PAPER - II (200)
PART - 1 (H)
DATE - 27-04-20

ATP

→ The Principle of conservation of energy is one of the most important facts of science.
→ It states that energy is neither created nor destroyed but can be transform from one form to other.
→ All the activities of the life of Organism need energy.
→ Chemical energy is the most suitable form of energy for the living system because it can be easily transferred, transformed and stored.

→ The ATP molecules produced as a result of cellular respiration accumulate in the mitochondria.
→ The mitochondria collects at sites where energy required is high. As a result of membrane contraction and increase internal hydrostatic pressure of the mitochondrion. Water and ATP are squeezed out.

→ ATP is considered as the energy currency or cell fuel.
→ One of the nucleotides rich in phosphate bonds in Adenosine triphosphate (ATP) which plays an important role in providing chemical energy for the activities of the cell.
→ Its function of storage and supply of energy was first describe by "Fritz Lipmann" in 1941 who was awarded by Nobel prize.

→ ATP consist of nitrogenous base, Adenine linked to the five carbon sugar, Ribose.
→ A string of 3 phosphate molecule is linked to the sugar molecule.

→ A phosphate group has one atom of phosphate and three of oxygen.
→ The energy is available by the splitting of ATP into ADP (Adenosine diphosphate), inorganic phosphate and Energy.

$$ATP \rightleftharpoons ADP + P + Energy\ (7000\ cal).$$

The released energy can be measured as heat energy.

→ The cell regain ATP by combining of ADP with one phosphate group.
→ Energy req. for the formation of ATP is obtained by the breaking down of organic compounds such as sugar, fats or amino acids within the cells. mainly by Oxidation of glucose molecules.

→ Energy rich molecules do not pass freely from cell to cell but are formed at the site.
→ Energy rich bonds of ATP are responsible for the reactions of muscles contractions in muscle cells.
→ When the contraction of muscle takes place the required energy is obtained from the energy rich phosphate of ATP to produce ADP and energy
→ The ADP serves as an acceptor of oxidation.

Functions:-

It has mainly two functions:

i) storage of energy.
ii) Supply energy.

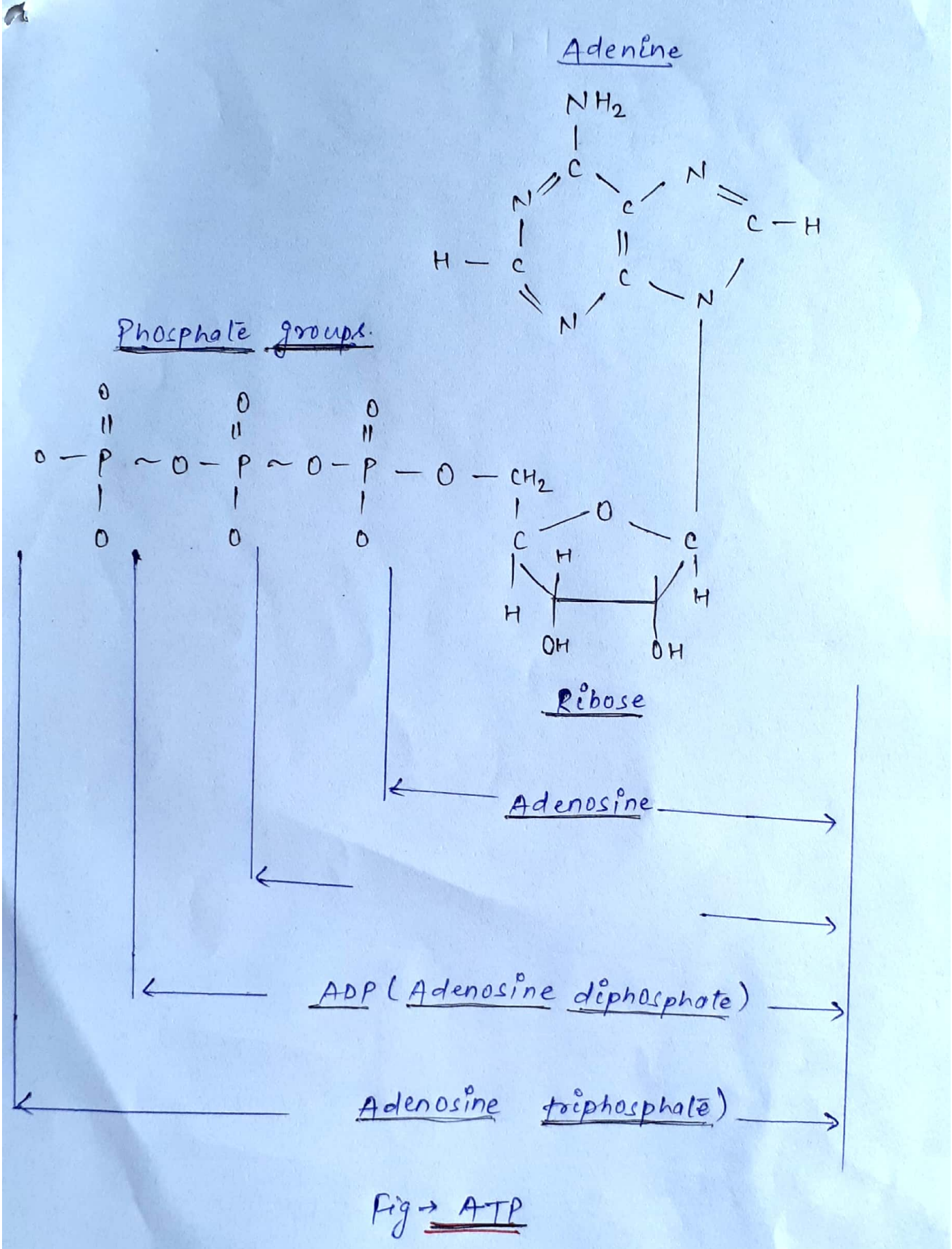

Fig → ATP