

Enrollment No: _____

Exam Seat No: _____

C. U. SHAH UNIVERSITY

Summer Examination 2020

Subject Name : Electroanalytical Techniques

Subject Code : 5SC03ETC1

Branch: M.Sc. (Chemistry)

Semester :3

Date : 29/02/2020

Time : 02:30 To 05:30

Marks 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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SECTION – I

- Q-1 Attempt the Following questions (07)
- a. Define Electroanalytical techniques 01
 - b. State Faraday's first law. 01
 - c. Define Biosensors 01
 - d. Define Conductometry 01
 - e. Give the applications of electric double layer. 01
 - f. Define Voltammetry 01
 - g. How many electrodes are used in voltammetric instruments? 01
- Q-2 Attempt all questions (14)
- a. Discuss the electroanalytical techniques. 07
 - b. Write a note on electrocapillary. 07
- OR
- Q-2 Attempt all questions (14)
- a. Give short note on Diffusion transport. 07
 - b. Explain electric double layer. 07
- Q-3 Attempt all questions (14)
- a. Discuss the instrumentation of voltammetry. 07
 - b. Write a note on differential pulse voltammetry. 07
- OR
- Q-3 Attempt all questions (14)
- a. Explain polarography with DME. 07
 - b. Discuss the Cyclic voltammetry. 07



SECTION – II

- Q-4 Attempt the Following questions (07)
- a. Give any five types of electrogravimetry. 01
 - b. Draw only the labeled diagram of electrochemical cell. 02
 - c. What is DME? 01
 - d. Write Nernst Equation. 01
 - e. Define electrolysis 01
 - f. What is coulometric analysis? 01

- Q-5 Attempt all questions (14)
- a. Discuss in detail the coulometric analysis. 07
 - b. Explain the electrolysis in galvanic and non galvanic cell. 07

OR

- Q-5 Attempt all questions (14)
- a. Explain the electrolysis at constant current. 07
 - b. Explain why the electrodeposition at controlled potential selective method? 07

- Q-6 Attempt all questions (14)
- a. Explain the potentiometric biosensors with examples. 07
 - b. Discuss the amperometric sensors. 07

OR

- Q-6 Attempt all Questions (14)
- a. Explain the second generation mediator based biosensors. 07
 - b. Explain the applications of field effect transistors sensors. 07

