

### **COURSE OBJECTIVES**

To enable students to –

- Learn qualitative analysis of monosaccharides and disaccharides
- Prepare buffers as per the need of the experiment
- Analyse amino acids and lipids Qualitatively
- Analyse protein sample by various methods
- Determine amino acid and protein composition of samples quantitatively

### **COURSE OUTCOMES**

Student will be able to-

- Prepare buffers selectively as per the need of the experiment or biomolecule
- Differentiate carbohydrate by using qualitative tests
- Establish methods to differentiate various amino acids
- Analyse the quality of a given oil
- Develop absorption spectra for proteins and DNA and quantitate them

### **List of Experiments**

1. Preparation of buffers (acidic, neutral, and alkaline) and determination of pH.
2. Qualitative identification of carbohydrates- glucose, fructose, ribose/xylose, maltose, sucrose, lactose, starch/glycogen.
3. Qualitative identification of amino acids- histidine, tyrosine, tryptophan, cysteine, arginine.
4. Qualitative identification of lipids- solubility, saponification, acrolein test, Salkowski test, Lieberman-Burchard test.
5. Preparation of Osazones and their identification
6. Estimation of proteins in biological samples:
  - a. Biuret method.
  - b. Folin-Lowry method.
  - c. UV method.
  - d. Bradford's dye binding method
7. Estimation of amino acid by Ninhydrin method.
8. Estimation of tyrosine by Million's –reaction

### **Recommended Books**

1. Fundamentals of Biochemistry –Jain, J.L., Jain, S., Jain, N. S. Chand & Co.
2. Biochemistry – Satyanarayana. U and Chakrapani. U, Books & Allied Pvt. Lt
3. Nelson.D.L. and Cox.M..M -Lehninger's Principles of Biochemistry- Freeman & Co.- 7 th Edition