Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI- EXAMINATION - SUMMER 2016

Subject Code: 162105 Date:11/05/2016 Subject Name: Electrometallurgy & Corrosion Time: 10:30 AM to 01:00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 0.1 "Corrosion is reverse of extractive metallurgy" Discuss. Give the importance of **07** (a) corrosion study" Define polarization. Enlist type of polarization. Discuss about activation **(b) 07** polarization. **Q.2** Briefly define following. **07** (a) 1. Current density 3. Faraday's Law 4. Cathode 2. Anode Define the corrosion rate. Explain Tafel extraplotation method. **(b) 07** OR Enlist types of corrosion. Explain erosion corrosion and hydrogen damage. **(b)** 07 **Q.3** (a) Explain inter granular corrosion. Discuss preventing methods. 07 With suitable example explain pitting corrosion mechanism. **(b)** 07 What is galvanic series? Discuss its applicability and limitations in corrosion **Q.3** 07 (a) studies. Compare it with E.M.F. series. Describe the significance of high temperature corrosion study. Discuss Piling-**(b) 07** Bedworth ratio and its applications Discussed on Anodic and Cathodic protection with example. **Q.4** (a) 07 What do you mean by S.C.C.? Explain factors affecting on S.C.C. 07 **(b) Q.4** How material selection and design plays important role in corrosion prevention? **07** (a) Enlist corrosion testing methods. Explain any two. **(b)** 07 **Q.5** Briefly explain electrodeposition and electroplating with suitable examples. 07 (a) Differentiate Anodizing and Galvanizing. **(b)** 07 Explain role of inhibitors in corrosion protection. **Q.5** (a) 07 Draw Pourbaix Diagram for Fe-H₂O system. Write the objectives and 07 **(b)** limitations.

Best of luck