

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 162105**Date: 24/10/2016****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.

- Q.1** (a) Describe electroplating of copper. Explain factors affecting electrodeposition. **07**
(b) Explain Galvanizing Process. Give advantage & application of Galvanizing. **07**
- Q.2** (a) List factors affecting corrosion. Explain the effect of moisture and atmospheric gases on corrosion rate. **07**
(b) Explain the use of Tafel plot in corrosion rate measurement. **07**
- OR**
- (b) Explain how material selection is helpful to combat corrosion in high temperature service conditions. **07**
- Q.3** (a) Explain exchange current density. Relate it with Faraday's Law? List factors affecting. **07**
(b) Discuss the thermodynamic principle of corrosion. Justify the requirement of reference electrode for corrosion study. **07**
- OR**
- Q.3** (a) Define polarization. Enlist different types of polarization. Discuss about activation polarization. **07**
(b) What is e.m.f. series? Discuss its applicability and limitations in corrosion studies. **07**
- Q.4** (a) Discuss causes, mechanism and way of prevention of galvanic corrosion. **07**
(b) Explain mechanism of inter granular corrosion in stainless steel. Describe methods to prevent it in stainless steel. **07**
- OR**
- Q.4** (a) Write a short note on dezincification. **07**
(b) What is corrosion? Discuss the importance of study the corrosion behavior of metals and alloys. **07**
- Q.5** (a) Enlist different methods of corrosion prevention. Write a note on alteration of environment for corrosion prevention. **07**
(b) What are inhibitors? With the help of proper examples, differentiate between organic and anodic inhibitors. **07**
- OR**
- Q.5** (a) Explain different methods of application of organic coating and point out their relative advantage and limitations. **07**
(b) Discuss oxidation kinetics of high temperature corrosion of different metals. **07**
