

## Chapter – 11 | Photosynthesis in Higher Plants

QUIZ  
PART-06

1. First stable product of the C<sub>4</sub> pathway is —

- A. PGA
- B. RuBP
- C. Oxaloacetic acid
- D. Glucose (C)

**Explanation :** OAA is a four-carbon compound, so the pathway is called C<sub>4</sub>.

2. C<sub>4</sub> pathway is also called —

- A. Calvin cycle
- B. Hatch-Slack cycle
- C. Krebs cycle
- D. Glycolate cycle (B)

**Explanation :** It was discovered by Hatch and Slack.

3. C<sub>4</sub> pathway is commonly found in plants of —

- A. Dry tropical regions
- B. Deep oceans
- C. Cold polar regions only
- D. Dark caves (A)

**Explanation :** C<sub>4</sub> plants tolerate high temperature and intense light.

4. Which of the following is a C<sub>4</sub> plant?

- A. Wheat
- B. Rice
- C. Maize
- D. Pea (C)

**Explanation :** Maize, sugarcane and millet are C<sub>4</sub> plants.

5. Special leaf anatomy of C<sub>4</sub> plants is called —

- A. Dorsiventral anatomy
- B. Kranz anatomy
- C. Isobilateral only
- D. Radial anatomy (B)

**Explanation :** Bundle sheath cells form a ring around vascular bundles.

6. In C<sub>4</sub> plants, initial CO<sub>2</sub> fixation occurs in —

- A. Mesophyll cells
- B. Root hairs
- C. Epidermal cells only
- D. Guard cells only (A)

**Explanation :** Atmospheric CO<sub>2</sub> enters mesophyll cells and is fixed by PEP.

7. Primary CO<sub>2</sub> acceptor in C<sub>4</sub> pathway is —

- A. RuBP
- B. PEP
- C. PGA
- D. NADPH (B)

**Explanation :** Phosphoenol pyruvate is the 3-carbon CO<sub>2</sub> acceptor.

8. The enzyme involved in first carboxylation of C<sub>4</sub> pathway is —

- A. PEP carboxylase
- B. Amylase
- C. Catalase
- D. ATP synthase (A)

**Explanation :** PEPcase fixes CO<sub>2</sub> in mesophyll cells.

9. In C<sub>4</sub> pathway, malic acid moves to bundle sheath cells and releases —

- A. O<sub>2</sub>
- B. CO<sub>2</sub>
- C. Nitrogen
- D. Starch (B)

**Explanation :** Decarboxylation in bundle sheath cells increases CO<sub>2</sub> concentration.

10. C<sub>4</sub> plants are more productive because —

- A. Photorespiration is absent
- B. They lack chloroplasts
- C. They do not use CO<sub>2</sub>
- D. They work only in darkness (A)

**Explanation :** High CO<sub>2</sub> near RuBisCO prevents oxygenase activity, so productivity increases.