

Chapter – 12 | Respiration in Plants

QUIZ-01

1. Cellular respiration mainly involves:

- A. Formation of food using light
- B. Oxidation of food to release energy
- C. Absorption of minerals from soil
- D. Loss of water through leaves (B)

Explanation : Respiration breaks C-C bonds of complex food molecules by oxidation and releases energy trapped as ATP.

2. Plants exchange gases mainly through:

- A. Xylem and phloem
- B. Stomata and lenticels
- C. Chloroplast and vacuole
- D. Root hairs only (B)

Explanation : Plants do not have special respiratory organs; stomata and lenticels help in gaseous exchange.

3. Glycolysis occurs in the:

- A. Chloroplast
- B. Mitochondrial matrix
- C. Cytoplasm
- D. Inner mitochondrial membrane (C)

Explanation : Glycolysis takes place in the cytoplasm and is found in all living organisms.

4. Glycolysis is also known as:

- A. Calvin pathway
- B. EMP pathway
- C. C_4 pathway
- D. Hatch-Slack pathway (B)

Explanation : Glycolysis is called the EMP pathway after Embden, Meyerhof and Parnas.

5. The end product of glycolysis is:

- A. Acetyl CoA
- B. Pyruvic acid
- C. Citric acid
- D. Ethanol (B)

Explanation : One glucose molecule is partially oxidised to form two molecules of pyruvic acid.

6. Alcoholic fermentation in yeast produces:

- A. Lactic acid only
- B. Ethanol and CO_2
- C. Glucose and oxygen
- D. Acetyl CoA and water (B)

Explanation : In yeast, pyruvic acid is converted into ethanol and carbon dioxide under anaerobic conditions.

7. In aerobic respiration, pyruvate is converted into acetyl CoA in the:

- A. Cytoplasm
- B. Chloroplast stroma
- C. Mitochondrial matrix
- D. Thylakoid lumen (C)

Explanation : Pyruvate enters the mitochondrial matrix and undergoes oxidative decarboxylation to form acetyl CoA.

8. Krebs' cycle begins with the condensation of acetyl group with:

- A. Oxaloacetic acid
- B. Pyruvic acid
- C. Lactic acid
- D. Glucose (A)

Explanation : The TCA cycle starts when acetyl CoA combines with oxaloacetic acid to form citric acid.

9. The electron transport system is located in the:

- A. Cytoplasm
- B. Inner mitochondrial membrane
- C. Outer chloroplast membrane
- D. Nucleus (B)

Explanation : ETS is present in the inner mitochondrial membrane and helps in oxidative phosphorylation.

10. The respiratory quotient for complete oxidation of carbohydrates is:

- A. 0.5
- B. 0.7
- C. 1.0
- D. 2.0 (C)

Explanation : In carbohydrate respiration, equal volumes of CO_2 are released and O_2 are consumed, so RQ is 1.0.