

**CLASS :XI**  
**SUBJECT: BIOLOGY**

**ASSIGNMENT NO. 1**

**CHAPTER :13 PHOTOSYNTHESIS IN HIGHER PLANTS**

- Q1. Define photooxidation.
- Q2. Describe briefly experiments performed by Joseph Priestley, Jan Ingenhousz, Sachs, Englemann & Van Niel for photosynthesis.
- Q3. Describe the sectional view of chloroplasts & give the site of light & dark reaction of photosynthesis.
- Q4. What are the pigments involved in photosynthesis. Name them & give functions of accessory pigments.
- Q5. What are the differences between:- (i) Chl a & Chl b (ii) Action & absorption spectrum.
- Q6. Describe the basic characteristics of photosystems & explain how photosystem I differ from photosystem II.
- Q7. What is the role of antennae molecules in light harvesting complex?
- Q8. What are 2 steps of photosynthesis? Give the diagrammatic scheme of light reaction (z scheme).
- Q9. What is the need of photolysis of water & give the ions which play an important role in it.
- Q10. Define photophosphorylation

**ASSIGNMENT NO. 2**

**CHAPTER :13 PHOTOSYNTHESIS IN HIGHER PLANTS**

- Q1 (a) Give schematic representation of non-cyclic & cyclic photophosphorylation.  
(b) Give difference between them also.
- Q2 (a) What does chemiosmosis hypothesis explain ?  
(b) Explain chemiosmosis hypothesis with help of schematic diagram.
- Q3. Describe the biosynthetic phase of photosynthesis. How is it linked to light reaction?
- Q4. When & why does photorespiration take place in plants? How does this process result in a loss to the plants?
- Q5. Why do plants like maize & sugarcane have dimorphic chloroplasts? Explain photosynthetic cycle in such plants.
- Q6. Give differences between C3 & C4 plants.
- Q7. By looking at which internal structure of a plant can you tell whether a plant is C3 or C4?
- Q8. What is law of limiting factors? How would rate of photosynthesis be affected if soil water becomes limiting. Explain.
- Q9. Why does the rate of photosynthesis decrease at higher light intensities? What plays a protective role in such conditions?
- Q10. What is the effect of increasing CO<sub>2</sub> concentration on rate of photosynthesis of C3 & C4 plants?

### ASSIGNMENT NO. 3

#### CHAPTER :14 RESPIRATION IN PLANTS

- Q1. What is oxidative phosphorylation? Describe the structure & role of F<sub>0</sub>-F<sub>1</sub> particles in this.
- Q2. Why is stepwise release of energy useful to organisms?
- Q3. In tabular form calculate the total No. of ATP produced from one molecule of glucose during aerobic respiration.
- Q4. (a) Give schematic representation of Krebs Cycle.  
(b) What is the net gain of NADH + A<sup>+</sup> in the cycle?  
(c) What is the no. of CO<sub>2</sub> produced in it?  
(d) Give significance of TCA cycle.
- Q5. What is oxidative decarboxylation? What happens to pyruvate immediately after the reaction? Name the enzyme involved in the reaction.
- Q6. Why can plants get along without respiratory organs? Give reasons.
- Q7. Give schematic representation of electron transport chain in mitochondria & give role of complex I, II, III, IV & V.
- Q8. Give schematic representation of mechanism of aerobic respiration.
- Q9 (a) Give schematic representation of glycolysis. (b) What are its end products? (c) How many ATP & NAOH produced by it.
- Q10. Justify the statement. Respiratory pathway An amphibolic pathway.

### ASSIGNMENT NO. 4

#### CHAPTER :17 BREATHING & EXCHANGE OF GASES

- Q1. Explain two phases of aerobic respiration?
- Q2. How does exchange of gases takes place in the following organisms:-  
(a) Poriferans, coelenterates & flatworms.  
(b) Earthworms.  
(c) Arthropods  
(d) Fishes, Tadpoles of frog  
(e) Reptiles, birds & mammals
- Q4. List the steps involved in pulmonary respiration.
- Q5. How is inspiration & expiration accomplished in human beings?
- Q6. Define the following terms:- (i) Tidal volume (ii) IRV (iii) ERV (iv) Residual volume
- Q7. (a) Where is respiratory rhythm centre located?  
(b) How does pneumotaxic centre alter the respiratory rate? Where is it located in human?
- Q8.(a) What are three forms in which CO<sub>2</sub> is transported in blood? Explain.  
(b) How does CO<sub>2</sub> gets released into the alveoli. .
- Q9 (a) Name the factors that affect the rate of diffusion of gases in the lungs. (b)  
Mention the components of the diffusion membrane of human respiratory system.
- Q10(a) What percentage of O<sub>2</sub> is transported by RBCs in the blood? What happens to the remaining? (b) In what form in O<sub>2</sub> carried in the blood? What happens to this, form when blood reaches the tissues? (c) Name the factors that affect the binding of O<sub>2</sub> to haemoglobin to form oxyhaemoglobin in the tissue.

**ASSIGNMENT NO. 5**  
**CHAPTER :18 BODY FLUIDS AND CIRCULATION**

- Q1. Name the various components of blood and mention functions of each of them. Q2. What are the two types of circulation? Which is advantageous & why?
- Q3. What is the importance of lymph ? Write any 4 functions of lymph.
- Q4. With the help of diagram explain ECG and the waves that correspond to a specific electrical activity of heart.
- Q5. What is lymph? How does it differ from blood?
- Q6. Explain cascade mechanism of blood clotting.
- Q7. Give examples of animals with single, incomplete double and complete double circulation.
- Q8. Draw a diagram of external structure of human heart & label the parts.
- Q9. Explain the following:-
- (a) Auricles have thinner walls than ventricles.
  - (b) Blood flows under pressure in the arteries.
  - (c) There is a slight gap between auricular systole and ventricular systole.
  - (d) There is no back flow of blood in veins.
  - (e) SA node is called the pacemaker of heart.
  - (f) No mixing of deoxygenated & oxygenated blood in mammalian heart.
- Q10. How does blood flow through the heart during the different phases of cardiac cycle?