

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

18CH731

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023

Electrochemical Technology

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define and explain the Faraday's laws. (10 Marks)
- b. Explain the mechanism of conduction in solids and liquids. (10 Marks)

OR

- 2 a. Compare the mechanism of conduction in metals and semiconductors. (10 Marks)
- b. Explain the concept of Reversible electrodes and extend their types. (10 Marks)

Module-2

- 3 a. Define over potential and explain the types of over potential. (10 Marks)
- b. Construct the derivation of Butler-Volmer equation. (10 Marks)

OR

- 4 a. Explain about the polarization and its significance. (10 Marks)
- b. Explain about the electrical double layer with suitable model. (10 Marks)

Module-3

- 5 a. Develop the construction and working, principle of potentiometric estimation. (10 Marks)
- b. Define Ion selective electrode and explain the construction and working of glass membrane electrode. (10 Marks)

OR

- 6 a. Determine the pH of a test solution by using Ion Selective Electrode (ISE) of glass electrode. (10 Marks)
- b. Define polarography and explain about the working principle of polarography. (10 Marks)

Module-4

- 7 a. Define electrodeposition and explain about the electrodeposition of metal with suitable example. (10 Marks)
- b. Explain the process of electrodeposition of alloy with a suitable example. (10 Marks)

OR

- 8 a. Define fuel cell and outline the primary and secondary fuel cells with suitable example. (10 Marks)
- b. Explain the construction and working model of a fuel cell. (10 Marks)

Module-5

- 9 a. Define electrowinning and explain working model and principle for extraction of metal. (10 Marks)
- b. Explain the features of electro-organic and electro-inorganic synthesis. (10 Marks)

OR

- 10 a. Explain about Bio-electrochemistry. (10 Marks)
- b. Outline the environmental electrochemistry. (10 Marks)

* * * * *