Definition of Lipids: Lipids are a diverse group of hydrophobic organic molecules primarily composed of carbon, hydrogen, and oxygen. They are insoluble in water but soluble in organic solvents. Lipids play crucial roles in biological systems.

Functions of Lipids:

1. Energy Storage: Lipids store energy in the form of fats, providing a concentrated energy source.

2. Structural Components: They are essential in forming cell membranes (phospholipids and cholesterol) and maintaining their integrity.

3. Insulation and Protection: Lipids provide insulation for body organs and help in regulating temperature.

4. Signaling Molecules: Certain lipids act as hormones and signaling molecules, influencing various physiological processes.

5. Nutrient Absorption: Lipids facilitate the absorption of fat-soluble vitamins (A, D, E, K).

Types of Lipids:

1. Triglycerides: Composed of glycerol and three fatty acids; main form of stored energy.

2. Phospholipids: Consist of two fatty acids, glycerol, and a phosphate group; crucial for cell membranes.

3. Sterols: A type of steroid, such as cholesterol, involved in membrane structure and signaling.

4. Waxes: Long-chain fatty acids esterified to long-chain alcohols; provide protection and waterproofing.

5. Fatty Acids: Carboxylic acids with long hydrocarbon chains; can be saturated or unsaturated.

Each type of lipid plays a distinct role in maintaining cellular functions and overall health.