647510 **Msc2BotI0110** **Seat No :_____**

M.Sc. (Botany) Semester - 2 (*CBCS*) Examination
March/April -2019 (Old Course)
ANALYTICAL TECHNIQUES (INTER DISCIPLINARY)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q .1 Answer the following (any <u>seven</u> out of ten, each of two marks) **14**

1. Define any one staining techniques in brief.
2. Enlist any four fluorescence dye and describe its uses.
3. What is Raman effect?
4. Define gel electrophoresis.
5. Draw the light path of fluorescent microscope.
6. Draw the labelled diagram of TEM.
7. Write the component of GC-MS.
8. Define SDS-PAGE in brief.
9. Write importance and application of 2D PAGE.
10. What is Beer-Lambert Law?
11. Write about Mass spectroscopy.

Q. 2 Answer the following (any <u>two</u> out of three, each of seven marks) **14**

1. Describe the type of staining techniques.
2. Write a note on Electron microscopy and its type.
3. Discuss Phase contrast microscopy with suitable diagram.

Q.3 Answer the following **14**

1. Write basic principle and types of chromatography **[5]**
2. What is HPLC? Explain its principle and application. **[5]**
3. Write a note on affinity chromatography and its uses in molecule separation. **[4]**

OR

Q. 3 Answer the following (each of seven marks) **14**

1. Explain LC-MS/MS.
2. Write about ion exchange chromatography.

Q.4(A)Answer the following (any <u>two</u> out of three, each of five marks) **10**

1. What is Spectroscopy? Explain Mass Spectroscopy.
2. Explain principle and application of UV-Vis Spectroscopy.
3. Describe the principle and application of Infrared Spectroscopy.

Q.4 (B)Answer the following (any <u>One</u> out of two) **04**

1. Write a note on circular dichroisms.
2. What is XRD? Explain its role in structure elucidation.

Q.5Answer the following (any <u>two</u> out of four, each of seven marks) **14**

1. Write a note on types of centrifuge.
2. Describe Northern Blotting techniques.
3. Explain isoelectric focusing.
4. Describe the basic principle of electrophoresis.

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