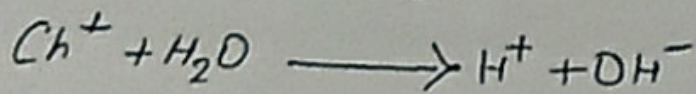
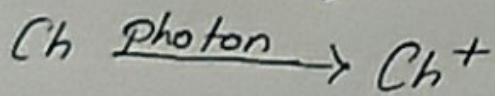


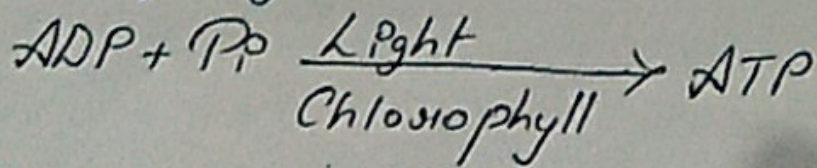
9) State the role of light in photosynthesis.

Ans- Light plays a vital role in the process of photosynthesis. They are:

(a) It initiates light phase by activating the chlorophyll molecules and influence photolysis of water indirectly.

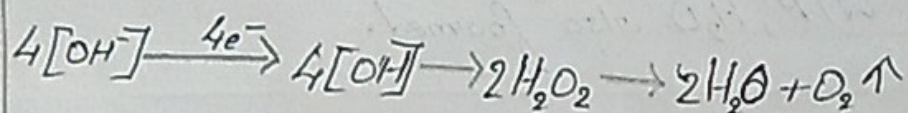


(b) It causes photophosphorylation, i.e. synthesis of ATP by addition of inorganic phosphate to ADP in presence of light.



1) What is the source of oxygen in photosynthesis?  
Show with the help of chemical reaction.

Ans - Water ( $H_2O$ ) is the source of oxygen in photosynthesis.  
After photolysis of water when  $OH^-$  liberates an electron and forms  $OH$  radical, leads to the formation of oxygen and water.



1) Define the following terms:

(a) Photophosphorylation - Synthesis of ATP in presence of light during photosynthesis by the addition of inorganic phosphate to ADP is called photophosphorylation.

(b) Absorption spectrum - The plot of efficiency with which the different pigments like chlorophyll-a and b absorb different wavelengths of light is called absorption spectrum.

(c) Photolysis of water - The phenomenon of splitting of water into hydrogen and hydroxyl ion by means of light activated chlorophyll is called photolysis of water.

(d) Action spectrum—The graph representing of the rate of biological effectiveness plotted against wavelength of light is called action spectrum.

12) Write the chemical formula of chlorophyll-a and chlorophyll-b.

Ans—The chemical formula of chlorophyll-a is  $C_{55}H_{72}O_5N_4Mg$  and of chlorophyll-b is  $C_{55}H_{70}O_6N_4Mg$ .

13) What are the end products of light reaction?

Ans—The end products of light reaction are  $NADPH_2$ ,  $O_2$  and ATP,  $H_2O$  also formed.

14) How is the balance of carbon-dioxide and oxygen maintained in atmosphere?

Ans—Oxygen used during respiration and combustion causing oxygen deficit in the atmosphere is balanced by the  $O_2$  liberated during photosynthesis by green plants.  $CO_2$  is liberated during respiration, and combustion is balanced by taking it during photosynthesis. This is how  $CO_2$ - $O_2$  balance is maintained in atmosphere.

15) Describe the structure of chloroplast.

Ans—The chloroplasts are double-membrane bound structures containing granular bodies known as grana and a ground substance of fluid nature called stroma. Each granum is made up of stack of minute bag-like structures, each of which is called

2 thylakoid. Green photosynthetic pigment is stored in high concentration called chlorophyll. They also contain other photosynthetic pigments such as orange carotene, yellow xanthophyll etc.

16) Why photosynthesis is also called carbon-assimilation?

Ans- Carbon fixation or carbon assimilation is the conversion process of inorganic carbon to organic compounds by living organisms. As plants convert inorganic  $\text{CO}_2$  into organic glucose by means of photosynthesis. Therefore, photosynthesis is also called carbon-assimilation.