

Brett Robbins Academic Consulting

Biology 20 Practice Test

Unit 3: Photosynthesis and Cellular Respiration

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

The overall process of photosynthesis is best represented by the equation

- A) $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy}$
- B) $6CO_2 + 6H_2O + \text{light energy} \rightarrow C_6H_{12}O_6 + 6O_2$
- C) $6CO_2 + 6O_2 + \text{light energy} \rightarrow C_6H_{12}O_6 + 6H_2O$
- D) $C_6H_{12}O_6 + 6H_2O \rightarrow 6CO_2 + 6O_2$

Question 2

In a plant cell, photosynthesis takes place in the

- A) chloroplast
- B) mitochondrion
- C) nucleus
- D) vacuole

Question 3

The main purpose of cellular respiration is to

- A) produce glucose for storage
- B) release oxygen into the air
- C) transfer energy from glucose to ATP
- D) remove carbon dioxide from cells

Question 4

The oxygen released during photosynthesis comes directly from

- A) carbon dioxide
- B) chlorophyll
- C) glucose
- D) water

Question 5

During glycolysis, each glucose molecule that is broken down produces a net gain of 2 ATP.

The net gain of ATP when 4 glucose molecules are broken down by glycolysis is ____

Question 6

The light-dependent reactions of photosynthesis occur in the

- A) stroma of the chloroplast
- B) thylakoid membranes of the chloroplast
- C) cytoplasm of the cell
- D) matrix of the mitochondrion

Question 7

In the light-independent reactions (the Calvin cycle), ATP and NADPH are used to

- A) build sugars from carbon dioxide
- B) split water molecules
- C) release oxygen gas
- D) break down glucose

Question 8

Glycolysis, the first stage of cellular respiration, takes place in the

- A) matrix of the mitochondrion
- B) inner membrane of the mitochondrion
- C) cytoplasm of the cell
- D) stroma of the chloroplast

Question 9

A student gradually increases the light intensity on an aquatic plant. The rate of photosynthesis rises at first and then levels off, even though the light keeps getting brighter.

The best explanation for this levelling off is that

- A) the plant has stopped carrying out cellular respiration
- B) bright light has destroyed all of the chlorophyll
- C) oxygen has built up and shut down the chloroplasts
- D) another factor, such as carbon dioxide concentration, has become limiting

Question 10

In alcoholic fermentation, each glucose molecule produces 2 molecules of carbon dioxide.

The number of carbon dioxide molecules produced when yeast ferment 7 glucose molecules is ____

Answer Key

- | | | |
|------|------|--------|
| 1. B | 5. 8 | 9. D |
| 2. A | 6. B | 10. 14 |
| 3. C | 7. A | |
| 4. D | 8. C | |

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.