647510 MSC2MAtI101x Seat No :_____

M.Sc. (Micro) Semester - 2 (*CBCS*) Examination

March/April– 2019 (New Course)

Analytical Techniques (Multidisciplinary / Interdisciplinary)(INTERDISCIPLINARY)

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. What is NMR? Explain its significance in structure elucidation.
2. Enlist the application of phase contrast microscope.
3. What is autoradiography?
4. Explain the term staking and separating in gel electrophoresis techniques.
5. What is Ampholytes? Explain its uses.
6. What is tissue fixation?
7. Explain advantage and disadvantage of SEM.
8. What is Photo bleaching?
9. Explain centrifugal force.
10. Define affinity chromatography.

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

1. Write a note on fluorescence microscopy.
2. Discuss the principle and application of transmission electron microscopy.
3. Explain Autoradiography and its application.

Q.3 Answer the following **14**

1. Write a note on High Pressure Liquid Chromatography. **[5]**
2. Explain Principle and application of affinity chromatography. **[5]**
3. Write a note on size exclusion chromatography. **[4]**

OR

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

1. Discuss the basic principle and application of GC-MS with labelled diagram.
2. Describe the principle and application of Ion Exchange chromatography.

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

1. Describe the Raman spectroscopy.
2. Explain Infrared spectroscopy with application.
3. What is Beer-Lambert Law? Describe the principle and application.

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

1. Describe the UV-Vis spectroscopy with labelled diagram.
2. What is Mass Spectroscopy? Explain in detail.

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

1. Write a note on 2D gel electrophoresis
2. Describe Protein Blotting
3. Explain Native And SDS-PAGE in detail
4. Discuss agarose gel electrophoresis

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