

**Parvatibai Chowgule College of Arts and Science
Autonomous**

BSc Semester End Examination, January/February 2022

Semester: III

Subject: Botany

Title: Techniques and instrumentation in Botany (Elective)

Duration: 2 Hours

Max. Marks: 45

Instructions:

- Figures to the right indicate marks for the questions.
- Draw diagrams wherever necessary.

Q.1) Answer ANY THREE the following: **(09)**

1. Comment on the types of fluorescence.
2. Give the applications of Real Time PCR.
3. State the types of centrifuges.
4. Write a short note on Beer- Lambert's Law.

Q.2) Answer ANY TWO of the following. **(12)**

1. Give the diagrammatic view of GM counter.
2. State the principle and applications of Column chromatography.
3. Differentiate between Affinity and Ion Exchange Chromatography.
4. Compare and contrast between Scanning electron microscope and Transmission electron microscope.

Q.3) Answer ANY TWO of the following. **(12)**

1. What do you mean by 2D Electrophoresis? Explain its basis of separation.
2. Explain the working of Mass Spectrophotometer giving examples.
3. Comment on digital photography.

Q.4) Answer ANY ONE of the following. **(12)**

1. a) How would you differentiate between the working principle of HPLC and GC?
(06)
- b) Explain the various steps involved in sample preparation for Transmission Electron Microscope. (06)

OR

1. x) Mention the technique used to determine concentration of alkali and alkaline earth metals. Explain the process of the technique. (06)
- y) Write a note on factors affecting sedimentation coefficient. (06)