribosome
24. In dark, the guard cells are
 (1) More turgid
 (2) Not turgid
 (3) Less turgid
 (4) None of these
25. Which of the following light is more effective in photosynthesis?
 (1) Green
 (2) Red
 (3) Blue
 (4) (2) and (3) both
26. In light phase of photosynthesis there is formation of
 (1) ATP
 (2) NADPH
 (3) Both ATP and NADPH
 (4) Carbohydrates
27. Photosynthesis proceeds in sequence of
 (1) Dark phase and light phase
 (2) Light phase alone
 (3) Light phase and dark phase
 (4) Dark phase alone
28. The energy change in photosynthesis is form
 (1) Light energy to electrical energy
 (2) Light energy to molecular energy
 (3) Light energy to chemical energy
 (4) Light energy to activation energy.
29. The process in which water is split during photosynthesis is
 (1) Photolysis
 (2) Hydrolysis
 (3) Plasmolysis
 (4) Hemolysis
30. The leaf in a plant carries out :
 (1) Respiration
 (2) Transpiration
 (3) Photosynthesis
 (4) All the above
31. Leaves are detached by keeping the plant in :
 (1) 10 to 12 hours in night
 (2) 10 to 12 hours in day
 (3) 2 hours in sun light
 (4) Only 2 hours in night
32. The colour of light in which rate of photosynthesis is minimum :
 (1) Red light
 (2) Blue light
 (3) Green light
 (4) Yellow light
33. Chemical reaction which takes place during dark reaction of photosynthesis is
 (1) photolysis
 (2) hydrolysis
 (3) reduction of carbon dioxide to carbohydrates
 (4) nitrogen fixation
34. Dark reaction and light reaction of photosynthesis take place in
 (1) stroma and grana of chloroplast respectively
 (2) grana and stroma of chloroplast respectively
 (3) grana only
 (4) stroma only
35. Which of the following pigments help in photosynthesis?
 (1) Chlorophyll 'a'
 (2) Chlorophyll 'b'
 (3) Carotenoids
 (4) all of the above

ANSWERS

Very short answer type Question

- (1) $6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{chlorophyll}]{\text{Sunlight energy}} \underset{\text{Glucose}}{\text{C}_6\text{H}_{12}\text{O}_6} + 6\text{O}_2 + 6\text{H}_2\text{O}$
from air from soil
- (2) chloroplasts
- (3) Carbon dioxide and water
- (4) Green pigment which absorb sunlight energy
- (5) Photosynthetic units
- (6) light and dark reaction
- (7) group of thylakoids and is the seat of light reaction
- (8) Carbon dioxide
- (9) Oxygen
1. (1)
2. (3)
3. (2)
4. (4)
5. (2)
6. (4)
7. (3)
8. (4)
9. (1)
10. (3)
11. (1)
12. (2)
13. (2)
14. (3)
15. (4)
16. (3)
17. (2)
18. (2)

Objective type questions

19. (1)
20. (2)
21. (1)
22. (2)
23. (3)
24. (2)
25. (4)
26. (3)
27. (3)
28. (3)
29. (1)
30. (4)
31. (1)
32. (3)
33. (3)
34. (1)
35. (4)
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