

M.Sc. (Botany) Semester - 2 (CBCS) Examination
August/September -2020 [NEW COURSE]
Analytical Techniques (INTDESC)

Time: 2:00 Hours**Marks: 56****Instructions:**

1. Figure to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any four of the following questions.
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Q .1 Answer the following (any seven out of ten, each of **two** marks) **14**

1. Explain the Jablonski diagram.
2. What is importance of phase contrast microscopy?
3. What is NMR? Explain its uses in biology.
4. Define beer and lambert law.
5. What do you mean by native electrophoresis?
6. Enlist the composition of resolving gel.
7. What is isoelectric focusing?
8. Explain the contribution of George G. Stokes.
9. Explain the importance of mass spectroscopy.
10. Draw the light path of SEM.

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

1. Explain transmission electron microscopy with labelled diagram.
2. What is autoradiography? discuss in detail.
3. Discuss the principle and sample preparation of fluorescence microscopy.

Q.3 Answer the following **14**

1. Describe size exclusion chromatography. [5]
2. Explain types of chromatography techniques used in separation of biomolecules. [5]
3. Write short note on FPLC. [4]

OR

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

1. Discuss in detail GC-MS with working diagram.
2. What is HPLC? Explain principle, operation procedure and application of it.

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

1. Explain UV-vis spectroscopy.
2. Describe the vibrational spectroscopy.

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

1. Write a note on Raman spectroscopy.
2. Explain principle and application of CD spectroscopy.

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

1. Explain Southern Blotting techniques with suitable diagram.
2. Discuss the basic principle and application of agarose gel electrophoresis.
3. Write a note on 2D-PAGE.
4. Discuss western blotting techniques.
