

Class : XIth
Date :

Subject : BIOLOGY
DPP No. : 6

Topic :- Photosynthesis in Higher Plants

- I. They have special leaf anatomy
II. They tolerate high temperature
III. Lack photorespiration
IV. Greater productivity of biomass
These are the probable characters of
a) C₂-plant b) C₃-plant c) C₄-plant d) Any plant
- In which region, most of the photosynthesis takes place?
a) Red and green region b) Violet and indigo region
c) Blue and red region d) Blue and black region
- In an experiment demonstrating the evolution of oxygen in *Hydrilla*, sodium bicarbonate is added to water in the experimental set-up. What would happen if all other conditions are favorable?
a) Amount of oxygen evolved decreases as carbon dioxide in water is absorbed by sodium bicarbonate
b) Amount of oxygen evolved increases as the availability of carbon dioxide increases
c) Amount of oxygen evolved decreases as the availability of carbon dioxide increases
d) Amount of oxygen evolved increases as carbon dioxide in water is absorbed by sodium bicarbonate
- Who proposed that O₂ comes from water instead from CO₂ during photosynthesis?
a) Von Neil b) Engelmann c) Blackman d) Warburg
- Which equation is correct to prove that O₂ comes from water during photosynthesis?
a) $6\text{CO}_2^{18} + 12\text{H}_2\text{O} \rightarrow 6\text{O}_2^{18} + \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O}$
b) $6\text{CO}_2 + 12\text{H}_2\text{O}^{18} \rightarrow 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O}^{18}$
c) $6\text{CO}_2^{18} + 12\text{H}_2\text{O} \rightarrow 6\text{CO}_2^{18} + \text{C}_6\text{H}_{12}\text{O}_6$
d) $6\text{CO}_2 + 12\text{H}_2\text{O}^{18} \rightarrow 6\text{O}_2^{18} + \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O}$
- The components of PS-I are located on the
a) Stroma b) Stroma thylakoid
c) Granum thylakoid d) Outer surface of stromal and granal

thylakoid

7. Cyclic photophosphorylation occurs in
a) Stroma lamellae
b) Appressed part of grana lamellae
c) Stroma cell wall
d) Grana cell wall
8. Identify from the following, a characteristic pigment, which contains copper containing protein
a) Plastoquinone b) Ferredoxin c) Cytochrome d) Plastocyanin
9. I. The electrons that carriers photophosphorylation are located in the thylakoid membrane
II. During photophosphorylation, the chloroplast stroma becomes more acidic than the interior of thylakoid membrane
III. Protons diffuses through the protein channels which are ATP synthetase molecules
IV. ATP is formed from ADP + Pi on the stroma side of the thylakoid in the chloroplast
V. During photophosphorylation, water ionises to form H⁺, yielding electrons to PS-II
Which of the following statement are false?
a) I and II b) III and IV c) IV and V d) Only II
10. Which of the following elements is an activator for both Ribulosebisphosphate carboxylase oxygenase and phosphoenol pyruvate carboxylase in photosynthetic carbon fixation?
a) Mg²⁺ b) Zn²⁺ c) Ca²⁺ d) SO₄²⁻
11. Who experimentally proved that source of oxygen during photosynthesis is water?
a) Van Niel b) Robin Hill c) Arnon d) Emerson
12. Warburg effect is the
a) Inhibition of C₄-cycle by O₂ b) Inhibition of C₂-cycle by O₂
c) Inhibition of C₃-cycle by O₂ d) Inhibition of C₃-cycle by CO₂
13. Oxaloacetic acid changes to the malic acid by the action of
a) Oxaloacetic dehydrogenase b) Malic dehydrogenase
c) PEP dehydrogenase d) RMP dehydrogenase
14. Consider the following statements.
I. The portion of the spectrum between 300-500 nm is also referred to as Photosynthetically Active Radiation (PAR).
II. Magnesium, calcium and chloride ions play prominent roles in the photolysis of water.
III. In cyclic photophosphorylation, oxygen is not released (as there is no photolysis of water) and NADPH is also not produced.
a) I is true; but II and III are false b) I and II are false; but III is true
c) II is true; but I and III are false d) I and II are true; but III is false
15. When two photosystem (I and II) work in a series, the phosphorylation is called
a) Cyclic b) Non-cyclic c) Bicyclic d) Both (a) and (b)

16. The ATPase enzyme consists of
I. F_0 II. F_1 III. F_2
Select the correct option
a) I and III b) I and II c) Only I d) II and III
17. Chemiosmosis requires
I. a membrane
II. a proton pump
III. a proton gradient
Select the correct option
a) II and III b) I and III c) I and II d) I, II and III
18. Biosynthetic phase of photosynthesis is dependent on
I. NADPH II. NADH
III. ATP IV. $NAD^+ + H^+$
a) I and III b) IV and I c) I and VI d) IV and II
19. Kranz anatomy is the characteristics of
a) C_5 -plants b) C_3 -plants c) C_2 -plants d) C_4 -plants
20. In which type of reactions related to plant photosynthesis peroxisomes are involved?
a) Glycolate cycle b) Calvin cycle
c) Bacterial photosynthesis d) Glyoxylate cycle