Respiration in Plants

A. Choose the Correct Answer

1. What is the primary purpose of respiration in plants?

A) To produce oxygen for animals
B) To generate energy for cellular activities
C) To store excess food in roots
D) To convert sunlight into food

2. Which organelle in plant cells is responsible for cellular respiration?

A) Chloroplast
B) Nucleus
C) Mitochondria
D) Vacuole

3. What is the end product of aerobic respiration in plants?

A) Carbon dioxide, water, and energy
B) Oxygen and glucose
C) Alcohol and carbon dioxide
D) Lactic acid and energy

B. Fill in the Blanks

1. The process by which plants break down glucose to release energy is called _____.
2. The gas released during aerobic respiration in plants is _____.
3. Unlike animals, plants do not have specialized organs for respiration; instead, they exchange gases through _____ and _____.

C. Case Study

A group of students conducted an experiment to observe respiration in germinating seeds. They placed germinating seeds in an airtight container along with a test tube containing lime water. After a few hours, they noticed that the lime water turned milky. Another set of seeds was boiled and placed in the same setup, but the lime water did not change.

Case Study Questions:

1. What caused the lime water to turn milky in the experiment with germinating seeds?

2. Why did the lime water remain unchanged in the setup with boiled seeds?
3. What conclusion can be drawn from this experiment about respiration in plants?
4. Why do germinating seeds show a higher rate of respiration?

D. Short Answer Questions

1. Why do plants need to respire even though they produce energy through photosynthesis?
2. What is the difference between aerobic and anaerobic respiration in plants?
3. How do roots perform respiration when they are buried in soil?

E. Long Answer Questions

1. Explain the process of respiration in plants, highlighting the differences between aerobic and anaerobic respiration.
2. Describe how stomata and lenticels help in the exchange of gases during plant respiration.
3. How does the rate of respiration in plants change under different conditions such as temperature, availability of oxygen, and the age of the plant?