

Chapter – 11 | PHOTOSYNTHESIS IN HIGHER PLANTS**QUIZ-01**

1. Photosynthesis is important mainly because it:

- A. Produces proteins only
- B. Is the primary source of food and oxygen
- C. Stops respiration in plants
- D. Occurs only in roots (B)

Explanation : Photosynthesis is the primary source of food on earth and releases oxygen into the atmosphere.

2. The oxygen released during photosynthesis comes from:

- A. CO₂
- B. Glucose
- C. Water
- D. Chlorophyll (C)

Explanation : Van Niel's work and later radioisotope studies proved that released oxygen comes from water, not carbon dioxide.

3. In chloroplasts, the light reactions occur in the:

- A. Stroma
- B. Thylakoid membrane
- C. Cytoplasm
- D. Nucleus (B)

Explanation : The thylakoid membrane system traps light energy and helps in ATP and NADPH synthesis.

4. The chief pigment associated with photosynthesis is:

- A. Chlorophyll a
- B. Chlorophyll b
- C. Xanthophyll
- D. Carotenoid (A)

Explanation : Chlorophyll a is the main pigment that directly participates in photosynthesis.

5. The reaction centre of Photosystem II is called:

- A. P700
- B. P680
- C. RuBP
- D. PEP (B)

Explanation : In PS II, the reaction centre chlorophyll a absorbs maximum light at 680 nm, so it is called P680.

6. Non-cyclic photophosphorylation produces:

- A. Only ATP
- B. Only NADPH
- C. ATP and NADPH
- D. Only oxygen (C)

Explanation : In non-cyclic electron flow, both ATP and NADPH + H⁺ are produced.

7. Splitting of water is associated with:

- A. Photosystem I
- B. Photosystem II
- C. Calvin cycle
- D. C₄ cycle (B)

Explanation : Water splitting occurs in association with PS II and provides electrons, protons and oxygen.

8. The primary CO₂ acceptor in the Calvin cycle is:

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

Explanation : In the Calvin cycle, CO₂ combines with ribulose-1,5-bisphosphate, commonly called RuBP.

9. The first stable product of CO₂ fixation in C₄ plants is:

- A. PGA
- B. OAA
- C. RuBP
- D. Glucose (B)

Explanation : In C₄ plants, the first CO₂ fixation product is oxaloacetic acid, a 4-carbon compound.

10. Blackman's law of limiting factors states that the rate of photosynthesis is controlled by:

- A. The factor nearest to its minimum value
- B. Only chlorophyll concentration
- C. Only oxygen concentration
- D. The factor present in maximum amount (A)

Explanation : When many factors affect photosynthesis, the factor present at sub-optimal level limits the rate.