**PHOTOPHOSPHORYLATION** 1. As the water splits into H+ and OH- ions, the H+ ion is accepted by NADP and reduced into NADPH**2**. 2. The formation of ATP takes place due to the combination of ADP and ip with the help of light and chlorophyll. 3. Arnon called this kind of phosphorylation as photophosphorylation. 4. It is of two types :- A. Cyclic photophosphorylation B. Non – cyclic photophosphorylation

**A. Cyclic photophosphorylation** :- 1. In this type of photophosphorylation only PS – I is involved. 2. The electron used here do not come from water i.e water is not photo – oxidised and O**2** is not invoved in the process. 3. The excited electron of PS – I flows to FD. 4. The FD is unable to pass electron to NADP, and the electron comes back to PQ or Cyt.b6, which inturn pass the electron back to PS – I, via Cyt.f and PC. 5. This process was called Cyclic photophosphorylation. 6. In the Cyclic photophosphorylation, there are two possible sites of photophosphorylation, where a ATP can be formed. 7. One between FD and Cyt.b6 or PQ and the other between Cyt.b6 and Cyt.f. **B. Non – cyclic photophosphorylation** :- 1. In this type of photophosphorylation PS – I and PS – II both are involved. 2. Here the electron released by photolysis of water are accepted by PS – II. 3. This electron flows from PS – II to PS – I through electron transport chain. 4. In PS – I this electron is again excited by light energy which flows to FD. 5. Here the flow of electron is unidirectional. 6. In the presence of FMN/FAD the electron is transferred to reduce NADP. 7. The NADP accepts the H+ ion and forms NADPH**2**.

Fig :-Z – scheme