Answer Key

Answer 1:

Photosynthesis is the process by which plants use sunlight to produce glucose from carbon dioxide and water. Oxygen is released as a by-product. Chlorophyll absorbs light energy to drive the reaction.

Answer 2

Factors affecting photosynthesis:

- **Light intensity**: Increases rate until limited by another factor.
- **Carbon dioxide concentration**: Increases rate until another factor limits it.
- **Temperature**: Enzyme-dependent; increases with temperature up to an optimum, then declines.

Answer 3

Stomata allow carbon dioxide to enter and oxygen to exit. They are controlled by guard cells but also cause water loss. Plants must balance gas exchange with water conservation

Rubric for Evaluation

Answer 1:

- Correct definition of photosynthesis (**2 marks**)
- Identifies reactants (CO_2, H_2O) and products (Glucose, O_2) (**2 marks**)
- Mentions chlorophyll's role (**1 mark**)

Answer 2:

- Identifies three key factors (light, CO_2, temperature) (**3 marks**)
- Explains how each factor influences photosynthesis (**2 marks**)

Answer 3:

- Explains function of stomata in gas exchange (**2 marks**)
- Mentions guard cells role in regulation (**2 marks**)
- Describes water loss challenge (**1 mark**)