

# B2 Quick Revision Questions

# Question 1

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- Which raw materials are used in photosynthesis and what are the products of the reaction?

# Answer 1

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- Carbon dioxide
- Water
  
- Glucose
- Oxygen

# Question 2

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- What type of reaction is photosynthesis?

# Answer 2

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- Endothermic

# Question 3

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- What is the word and symbol equation for photosynthesis?

# Answer 3

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- Carbon dioxide + Water  $\rightarrow$  Glucose + Oxygen

# Question 4

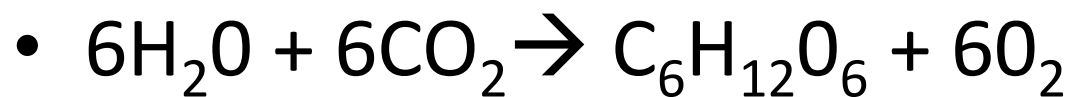
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- What is the symbol equation for photosynthesis?



# Answer 4

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# Question 5

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- A leaf was tested for starch. The iodine stayed orange
  - What does this tell you about the leaf?
    - What conditions was it kept in?

# Answer 5

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- There was no starch present
- Left in the dark so no photosynthesis

# Question 6

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- Why are light and chlorophyll needed for photosynthesis?

# Answer 6

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- Light – need for energy
- Chlorophyll – this is where photosynthesis takes place

# Question 7

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- How does the shape of a leaf help photosynthesis to happen?

# Answer 7

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- Large surface area for light to be absorbed
- Thin so a short distance for the carbon dioxide to diffuse

# Question 8

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- What is the function of vascular bundles?



# Answer 8

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- To transport water to the leaf and glucose away from the leaf.

# Question 9

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- Describe the function of the mesophyll cell?

# Answer 9

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- Palisade mesophyll – carries out photosynthesis
- Spongy mesophyll – has air spaces to allow for the diffusion of gasses

# Question 10

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- Suggest why stomata are found on the lower epidermal tissue?

# Answer 11

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- The stomata are on the underside because it lowers the rate of transpiration. (less heat to evaporate water from the leaf)

# Question 12

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- How will increases the light intensity affect the rate of photosynthesis?

# Answer 12

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- Increasing the photosynthesis increases the rate of photosynthesis

# Question 13

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- How would you describe environmental conditions in tropical forest, tundra and desert ecosystems?



# Answer 13

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- Tropical forest – dense plant life
- Tundra – few plant species grow
- Desert – few plant species grow

# Question 14

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- Suggest an advantage of a tree having needles rather than flat broad leaves

# Answer 14

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- Reduces surface area for water loss

# Question 15

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- Why do many greenhouses have vents in the roof?

# Answer 15

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- Helps to remove oxygen and replace with carbon dioxide

# Question 16

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- Explain why paraffin heaters are used in greenhouses?

# Answer 16

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- They produce carbon dioxide and they increase the temperature on colder days and nights

# Question 17

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- How do greenhouses increase yield?



# Answer 17

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This is intensive farming. It optimises conditions for photosynthesis. Protects plants from weather and damage from being eaten by animals

# Question 18

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- What are the five ways plants use glucose?

# Answer 18

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- Proteins for plant growth and repair
- Used as energy
- To make cellulose for cell walls
- Stored as starch
- Stored as fats and oils

# Question 19

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- Why is glucose stored as starch?

# Answer 19

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Starch is insoluble, stored for when it is needed by the plant.

# Question 20

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- What is the relationship between photosynthesis and respiration in leaves?

- Plants use carbon dioxide to photosynthesise and produce oxygen. They use some of the oxygen for respiration and produce carbon dioxide.

# Question 21

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- What was John Baptist van Helmont's theory on plant growth?



# Answer 21

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- He thought that the increase in mass of a willow tree was due to water, not just because of minerals in the soil.

# Question 22

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- What is diffusion?

# Answer 22

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The net movement of particles from an area of high concentration to lower concentration due to a random movement of particles, until equilibrium is reached.

# Question 23

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- How could you increase the rate of diffusion in living systems?

# Answer 23

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- Increasing the surface area.
- Decrease the distance the particles have to travel.
- Increasing the concentration gradient.

# Question 24

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- What external factors can affect the rate of diffusion from leaves?

# Answer 24

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- Wind increases the concentration gradient
- High humidity decreases the concentration

# Question 25

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- How does external temperature affect the rate of diffusion?



# Answer 25

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- As the temperature increases the molecules gain kinetic energy and move faster, so the rate of diffusion will increase.

# Question 26

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- What is transpiration?

# Answer 26

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- The movement of water of water through a plant.

# Question 27

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- What is the path of water through a plant?

# Answer 27

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- Water enters through the root hairs.
- Water passes into the roots and travels up the stem in xylem vessels to the leaves.
- Water escapes through the stomata.

# Question 28

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- What conditions increase the rate of transpiration?

# Answer 28

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- Temperature.
- Light availability.
- Wind.
- Humidity.

# Question 29

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- Why is transpiration important to plants?



- Evaporation of water cools leaves.
- Water is used in the process of photosynthesis.
- Cells full of water become turgid and support the plant.
- Water carries dissolved materials around the plant. E.g. nitrates, potassium, phosphates.

# Question 30

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- What is the test for starch?

# Answer 30

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- Test with iodine, if starch is present leaf goes blue/black

# Question 31

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- What is bicarbonate indicator used for? What is the colour change?

# Answer 31

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- It indicates an acid eg carbonic acid.
- The colour change is red to yellow/orange

# Question 32

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- What did Priestly find?

# Answer 32

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- That plants give off oxygen in the light

# Question 33

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- What is a limiting factor?



# Answer 33

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- A factor that limits the rate of photosynthesis e.g. light, carbon dioxide, temperature.

# Question 34

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- What is hydroponics?

# Answer 34

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- Growing plants without soil in a controlled environment.

# Question 35

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- What colour light is best for photosynthesis?

# Answer 35

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- Red and blue

# Question 36

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- List the adaptations of a leaf to prevent water loss?

# Answer 36

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- Reduce the leaves to spines e.g. cactus
- Curl leaves
- Stomata in pits
- Hairs
- Waxy cuticle

# Question 37

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- What is translocation?



# Answer 37

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- Movement of sugars and amino acids in phloem.

# Question 38

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- What is the structure of a xylem Vessel?

# Answer 38

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- Dead hollow tube, reinforced with lignin to give a continuous column of water.

# Question 39

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- What is the structure of Phloem vessel?

# Answer 39

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- It is made from living sieve tubes and companion cells
- These move sucrose and amino acids in both directions

# Question 40

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- Describe how surface area:volume affects water loss in plants.

Give an example of a plant with a small surface area:volume

# Answer 40

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- The larger the surface area the greater the water loss
- An example is a cactus.