

2.9 40130 BIO-PHYSICAL TECHNIQUES

UNIT-1 INTRODUCTION TO BIO INSTRUMENTS

- 1.1 Introduction, definition and importance,
- 1.2 Elements of analytical instruments,
- 1.3 Electrical quantities & units

UNIT-2 INTRODUCTION TO ANALYTICAL INSTRUMENTS

- 2.1 pH meter,
- 2.2 Colorimeters & Spectrophotometers,
- 3.3 Fluorescence Methodology

UNIT-3 CENTRIFUGATION

- 3.1 Introduction, Principle of Centrifugation, RCF,
- 3.2 Factors affecting Sedimentation,
- 3.3 Types of Centrifuge, Industrial centrifuges, Types of Rotors,
- 3.4 Preparative centrifuge,
- 3.5 Applications in separation of Biomolecules using preparative and analytical centrifugation

UNIT-4 CHROMATOGRAPHY

- 4.1 Introduction, definition and Principle of chromatographic techniques,
- 4.2 Classification of chromatographic techniques, Column Chromatography -
- 4.3 Principle, components, Detection,
- 4.4 Examples of natural and commercially available stationary phase and
- 4.5 mobile phase and Applications

UNIT-5 ELECTROPHORESIS

- 5.1 Introduction to electrophoresis, Principle of electrophoresis,
- 5.2 factors effecting electrophoresis, Methods of electrophoresis,
- 5.3 Agarose gel electrophoresis, Polyacryl amide electrophoresis,
- 5.4 SDS- PAGE, Isoelectric focusing electrophoresis and isoelectric focusing gels

Reference Books:

1. Biophysical Chemistry by Upadhyay and Upadhyay
2. Handbook of Analytical Instruments by RS Khandpur
3. Principles and Techniques in Biochemistry and Molecular Biology by K. Wilson and J. Walker
4. Bio separations by Belter PA and Cussier E .Wiley 1985
5. Separation processes in Biotechnology by Asenj
6. Bio separations by Shivshankar