

Chapter 1

Protectors of Biosphere

Question 1.

..... is the result of deforestation, atmospheric pollution, etc.?

Answer:

Global warming.

Question 2.

What is Global warming?

Answer:

Global warming is the increase of earth's average surface temperature due to effect of greenhouse gases.

Question 3.

What are the causes of Global warming?

Answer:

Deforestation, atmospheric pollution, burning of fossil fuels, etc.

Question 4.

"Trees are essential for protecting our nature and life." Prepare slogans highlighting this idea to protect our environment?

Answer:

- At least do not ruin the life of those trees, depending on whom we live".
- 'Plant together let's make the world greener.'
- It is our duty to save environment duties.
- Plant trees: for our future.
- Plant trees: It is the only way to prevent Global warming.

Pigments In Leaves

Question 5.

Which of the pigments given below is the main pigment that performs photosynthesis?

- a) Chlorophyll a
- b) Chlorophyll b
- c) Xanthophyll
- d) Carotene

Answer:

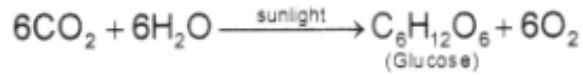
- a) Chlorophyll a

Question 6.

Complete the equation related to photosynthesis



Answer:



Question 7.

Complete the word relations.

a) Light reaction: Grana

Dark reaction:

b) Green plants: land

.....: Ocean

c): bluish green

Carotene: yellowish-orange

Answer:

a) Stroma

b) Algae

c) Chlorophyll a

Question 8.

..... is the main source of energy on the earth

Answer:

Sunlight

Question 9.

Which group of living things can absorb solar energy directly?

Answer:

Plants

Question 10.



Have you noticed Veena's doubt? Write down your inference?

Answer:

More number of chloroplasts are seen on the upper part of leaf than on the lower part.
That is why the lower part of the leafless green in color.

Question 11.

Odd one out, give reason Carotene, xanthophyll, chlorophyll a

Answer:

Chlorophyll a. Others accessory pigments.

Question 12.

..... part of leaf are seen chloroplasts more in number

Answer:

Upper part

Question 13.

Photosynthesis in green plants taken mainly in

Answer:

leaves

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Question 14.

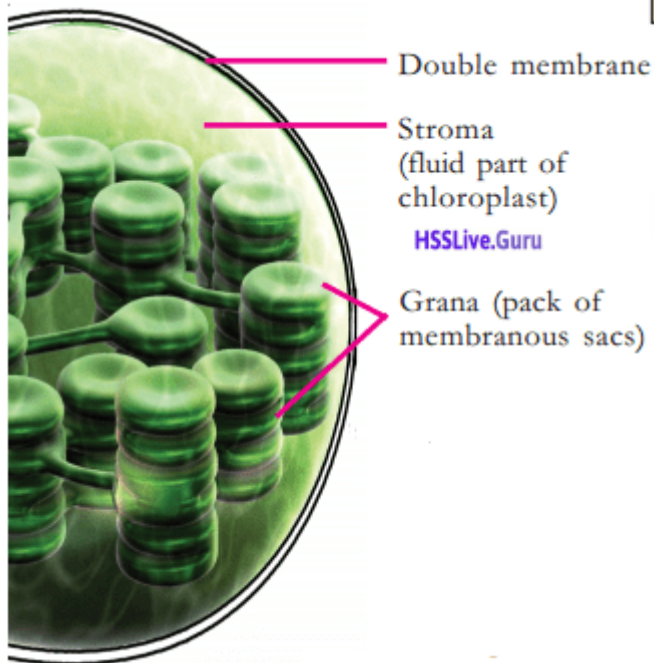
How many chloroplasts will be there in one square millimeter of a leaf?

Answer:

At an average 5 lakh chloroplasts

Question 15.

Identify the missing parts in the picture.



Answer:

- a) Grana
- b) Stroma

Question 16.

The fluid part of the chloroplast is

Answer:

Stroma

Question 17.

What are the pigments seen in the grana?

Answer:

Chlorophyll a, Chlorophyll b, Carotene, and Xanthophyll are seen in the grana.

Question 18.

Describe the structure of chloroplast?

Answer:

The chloroplast is an organelle with a double-layered membrane. The fluid part of the chloroplast is the stroma. The membranous sacs arranged one above the other are the grana. The membrane-bound structures joining the grana are the stroma lamellae. Pigments that can absorb sunlight are seen in the grana.

Question 19.

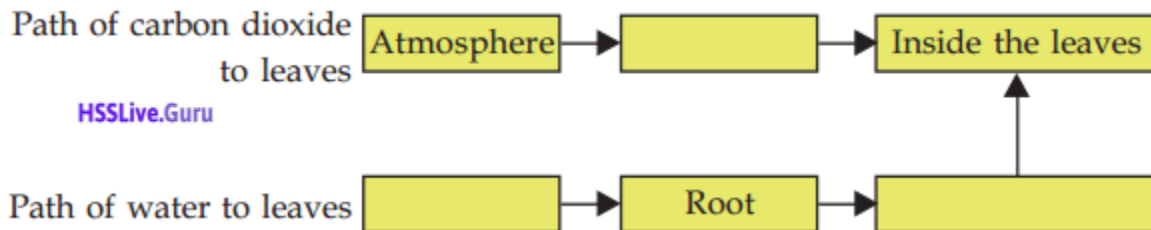
What is the function of accessory pigments?

Answer:

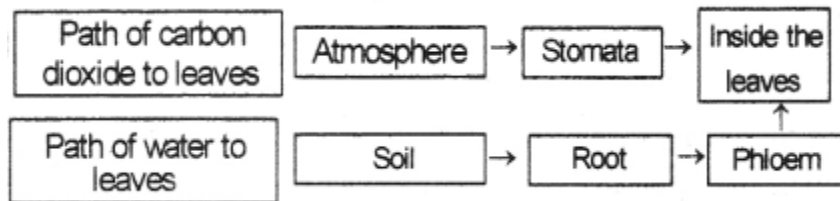
Chlorophyll b, Carotene, and Xanthophyll are accessory pigments. They are seen in the grana. They can absorb light and transfer it to chlorophyll a.

Question 20.

How do carbon dioxide and water reach the leaves for photosynthesis?



Answer:

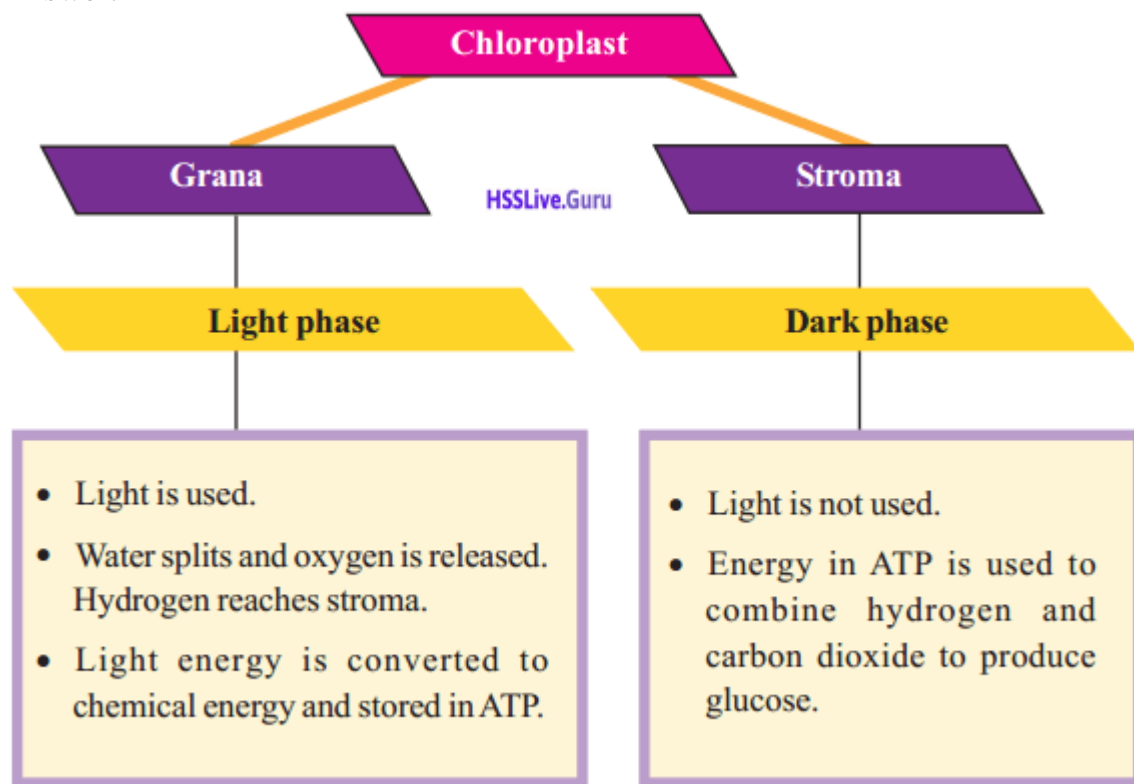


The Chemistry Of Photosynthesis

Question 21.

Differentiate between Light reaction and Dark reaction; Prepare a table?

Answer:



Question 22.

Find out whether the statements given below are true or false?

- a) Dark reaction occurs in the grana.
- b) Light reaction stops when availability of light decreases.

Answer:

- a) False
- b) True

Question 23.

Light reaction occurs in the

Answer:

grana of chloroplast

Question 24.

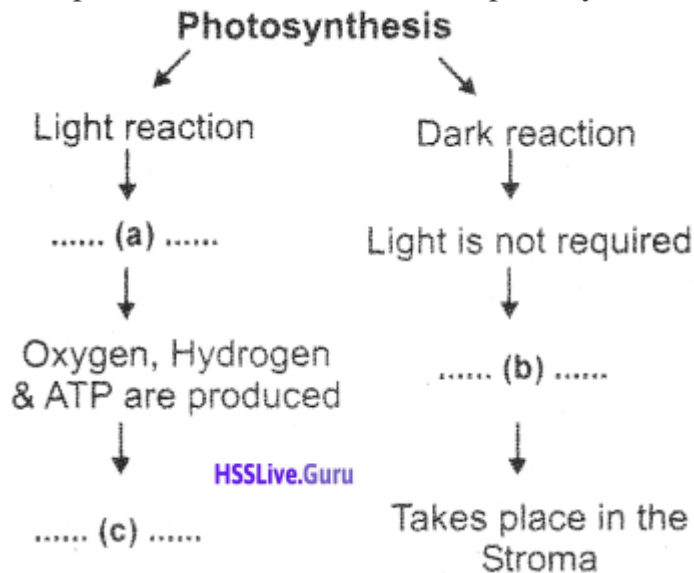
Dark reaction occurs in the

Answer:

Stroma of chloroplast.

Question 25.

Complete the flow chart related to photosynthesis.



Answer:

- a) Light is required
- b) Glucose is produced
- c) Takes place in the grana

Question 26.

During light reaction, light energy is converted to and stored as

Answer:

Chemical energy, ATP molecules

Question 27.

Water splits into & in the light reaction

Answer:

Hydrogen & Oxygen

Question 28.

Define Dark reaction?

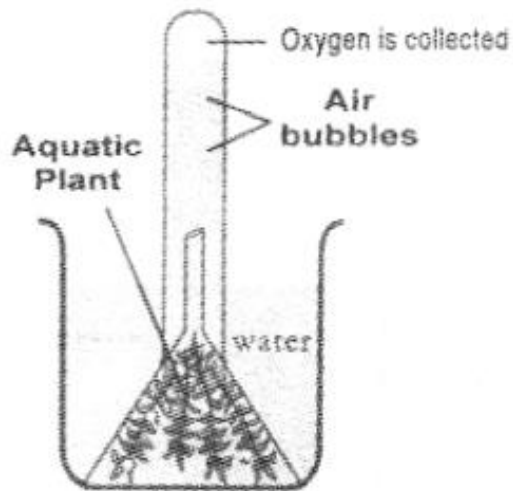
Answer:

Sunlight is not utilized in this phase that occurs in the stroma of chloroplast. In this process, hydrogen is added to CO₂ to form glucose using the energy of ATP molecules.

Question 29.

Illustrate an experiment to prove that plants released oxygen during the time of photosynthesis.

Answer:



Question 30.

Dark reaction is also known as

Answer:

Calvin cycle

Question 31.

..... is known as the energy currencies of the cell.

Answer:

ATP

Question 32.

Expansion of ATP =

Answer:

Adenosine Tri Phosphate

Question 33.

About 70-80% of oxygen in the atmospheric air is contributed by

Answer:

algae in the ocean

Question 34.

What is the contribution of Melvin Calvin?

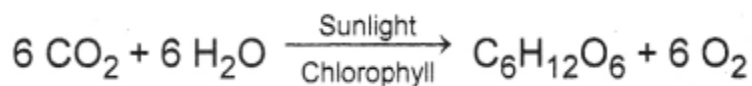
Answer:

Melvin Calvin explained the various stages of the formation of glucose during photosynthesis.

Question 35.

Prepare the equation showing the process of photosynthesis?

Answer:



After Photosynthesis

Question 36.



Isn't doubt genuine? What happens to the glucose formed as a result of photosynthesis? Explain your opinion?

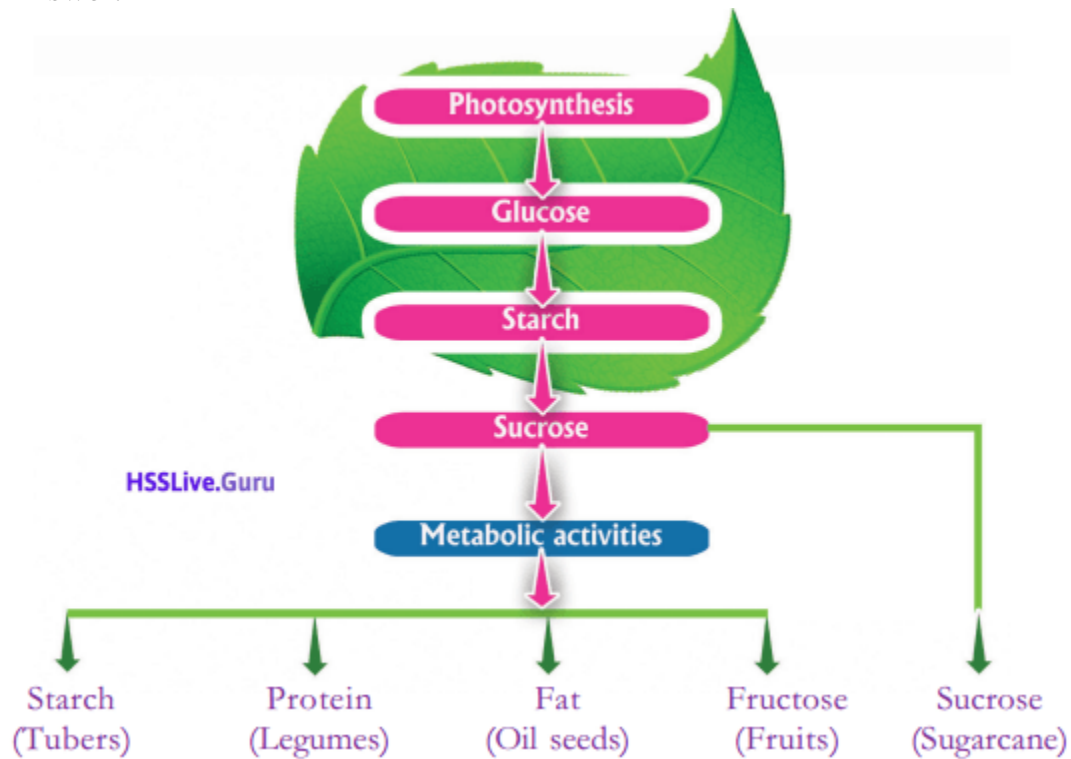
Answer:

Glucose is easily soluble in water. It can't be stored in plant body. Therefore plants store glucose in the form of insoluble starch in leaves. Plants utilize starch as a source of energy for life activities and to prepare substances required for growth. Starch is converted to sucrose and it transported through phloem to various plant parts and to store in different forms such as starch, protein, fat, fructose and sucrose.

Question 37.

Prepare a flow chart showing the chemical changes of glucose after its formation

Answer:



Question 38.

In which form is starch transported to various parts of the plant body for storage?

Answer:

Sucrose

Question 39.

Complete the table?

Food item	Main nutrient
Wheat
apple
.....	fat
Pea

Answer:

Food item	Main nutrient
Wheat	Starch
apple	Fructose
mustard	fat
Pea	protein

Question 40.

Plants store glucose in the form of in leaves.

Answer:

Insoluble starch.

Question 41.

Write the examples of economically important plant products.

Answer:

Coffee, Rubber, Pepper, Cocoa

Ocean At Par With Land

Question 42.

‘Ocean – an ecosystem’ – Prepare a flow chart.

Answer:

Sunlight + CO₂ → Algae & other aquatic Organisms → Photosynthesis

Food and Oxygen → Fish and other aquatic organisms → Birds & Terrestrial organisms

Question 43.

How does pollution in the ocean affect the organisms?

Answer:

Ocean is polluted due to sewage, toxic chemicals from industries, land runoff, large scale oil spills, ocean mining, Littering, etc. As a result of ocean pollution, there are several negative impacts such as

- 1) Effect of toxic wastes on marine animals.
- 2) Disruption to the cycle of coral reefs
- 3) Depletes oxygen content in water
- 4) Failure in the reproductive system of sea animals.
- 5) Effects on food chain.
- 6) It affects human health.

In this way ocean pollution adversely affects the organisms.

Plants – Earth'S Wealth

Question 44.

Do we obtain food only from producers?

Answer:

No plants are the cheapest and effective natural mechanism for the purification of air. It offers great service to the biological world by absorbing CO₂ from the atmosphere and releasing oxygen.

Question 45.

The service rendered by plants for the sustenance of the living world is unique comment on this statement.

Answer:

Plants serve as the cheapest, effective and natural means for the purification of air. Plants also have a . major role in the mitigation of natural disasters. Mangrove forests help in controlling Tsunami to some extent. Bamboo forests, reed, vetiver, lemongrass, etc protect the river banks from collapsing during flood. Trees and bushes in mountains and hills prevent soil erosion and landslides.

Protectors of Biosphere Additional Question and Answers

Question 46.

“Trees are essential for protecting our nature and life.” Prepare slogans highlighting this idea to protect our environment?

Answer:

- At least do not ruin the life of those trees, depending on whom we live”.
- Plant together let's make the world greener.'
- It is our duty to save environment duties.
- Plant trees: for our future.
- Plant trees: It is the only way to prevent Global warming.

Question 47

What is photosynthesis?

Answer:

Photosynthesis is a process used by plants and other organisms to convert light energy into chemical energy that can be later released to fuel the organisms' activities.

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Question 48.

What do you mean by greenhouse gases? Give examples?

Answer:

Greenhouse gases are gases that contribute to the greenhouse effect by absorbing infrared radiation. Carbon dioxide and chloroform carbons are examples of greenhouse gases.

Question 49.

“They kill Good Trees To put out Bad Newspapers” -comment.

Answer:

There are wide range of cutting trees all over the world. Many such instances are for making newspapers. In the same newspapers, we proclaim that trees should not be cut down. It is really a controversy. Similarly, bad news and wrong messages are passed onto people & generations by spoiling the life-supporting trees. Therefore protection of trees is more important.

Question 50.

“Sale of AC’ has increased in Kerala due to severe heat” – Comment on this pews paper statement?

Answer:

The temperature in Kerala has gone up to the record figure this year. This has happened due to the practice of cutting down trees and pollution. To escape from the heat people started purchasing AC instead of planting trees. The excessive use of AC will again increase heat in the atmosphere by increased emission of chloroform carbon. This will finally intensify the magnitude of Global warming.

Question 51.

Plants give out approximately of oxygen when they use one tonne CO_2

Answer:

118 kg

Question 52.

Why the plants are called the lungs of the earth? Explain.

Answer:

Plants are the cheapest and effective natural mechanism for the purification of air. They absorb carbon dioxide from the atmosphere & release oxygen. It is estimated that plants give out approximately 118 kilograms of oxygen when they use one tonne CO_2 . As the plant cover on the earth decreases, this recycling mechanism stops and air pollution becomes severe. That is why the plants are called the lungs of the earth.