

Topic: Lipid (Structure & Classification)

Class: B.Sc Part –III (Hons.)

Paper- V

Group – A

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- **Phospholipids**
- Membranes are primarily composed of phospholipids that are Phosphoacylglycerols.
- Triacylglycerols and phosphoacylglycerols are the same, but, the terminal OH group of the phosphoacylglycerol is esterified with phosphoric acid in place of fatty acid which results in the formation of phosphatidic acid.
- The name phospholipid is derived from the fact that phosphoacylglycerols are lipids containing a phosphate group.

- **Steroids**
- Our bodies possess chemical messengers known as hormones, that are basically organic compounds synthesized in glands
- And transported by the bloodstream to various tissues in order to trigger or hinder the desired process.
- Steroids are a kind of hormone that is typically recognized by their tetracyclic skeleton, composed of three fused six- membered and one five - membered ring, as seen above.
- The four rings are assigned as A, B, C & D as observed in the shade blue, while the numbers in red indicate the carbons.

- **Cholesterol**

- Cholesterol is a wax-like substance, found only in animal source foods.
- Triglycerides, LDL, HDL, VLDL are different types of cholesterol found in the blood cells.
- Cholesterol is an important lipid found in the cell membrane.
- It is a sterol, which means that cholesterol is a combination of steroid and alcohol.
- In the human body, cholesterol is synthesized in the liver.
- These compounds are biosynthesized by all living cells and are essential for the structural component of the cell membrane.

- In the cell membrane, the steroid ring structure of cholesterol provides a rigid hydrophobic structure that helps boost the rigidity of the cell membrane.
- Without cholesterol, the cell membrane would be too fluid.
- It is an important component of cell membranes and is also the basis for the synthesis of other steroids,
- including the sex hormones estradiol and testosterone, as well as other steroids such as cortisone and vitamin D.

- Examples of Lipids
- There are different types of lipids.
- Some examples of lipids **include butter, ghee, vegetable oil, cheese, cholesterol and other steroids, waxes, phospholipids, and fat-soluble vitamins.**
- All these compounds have similar features, i.e. insoluble in water and soluble in organic solvents.