

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
VII SEMESTER BIOTECHNOLOGY TIME: 2 Hrs/ Week
BTH 7752 (2) **BIOPHYSICAL AND BIOCHEMICAL TECHNIQUES**
(Core course)

W.e.f 20AH Batch

Max. Marks: 50

OBJECTIVES: To enable the students to

1. Separation of amino acids by paper Chromatography
2. Measurement of pH of a biological fluid
3. Isolation and spectrophotometric characterization of plant pigments.
4. Isolation of mitochondria density gradient centrifugation

COURSE OUTCOMES: Students will

- **CO1:** Be able to list out different types of nurseries and beds
- **CO2:** Identify the nursery tools, implements and containers.
- **CO3:** Develop skill on potting media preparation and plant production
- **CO4:** Learn the technique of establishing cutting, layering, grafting etc.

PRACTICAL COURSE:

1. Separation of amino acids by Paper Chromatography.
2. Separation of sugars by TLC.
3. Measurement of pH of a biological fluid using pH meter.
4. Absorption spectra of phenol red, amino acids and nucleic acid.
5. Verification of Beer's law and determination of molar extinction coefficient using p-nitro phenol.
6. Isolation and spectrophotometric characterization of plant pigments.
7. Isolation of Mitochondria from Rat liver by density gradient centrifugation (Demonstration).
8. Viscosity measurement of Bovine serum albumin.
9. Measurement of inversion of sucrose by Polarimetry.
10. Measurement of refractive index of Biological sample.

REFERENCES

1. D. Holme & H. Peck, Analytical Biochemistry, 3rd Edition, Longman, 1998.
2. Freifelder D., Physical Biochemistry, Application to Biochemistry and Molecular Biology, 2nd Edition, W.H. Freeman & Company, San Francisco, 1982.
3. Keith Wilson and John Walker, Principles and Techniques of Practical Biochemistry, 5th Edition, Cambridge University Press, 2000.
4. Biophysical chemistry principles and techniques by Upadyay, Upadyay and Nath (Himalaya publishing).