CBCS SCHEME

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18BT55

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022
Bioanalytical Techniques

Time: 3 hrs. Max. Marks: 100

Note: **1.** ***Answer any FIVE full questions, choosing ONE full question from each module.***
2. ***Draw neatly labeled figures wherever necessary.***

Module-1

1 a. What is extraction? Add a note on methods of extraction. **(10 Marks)**
b. In detail, explain the working, principle and instrumentation of capillary electrophoresis. **(10 Marks)**

OR

2 a. Write a detailed note on hydrophobic interaction chromatography. **(10 Marks)**
b. Elaborate on pseudoaffinity chromatography. **(10 Marks)**

Module-2

3 a. Describe the solvent delivery system used in HPLC. **(10 Marks)**
b. Discuss the plate theory of chromatography. **(10 Marks)**

OR

4 a. Explain the instrumentation and working of a gas chromatography with a neat lebelled diagram. **(10 Marks)**
b. Write a note on cell fractionation. **(10 Marks)**

Module-3

5 a. Discuss the principle, instrumentation and working of a uv-visible spectroscopy. **(10 Marks)**
b. Discuss in detail Raman spectroscopy with a neat labelled sketch. **(10 Marks)**

OR

6 a. With a neat labelled sketch, explain the theory and instrumentation of mass spectroscopy. **(10 Marks)**
b. Write a detailed note on chemical shifts in NMR. **(10 Marks)**

Module-4

7 a. Briefly explain various types of mass analyzers used in spectrometry. **(10 Marks)**
b. Explain x-ray crystallography with a neat labelled sketch. **(10 Marks)**

OR

8 a. Explain phase problem. Add a note on different methods to solve phase problem. **(10 Marks)**
b. Elaborate on electron neutron diffraction. **(10 Marks)**

Module-5

9 a. Write a detailed note on SEM with a neat labelled figure. **(10 Marks)**
b. What is energy-dispersive x-ray spectroscopy? Explain. **(10 Marks)**

OR

10 a. With a neat labelled sketch, explain differential scanning calorimeter. **(10 Marks)**
b. Discuss the principle, instrumentation and working of transmission electron microscopy with a neat labelled schematic diagram. **(10 Marks)**

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