S. No. of Question paper	:
Unique paper code	: 32167503
Name of the Paper	: Analytical Techniques in Plant Sciences
Name of the Course	: B.Sc. (H) Botany: DSE-I
Semester	: V

Duration: 3 Hours+ 1hour

Maximum Marks: 75

(Write Your University Roll Number on top of the Answer Sheet)

Attempt *four* questions in all. All questions carry equal marks.

Attempt all parts of the questions together. Illustrate the answers wherever required

Q1. Explain the basic principle of microscopy. Using ray diagram explain the principle and working of phase contrast microscopy. Enumerate its advantages over conventional light microscopy. (5+10.75+3=18.75)

Q2. Explain the principle, working and applications of Southern Blotting. How is it different from Northern and Western blotting? (12.75+6=**18.75**)

Q3. Explain the principle of chromatography. What is solvent front and retention factor in chromatography? Explain what does it mean when retention factor is one or zero. Write down the principle, application and limitations of Thin Layer Chromatography.

(5+2+2+9.75=**18.75**)

Q4. What are radioisotopes? Give an account of different types of radiations emitted by radioisotopes. List the uses of radioisotopes in biological research. Briefly explain autoradiography. (2+6+4+6.75=18.75)

Q5. What do you understand by chromosome banding? Give a detailed account of its types. Add a note on how chromosome painting is different from chromosome banding.

(3+12.75+3=**18.75**)

Q6. Explain centrifugation with its principle. Describe different types of centrifugation techniques. Comment on the role of marker enzymes in this technique.

(4+9.75+ 5=**18.75**)