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B. TECH
(SEM-V) THEORY EXAMINATION 2020-21
MODERN ANALYTICAL TECHNIQUES

*Time: 3 Hours**Total Marks: 100***Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION-A

1. Attempt all questions in brief:-**10 x 2 = 20**

- a. What do you mean by separation techniques?
- b. Define Ultrafiltration?
- c. Define the process of electrophoresis?
- d. Explain SDS-PAGE in brief?
- e. Define spectroscopy?
- f. Define SDS?
- g. Give the basic explanation of Centrifugation?
- h. Define basics of X-Ray diffraction analysis?
- i. What do you mean by sedimentation?
- j. Define membrane separation?

SECTION-B

2. Attempt any three parts of the following: -**10 x 3 = 30**

- a. Explain the process of HPLC in details?
- b. Briefly describes The Pulse field gel electrophoresis in details?
- c. Discuss about the Electromagnetic radiation and spectrum in details?
- d. Explain Preparative and Analytical centrifugation?
- e. Explain Ion exchange Chromatography?

SECTION-C

3. Attempt any two of the following: -**5 x 2 = 10**

- a. Give the details about Gel filtration chromatography?
- b. Briefly discuss about Agarose electrophoresis of Nucleic acid?
- c. Describes the basic principle and working of NMR?

4. Attempt any one part of the following: -**10 x 1 = 10**

- a. Explain Gas liquid Chromatography in brief?
- b. Briefly discuss about the Atomic absorption and Atomic emission Spectroscopy?

5. Attempt any one part of the following:-**10 x 1 = 10**

- a. Discuss about the UV-Vis spectrophotometer in details?
- b. Explain the principle, instrumentation and applications of IR spectroscopy?

6. Attempt any one part of the following: -**10 x 1 = 10**

- a. Explain Affinity chromatography in details?
- b. Write down the basic process of western blotting?

7. Attempt any one part of the following: -**10 x 1 = 10**

- a. What is the working principle of Circular Dichroism?
- b. Explain the density gradient centrifugation in details?