



Seat No. _____

HQ-003-1142004

M. Sc. (Botany) (Sem. II) (CBCS) (W.E.F. 2016) Examination

April - 2023

BOT - 210 : Analytical Techniques

Faculty Code : 003

Subject Code : 1142004

Time : $2\frac{1}{2}$ / Total Marks : 70

Instruction : All questions are compulsory and carry equal marks

1 Answer any seven from the following questions : **7×2=14**

- a. What is fixation? Explain tissue fixation.
- b. Write down the differences between TEM and SEM.
- c. What are the basic factors which can affect the tissue fixation?
- d. Give characteristics of electromagnetic radiation:
- e. Explain Planck's Quantum theory
- f. Explain the principle of ion exchange chromatography for protein.
- g. Explain the principle of Size exclusive chromatography.
- h. What is Affinity chromatography? How it is work?
- i. Write the name of anion and cation exchangers.
- j. What is PI? Write its significance.

2 Write notes on any two from the following : **2×7=14**

- a. Advantages and disadvantages of TEM
- b. Confocal fluorescence microscope
- c. Phase contrast microscope

- 3 Answer the followings : **2×7=14**
- a. Explain use of Electromagnetic radiation in spectroscopy.
 - b. Explain infrared spectroscopy in detail. 4R

OR

- 3 Answer the followings : **2×7=14**
- a. What is nuclear magnetic resonance? Explain in detail.
 - b. Give significance of UV-Visible spectrophotometer.

- 4 Write short notes on the followings: **2×7=14**
- a. Basic principle of chromatography
 - b. Principle and advantages of HPLC

- 5 Write the short on any two: **2×7=14**
- a. Western blotting technique and its applications
 - b. Isoelectric focusing
 - c. 2D electrophoresis and its applications
 - d. Density Gradient centrifugation.
