CBCS SCHEME

USN | | | | | | | | | | |

20BBC/BBT15

First Semester M.Tech. Degree Examination, Jan./Feb.2021
Bio-Analytical Techniques

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Explain the detection devices in UV-Visible spectrophotometry. **(12 Marks)**

b. Explain principle and working instrumentation of Fourier transformed Infrared Spectrometry (FTIR). **(08 Marks)**

OR

2 a. Explain the principal of Raman effect and mention the instrumentation and application of Raman Spectroscopy. **(12 Marks)**

b. State and derive Beer-Lamberts law for absorption of light. **(08 Marks)**

Module-2

3 a. Explain the factors involved in chemical shift and coupling constants in NMR spectroscopy. **(12 Marks)**

b. Explain the basic instrumentation and technique of 2DNMR. **(08 Marks)**

OR

4 a. Write difference between 1HNMR and 13CNMR. **(08 Marks)**

b. Write principle and application of FT-NMR. **(08 Marks)**

c. Write short note on NMDR. **(04 Marks)**

Module-3

5 a. Explain the principle, instrumentation and mechanism of chemical ionization mass spectroscopy (CIMS). **(10 Marks)**

b. Explain how the separation of molecular hoppen in LCMS. **(10 Marks)**

OR

6 a. Explain principle, instrumentation and application of MALDI. **(10 Marks)**

b. Elaborate on Field ionization mass spectrometry (FIMS) and Fort atom bombardment MS (FAB MS). **(10 Marks)**

Module-4

7 a. Explain principle and instrumentation for measuring optical Rotatory dispersion. **(10 Marks)**

b. Write short note on:

(i) Octate rule. (ii) Cotton Effect. **(10 Marks)**

OR

8 a. Explain the principle and instrumentation of C.D. (Circular dichroirm). **(08 Marks)**

b. Explain fibre diffraction and Neutron diffraction? Write their application. **(12 Marks)**

Module-5

9 a. Explain principle of affinity chromatography. How ligand selection and ligand attachment performed in affinity chromatography? **(10 Marks)**

b. Explain principle and steps in HPTLC and write its application. **(10 Marks)**

OR

10 a. Explain the principle and instrumentation of LCMS and write its application. **(10 Marks)**

b. Explain the detectors used in Gas chromatography. **(10 Marks)**

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